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Copyright Royalty Board

[Docket No. 16–CRB–0009–CD (2014–17)]

Distribution of Cable Royalty Funds

AGENCY: Copyright Royalty Board (CRB), Library of Congress.

ACTION: Final allocation determination.

SUMMARY: The Copyright Royalty Judges announce the allocation of shares of cable royalty funds for the years 2014, 2015, 2016, and 2017 among six claimant groups.

DATES: This determination is effective June 28, 2024.

ADDRESSES: The final determination is posted in eCRB at *https://app.crb.gov/*. For access to the docket to read the final determination and submitted background documents, go to eCRB and search for docket number 16–CRB–0009–CD (2014–17).

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SUPPLEMENTARY INFORMATION:

Final Determination of Royalty Allocation

The purpose of this proceeding is to determine the allocation of shares of the 2014–2017 cable royalty funds among six claimant groups: the Joint Sports Claimants, Commercial Television Claimants, Public Television Claimants, Canadian Claimants Group, Settling Devotional Claimants, and Program Suppliers.[1] The parties have agreed to settlements regarding the shares to be allocated to the Music Claimants and National Public Radio (NPR). Joint Notice of Settlement Regarding 2014–2017 Royalty Claims of Music Claimants . . . at 1–2 (June 29, 2022); Joint Notice of Settlement and Motion for Final Distribution Regarding Royalty Claims of National Public Radio at 1 (Jan. 7, 2022).

Between 2016 and 2022, the Judges ordered partial distributions of the 2014–2017 cable funds to the ''Phase I'' participants (including Music Claimants and NPR) according to allocation percentages agreed upon by the participants. Order Granting Motion for Partial Distribution (May 22, 2019); Order Granting Motion for Partial Distribution, Docket No. 16–CRB–0009 CD (2014) (Aug. 15, 2016); Order Granting Motion for Partial Distribution, Docket No. 16–CRB–0020 CD (2015) (June 6, 2017); Order Granting Motion for Partial Distribution, Docket No. 17–CRB–0017 CD (2016) (Jul. 30, 2018).

In 2022, the Judges ordered the final distribution of the settled shares from the remaining funds to Music Claimants and National Public Radio. Order Granting Motion for Final Distribution to National Public Radio (Feb. 14, 2022), Order 23 Granting 2014–15 Cable Final Distribution to Music Claimants . . . (Dec. 7, 2022).

When the Judges ultimately order the final distribution of the remaining 2014–17 cable royalty funds, they will direct the Licensing Division of the Copyright Office to adjust distributions to each participant to account for partial distributions and to apply the allocation percentages determined herein.

Based on the record in this proceeding, the Judges make the following allocation of deposited royalties.

TABLE 1—ROYALTY ALLOCATIONS

	2014	2015	2016	2017
Basic Fund:				
CCG	6.19	14.59	14.60	15.77
CTV	20.55	19.78	17.36	17.50
JSC	36.13	11.42	10.72	12.36
Program Suppliers	21.21	28.29	25.53	23.29
PTV	11.07	19.18	24.78	25.25
SDC	4.85	6.74	7.01	5.83
3.75% Fund:				
CCG	6.96	18.05	19.41	21.10
CTV	23.11	24.48	23.08	23.41
JSC	40.63	14.13	14.25	16.53
Program Suppliers	23.85	35.00	33.94	31.16
SDC	5.45	8.34	9.32	7.80
Syndex Fund:				
Program Suppliers	100	100	100	100

PTV and JSC filed timely requests for rehearing on September 21, 2023 (Rehearing Requests). The Judges issued their ruling on the Rehearing Requests on March 21, 2024 (Order on Rehearing), denying rehearing on any basis asserted by JSC in its Rehearing Request and granting rehearing on a basis asserted by PTV in its Rehearing Request to correct arithmetic errors. This Final Determination includes the corrections contained in the Initial Determination of Royalty Allocation (Corrected and Redacted) filed on March 29, 2024, which addressed technical and clerical errors.[2] This Final Determination also includes the corrections set forth in the March 29,

[1] The program categories at issue are as follows: ''Canadian Claimants.'' All programs broadcast on Canadian television stations, except: (1) live telecasts of Major League Baseball, National Hockey League, and U.S. college team sports, and (2) programs owned by U.S. copyright owners; ''Commercial Television Claimants.'' Programs produced by or for a U.S. commercial television station and broadcast only by that station during the calendar year in question, except those listed in subpart (3) of the Program Suppliers category; ''Devotional Claimants.'' Syndicated programs of a primarily religious theme, but not limited to programs produced by or for religious institutions; ''Joint Sports Claimants.'' Live telecasts of professional and college team sports broadcast by U.S. and Canadian television stations, except programs in the Canadian Claimants category; ''Program Suppliers.'' Syndicated series, specials, and movies, except those included in the Devotional Claimants category. Syndicated series and specials are defined as including (1) programs licensed to and broadcast by at least one U.S. commercial television station during the calendar year in question, (2) programs produced by or for a broadcast station that are broadcast by two or more U.S. television stations during the calendar year in question, and (3) programs produced by or for a U.S. commercial television station that are comprised predominantly of syndicated elements, such as music videos, cartoons, ''PM Magazine,'' and locally-hosted movies; ''Public Television Claimants.'' All programs broadcast on U.S. noncommercial educational television stations. Order Lifting Stay and Adopting Claimant Categories (Apr. 5, 2021). The categories are mutually exclusive and, in aggregate, comprehensive.

[2] *See* Initial Determination of Royalty Allocation (Corrected and Redacted) at 1.

2024 Order on Rehearing, which is included herein, as ''Addendum A'', to be published in the **Federal Register**.[3]

I. Background

A. Legal Context

In 1976, Congress granted cable television operators a statutory license to enable them to clear the copyrights to over-the-air television and radio broadcast programming which they retransmit to their subscribers. The license requires cable operators to submit semi-annual royalty payments, along with accompanying statements of account, to the Copyright Office for subsequent distribution to copyright owners of the broadcast programming that those cable operators retransmit. *See* 17 U.S.C. 111(d)(1). To determine how the collected royalties are to be distributed among the copyright owners filing claims for them, the Copyright Royalty Judges (Judges) conduct a proceeding in accordance with chapter 8 of the Copyright Act. This determination is the culmination of one of those proceedings.[4] Proceedings for determining the distribution of the cable license royalties historically were conducted in two phases. In Phase I, the royalties were divided among programming categories. The claimants to the royalties have previously organized themselves into eight categories of programming retransmitted by cable systems: movies and syndicated television programming; sports programming; commercial broadcast programming; religious broadcast programming; noncommercial television broadcast programming; Canadian broadcast programming; noncommercial radio broadcast programming; and music contained on all broadcast programming. In Phase II, the royalties allotted to each category at Phase I were subdivided among the various copyright holders within that category.[5] In the most recent proceeding, regarding cable royalties for the 2010–2013 period, the Judges broke with past practice by combining Phase I and Phase II into a single proceeding in which the functions of allocating funds between program categories and distributing funds among claimants within those categories proceeded in parallel.[6] This determination addresses the Allocation Phase for royalties collected from cable operators for the years 2014, 2015, 2016 and 2017.

The statutory cable license places cable systems into three classes based upon the fees they receive from their subscribers for the retransmission of over-the-air broadcast signals. Small- and medium-sized systems pay a flat fee. *See* 17 U.S.C. 111(d)(1). Large cable systems (''Form 3'' systems)[7]—whose royalty payments comprise the lion's share of the royalties distributed in this proceeding—pay a percentage of the gross receipts they receive from their subscribers for each distant over-the-air broadcast station signal they retransmit.[8] The amount of royalties that a cable system must pay for each broadcast station signal it retransmits depends upon how the carriage of that signal would have been regulated by the Federal Communications Commission (''FCC'') in 1976, the year in which the current Copyright Act was enacted.

The royalty scheme for large cable systems employs a statutory device known as the distant signal equivalent (DSE), which is defined at 17 U.S.C. 111(f)(5). The cable systems, other than those paying the minimum fee, pay royalties based upon the number of DSEs they retransmit. The greater the number of DSEs a cable system retransmits the larger its total royalty payment. The cable system pays these royalties to the Copyright Office. These fees comprise the ''Basic Fund.'' *See* 17 U.S.C. 111(d)(1)(B). In addition to the Basic Fund, large cable systems also may be required to pay royalties into one of two other funds that the Copyright Office maintains: the Syndex Fund and the 3.75% Fund.

As noted above, the utilization of the cable license is linked with how the FCC regulated the cable industry in 1976.[9] FCC rules at the time restricted the number of distant broadcast signals a cable system was permitted to carry (''the distant signal carriage rules''). *National Cable Television Assoc., Inc.* v. *Copyright Royalty Tribunal,* 724 F.2d 176, 180 (D.C. Cir. 1983). FCC rules also allowed local broadcasters and copyright holders to require cable systems to delete (or blackout) syndicated programming from imported signals if the local station had purchased exclusive rights to the programming (''syndicated exclusivity'' or ''syndex'' rules). *Id.* at 187. In 1980, the FCC repealed both sets of rules. *Id.* at 181.

The Copyright Royalty Tribunal (CRT) initiated a cable rate adjustment proceeding to compensate copyright owners for royalties lost as a result of the FCC's repeal of the rules. Final rule, *Adjustment of the Royalty Rate for Cable Systems; Federal Communications Commission's Deregulation of the Cable Industry,* Docket No. CRT 81–2, 47 FR 52146 (Nov. 19, 1982). The CRT adopted two new rates applicable to large cable systems making section 111 royalty payments. The first, to compensate for repeal of the distant signal carriage rules, was a 3.75% surcharge of a large

[3] *See* Order on Rehearing at 83 n.63 (''To the extent that corrections set forth in this Order might be construed to reach beyond those identified in the Motions for rehearing or the rehearing authority in 17 U.S.C. 803(c)(2), the Judges also make such corrections under their authority to correct technical or clerical errors in 17 U.S.C. 803(c)(4). For this reason, the Judges set forth the analysis herein also as a written addendum to the Initial Determination, which is distributed to the participants of the proceeding via this Order and will be published as part of the Final Determination, pursuant to 17 U.S.C. 803(c)(4).'')

[4] Prior to enactment of the Copyright Royalty and Distribution Reform Act of 2004, which established the Judges program, royalty allocation determinations under the section 111 license were made by two other bodies. The first was the Copyright Royalty Tribunal, which made distributions beginning with the 1978 royalty year, the first year in which cable royalties were collected under the 1976 Copyright Act. Congress abolished the Tribunal in 1993 and replaced it with the Copyright Arbitration Royalty Panel (''CARP'') system. Under this regime, the Librarian of Congress appointed a CARP, consisting of three arbitrators, which recommended to the Librarian how the royalties should be allocated. Final distribution authority, however, rested with the Librarian. The CARP system ended in 2004. *See* Copyright Royalty Distribution and Reform Act of 2004, Public Law 108–419, 118 Stat. 2341 (Nov. 30, 2004).

[5] The Judges last adjudicated an allocation (Phase I) determination for royalty years 2010 to 2013. *See* Final Allocation Determination, *Distribution of the 2010 to 2013 Cable Royalty Funds,* 84 FR 3552 (Feb. 12, 2019) (2010–13 Determination).

[6] Second Reissued Order Granting in Part Allocation Phase Parties' Motion to Dismiss Multigroup Claimants and Denying Multigroup Claimants' Motion for Sanctions Against Allocation Phase Parties, Docket No. 14–CRB–0010–CD (2010–13) (Apr. 25, 2018). The Judges discontinued use of the terms Phase I and Phase II and use the terms Allocation Phase and Distribution Phase instead. *Id.* n.4. This determination addresses the Allocation Phase of the proceeding.

[7] ''Form 3'' cable systems, so named because they account to the Copyright Office for retransmissions and royalties on ''Form 3.'' The Form 3 filing is required because they have semiannual gross receipts in excess of $527,600. These systems must submit an SA3 Long Form to the US Copyright Office. They are the only systems required to identify which of the stations they carry are distant signals. Royalty payments from Form 3 systems accounted for over 90% of the total royalties that cable systems paid during 2014–2017. Expert Report of Christopher J. Bennett, Ph.D., Amended Corrected, Trial Ex. 7203, ¶ 11 n.2 (Bennett ACWDT).

[8] The cable license is premised on the Congressional judgment that large cable systems should only pay royalties for the distant broadcast station signals that they retransmit to their subscribers and not for the local broadcast station signals they provide. However, cable systems that carry only local stations are still required to submit a statement of account and pay a basic minimum fee. *See* Distribution Order, *Distribution of the 2000–2003 Cable Royalty Funds,* 75 FR 26798 n.2 (May 12, 2010) (2000–03 Distribution Order).

[9] FCC regulation of the cable industry was impacted by passage of the 1976 Copyright Act that created the compulsory license for cable retransmissions codified in section 111. *See* Report and Order, Docket Nos. 20988 & 21284, 79 F.C.C. 663 (1980), *aff'd sub nom. Malrite T.V.* v. *FCC,* 652 F.2d 1140, 1146 (2d Cir. 1981).

cable system's gross receipts for each distant signal the carriage of which would not have been permitted under the FCC's distant signal carriage rules. Royalties paid at the 3.75% rate—sometimes referred to by the cable industry as the ''penalty fee''—are accounted for by the Copyright Office in the ''3.75% Fund,'' which is separate from royalties kept in the Basic Fund. *See id.; see also* 17 U.S.C. 111(d); 37 CFR part 387.The second rate the CRT adopted, to compensate for the FCC's repeal of its syndicated exclusivity rules, is known as the ''syndex surcharge.'' Large cable operators were required to pay this additional fee for carrying signals that were or would have been subject to the FCC's syndex rules. Syndex Fund fees are accounted for separately from royalties paid into the Basic Fund.[10]

Royalties in the three funds—Basic, 3.75%, and Syndex—are the royalties to be distributed to copyright owners of non-network broadcast programming in a section 111 cable license distribution proceeding. *See* 37 CFR part 387.[11]

Cable system operators are required to file Statements of Account with the Copyright Office detailing subscription revenues and specific television signals they retransmit distantly, and to deposit section 111 royalties calculated according to the reported figures. Testimony of Gregory S. Crawford, Ph.D., Corrected (2010–2013), Trial Ex. 7031, ¶ 74 & n.37 (''Crawford 2010–2013 CWDT'').

[10] In 1989, in response to changes in the cable television industry and passage of the Satellite Home Viewer Act of 1988, the FCC reinstated syndicated exclusivity rules. The reinstated rules differed from the original syndex rules, giving rise to a petition to the CRT for adjustment or elimination of the syndex surcharge. *See* Final Rule, *Adjustment of the Syndicated Exclusivity Surcharge,* Docket No. 89–5–CRA, 55 FR 33604 (Aug. 16, 1990). The CRT held that ''the syndicated exclusivity surcharge paid by Form 3 cable systems in the top 100 television markets is eliminated, except for those instances when a cable system is importing a distant commercial VHF station which places a predicted Grade B contour, as defined by FCC rules, over the cable system, and the station is not ''significantly viewed'' or otherwise exempt from the syndicated exclusivity rules in effect as of June 24, 1981. In such cases, the syndicated exclusivity surcharge shall continue to be paid at the same level as before.'' (*Id. See* Final Rule, *Cable Television Services; Program Exclusivity in the Cable and Broadcast Industry,* 54 FR 12913 (Mar. 29, 1989), *aff'd sub nom. United Video, Inc.* v. *FCC,* 890 F.2d 1173 (D.C. Cir. 1989); 47 CFR 73.658(m)(2) (1989); 47 CFR 76.156 (1989). The present proceeding deals only with allocation of those royalties among copyright owners in the various program categories.)

[11] The CRB last adjusted cable Basic, 3.75%, and Syndex rates in 2021, for the period January 1, 2020, through December 31, 2024. *See* Final Determination, *Adjustment of Cable Statutory License Royalty Rates,* Docket No. 20–CRB–0008–CA (2020–2024), 86 FR 72845 (Dec. 23, 2021). This adjustment was pursuant to a negotiated agreement.

B. Posture of the Current Proceeding

In February 2019, the Copyright Royalty Board (CRB) published notice in the **Federal Register** announcing commencement of proceedings and seeking Petitions to Participate to determine distribution of 2014, 2015, 2016, and 2017 royalties under the cable and satellite licenses.[12]

On March 20, 2019, the Judges issued a Notice of Participants and Order for Preliminary Action to Address Categories of Claims. On April 5, 2021, they issued an Order . . . Adopting Claimant Categories in which they identified eight categories of claimants for the proceeding: (1) Canadian Claimants, (2) Commercial Television Claimants; (3) Devotional Claimants, (4) Joint Sports Claimants, (5) Music Claimants, (6) National Public Radio, (7) Program Suppliers, and (8) Public Television Claimants. National Public Radio and Music Claimants reached settlements with the other claimant groups and received respective final distributions. Order Granting Motion for Final Distribution to National Public Radio (Feb. 14, 2022), Order 23 Granting 2014–15 Cable Final Distribution to Music Claimants . . . (Dec. 7, 2022).

With the settlement of the Music Claimants' share, only the Program Suppliers claimant group has an interest in the royalties in the Syndex Fund. Program Suppliers' Post Hearing Brief ¶ 81 (PS PHB). Public TV Claimants claim a share only of the Basic Fund. Public Television's Post-Hearing Brief at 83 (PTV PHB).

The hearing in the present proceeding commenced on March 20, 2023, and concluded on April 20, 2023. During that period, the Judges heard live testimony from 33 witnesses and admitted written and designated testimony from a number of additional witnesses. The Judges admitted into the record more than 400 exhibits. Many motions related to the hearing were filed and ruled on. Participants made closing arguments on June 12, 2023, after which time the Judges closed the record.

[12] Notice . . ., *Distribution of Cable Royalty Funds,* Docket No. 16–CRB–0009–CD (2014–17), 84 FR 2930 (Feb. 8, 2019); Notice . . ., *Distribution of Satellite Royalty Funds,* Docket No. 16–CRB–0010–SD (2014–17), 84 FR 2931 (Feb. 8, 2019). The CRB received Petitions to Participate from Broadcast Music, Inc. (''BMI''), the American Society of Composers, Authors and Publishers (''ASCAP''), and SEASAC Performing Rights (jointly, the ''Music Claimants''); Canadian Claimants Group (''CCG''); Global Music Rights; Public Broadcasting System (''PBS'') on behalf of Public Television Claimants (''PTV''); Settling Devotional Claimants (''SDC''); Joint Sports Claimants (''JSC''); Major League Soccer (''MLS''); Multigroup Claimants; Commercial Television Claimants represented by the National Association of Broadcasters (''CTV''), National Public Radio for NPR Joint Claimants (''NPR''); David Powell; and the Motion Picture Association of America for MPAA-represented Program Suppliers (''Program Suppliers'' or ''PS''). Subsequently, MLS filed a notice that it would not participate separately in the allocation phase, eCRB no. 26935, and Mr. Powell was dismissed as a participant, eCRB. no. 22314. Multigroup Claimants expressed an intention to participate in the allocation phase, eCRB no. 25455, but did not file a written direct statement and did not participate.

C. Allocation Standard

Congress did not establish a statutory standard in section 111 for the Judges (or their predecessors) to apply when allocating royalties among copyright owners or categories of copyright owners. However, through determinations by the Judges and their predecessors (the Copyright Royalty Tribunal, the CARPs, and the Librarian of Congress), the allocation standard has evolved, and the present standard is one of ''relative marketplace value.'' [13] *See* Distribution Order, *Distribution of the 2004 and 2005 Cable Royalty Funds,* 75 FR 57065 (Sept. 17, 2010) (*2*004–05 Distribution Order).

''Relative marketplace values'' in these proceedings have been defined as valuations that ''simulate [relative] market valuations as if no compulsory license existed.'' Final Rule, *Distribution of 1998 and 1999 Cable Royalty Funds,* 69 FR 3608 (Jan. 26, 2004) (1998–99 Librarian Order). Because such a market does not exist (having been supplanted by the regulatory structure), the Judges are required to construct a ''hypothetical market'' that generates the relative values that approximate those that would arise in an unregulated market. 2004–05 Distribution Order at 57065; *see also Program Suppliers* v. *Librarian of Congress,* 409 F.3d 395, 401–02 (D.C. Cir. 2001) (''[I]t makes perfect sense to compensate copyright owners by awarding them what they would have gotten relative to other owners . . . .'').[14]

II. Introduction To Regression Section

Four parties have proposed that the Judges utilize regression analysis to estimate the relative marketplace value of each party's programs distantly retransmitted by CSOs during the four-year period 2014–2017. Each party relies on testimony from economic

[13] In this proceeding, the Judges distinguish between ''*relative* values'' (to describe the allocation shares), and *absolute* ''fair market values.'' Because the royalties at issue in this proceeding are regulated and not derived from any actual market transactions, they do not correspond with absolute dollar royalties that would be generated in a market and thus would not reflect absolute ''fair market value.''

[14] The Judges discuss the relative marketplace value standard in more detail, *infra,* as applied to the facts of this proceeding.

experts to support its position. CCG relies on the testimony of Dr. Lisa George. CTV relies on the testimony of Dr. Leslie Marx and the supportive testimony of Dr. Cristopher Bennett. Program Suppliers rely on the testimony of Dr. Cleve Tyler and the supportive testimony of Dr. Gray. Finally, PTV relies on the testimony of Dr. John Johnson.

Two parties oppose all of the regression approaches on which each of the above parties relies. The SDC, through the testimony of economists Drs. Erkan Erdem and Daniel Rubinfeld, oppose the regression approach for many of the same reasons it (unsuccessfully) opposed the regressions proffered in the 2010–13 allocation proceeding, which was the most recent section 111 allocation proceeding. However, the SDC has also presented arguments that are differentiated from those it made in that prior proceeding. JSC, although it relied in part on a regression approach in the prior proceeding, opposes the regression approaches through the testimony of two economists, Dr. W. Robert Majure and Dr. John Asker, and a statistician, Mr. R. Garrison Harvey.

Dr. Marx, identified above as an expert who relies on the regression approach, does so only for the 2014 royalty year. For the 2015–2017 period, she opposes the use of the regression approach, based on industry changes that she maintains (consistent with a criticism from the other opposing experts listed above) diminished the quality of the available economic data necessary to conduct an appropriate regression.

The models of each of the four experts who proffered regression analyses are discussed individually below, together with the rebuttals levied by the opposing experts. However, in order to understand and contextualize the regression-related evidence, it is helpful to address several overarching issues that color the Judges' analysis and conclusions. Accordingly, before jumping into the specific regression models, the Judges first (1) consider in greater detail their allocation standard of ''relative marketplace value'', (2) address the changing impact of the ''minimum fee'' in the 2014–2017 period, (3) evaluate assertions of inappropriate econometric practice (''specification searching'') that may compromise the regression approaches, and (4) analyze questions regarding whether certain types of PTV programs are properly included within the regression analyses.

After clearing this analytical underbrush, the Judges proceed to a discussion of the sequential presentation of the parties' regression models, followed by the Judges' ''Analysis and Conclusions'' regarding those models. Finally, the Judges consider several additional important issues arising from the regressions that relate specifically to (1) the CCG claims for Canadian programming issues and (2) the 3.75% Fund.

III. The Data Relied On By The Parties

All of the parties' experts who relied on data detailing royalty reporting and programming information essentially utilized the same data sources and processed the data in basically the same manner. Specifically, the parties engaged in the following steps:

1. Establish a method to link the CSOs distant *signal* carriage to the *programs* carried on each signal, by merging CSO and distant signal carriage data to television programming and scheduling data (as detailed below).

2. Obtain a dataset on *distant signal carriage* from Cable Data Corporation (CDC), that covers each semiannual accounting period from 2014–1 through 2017–2 for the larger ''Form 3'' cable systems.[15] CDC compiles and digitizes this dataset data directly from the SA3 Statement of Account (SOA) forms that Form 3 cable systems are required to file semiannually at the Licensing Section of the Copyright Office. (The CDC data is set forth in the Written Direct Testimony of Jonda K. Martin.)

3. Obtain through these SOAs, for each CSO, information about its (a) ownership, rates, gross receipts, total number of subscribers, and communities served, and (b) the identity of every broadcast television station carried and a calculation of royalties owed for the transmission of distant signals under section 111.

4. Obtain station, program, and scheduling data from Red Bee Media (formerly FYI Television, Inc.) to merge with the foregoing carriage and royalty data. (Red Bee Media is an international broadcasting and media services company that publishes television airing data, using programming data that it sources directly from stations in the form of interactive program guides.)

5. Examine the Red Bee Media's database of U.S. and Canadian broadcast and cable channels carried by U.S. CSOs, together with network data and detailed program and scheduling data for the period January 1, 2014, through December 31, 2017, to identify, per station, (a) program titles, (b) program type/category, (c) originating station, and (d) date and time of program airing.

6. Obtain Canadian television program log data from the Canadian Radio-Television and Telecommunications Commission (CRTC), which regulates and supervises broadcasting and telecommunications within Canada.

7. Develop and apply an algorithm, using the aforementioned data, that assigns program airings to their correct categories.

8. Review and confirm the results and make any modifications that are appropriate.

Amended Corrected Written Direct Testimony of Christopher Bennett, Ph.D., Trial Ex. 7203, ¶¶ 10–27 (Bennett ACWDT) (describing the CTV data process); Corrected Written Direct Testimony of R. Garrison Harvey, Trial Ex. 7105, tech. app., pt. A (Harvey CWDT) (describing the JSC data process); Written Direct Testimony of John H. Johnson, IV, Trial Ex. 7300, ¶¶ 46–51 & app. G (Johnson WDT) (describing the PTV data process); Written Direct Testimony of Lisa M. George, Ph.D., Trial Ex. 7403, at 47–50 & app. B (George WDT) (describing the CCG data process, also supplemented with U.S. Census income information); Amended Corrected Written Direct Testimony of Jeffrey S. Gray, Trial Ex. 7605, ¶¶ 16–18; 32–34, & 39 n.23 (describing the Program Suppliers' data process).

Given the voluminous nature of the data relating to programming and minutes, the data-related processes suffered from several hiccups during assembly and analysis for the several experts. The record reflects that most of the data-based problems were resolved before the experts filed their direct testimonies, and there were some data-related amendments and corrections set forth in subsequent testimonies. To the extent any of the data problems were unresolved, material, and need to be addressed in order for the Judges to properly allocate shares, those data problems are discussed in this determination.

IV. The Role of Regression Analysis In The Statutory Context

Section 111 sets forth no standard for the Judges (or their predecessors) to apply in allocating royalties arising from the payments made by CSOs. This was no mere oversight. The legislative history makes it clear that Congress

[15] ''Form 3'' systems are cable systems with semiannual gross receipts in excess of $527,600 that are required to submit an SA3 Long Form to the US Copyright Office. They are the only systems required to identify which of the stations they carry are distant signals, and they account for over 90% of the total royalties paid by all cable systems during 2014–2017.

intentionally omitted a standard to guide the Judges:

> [T]he bill does not include specific provisions to guide . . . determining the appropriate division among competing copyright owners of the royalty fees collected from cable systems under section 111 [because] it would not be appropriate to specify particular, limiting standards for distribution. Rather, the Committee believes that the [adjudicator] should consider all pertinent data and considerations presented by the claimants.

House Report No. 94–1476, Notes of Committee on the Judiciary. This standardless delegation has led the parties, as well as the Judges and their predecessors, to invoke an evolving set of five broad factors, that have waxed and waned, to consider when allocating royalties among program category claimants. As the Judges recounted in a prior proceeding:

> [T]he standards for determining distribution awards have changed dramatically since the inception of the license. In the first Phase I [allocation] proceeding, the Copyright Royalty Tribunal identified three primary factors to guide its determinations: (1) The *harm to copyright owners* caused by distant signal retransmissions; (2) the *benefit derived by cable systems* from those retransmissions; and (3) the *marketplace value* of the copyrighted works retransmitted. 45 FR 63026, 63035 (September 23, 1980). The Tribunal also identified two secondary factors: (1) The *quality of the retransmitted material;* and (2) *time-related considerations. Id.* By the time of the last fully litigated Tribunal determination, the Tribunal dropped its consideration of the two secondary factors. 57 FR 15286 (April 27, 1992). The first CARP to undertake a Phase I distribution, the 1990–92 proceeding, discarded the ''harm'' criterion in its consideration . . . . That action was upheld by the Librarian of Congress and, subsequently, the Court of Appeals. *Nat'l Ass'n of Broadcasters* v. *Librarian of Congress,* 146 F.3d 907 (D.C. Cir. 1998). The 1998–99 CARP refined the approach further still, noting that ''*every party* to this proceeding appears to accept 'relative marketplace value' as the *sole relevant criterion* that should be applied by the Panel.'' CARP Report at 10 (emphasis in original). As a consequence, the CARP announced that its ''primary objective is to 'simulate [relative] market valuation' as if no compulsory license existed.'' *Id.* The Librarian upheld this conclusion as well, and the Court of Appeals once again affirmed. *Program Suppliers* v. *Librarian of Congress,* 409 F.3d 395 (D.C. Cir. 2005).

Distribution Order, *Distribution of the 2000–2003 Cable Royalty Funds,* 75 FR 26798, 26801–02 (May 12, 2010) (2000–03 Distribution Order).[16]

The D.C. Circuit Court of Appeals has recognized that ''the process that Congress ordained'' has placed the Judges and their predecessors in a context where ''mathematical exactitude . . . appears well-nigh impossible [and] *rough justice* in dividing up the royalty pie seems to be . . . inevitable.'' *Nat'l Ass'n of Broadcasters* v. *Copyright Royalty Tribunal,* 772 F.2d 922, 926 (D.C. Cir.1985) (emphasis added) (''*NAB*''). Moreover, despite the shifts in the administrative standard for allocating royalties, the D.C. Circuit has continued to note this practical concern. *See, e.g., Settling Devotional Claimants* v. *Copyright Royalty Board,* 797 F.3d 1106, 1121 (D.C. Cir. 2015).

It is in the context of this ''rough balancing of hotly competing claims,'' *NAB* at 940, that the Judges find it appropriate to rely (in part) on regression approaches in this proceeding. The counter-argument that the regressions do not generate a proxy for price that meets the exactitudes of econometric theorizing may be correct, but it appears to be a precise answer to the wrong question, namely, what is the price that would obtain in a marketplace ill-defined in the record in this proceeding?

The Judges have experience in considering market proxies when exercising their companion jurisdiction of setting royalty rates for certain forms of music and sound recording distributions. In those proceedings, the parties proffer, and the Judges consider, benchmark evidence from analogous markets, market-based evidence from the regulated market itself, economic models, economic experiments, and survey evidence—all in an attempt to identify applicable market factors. Often, more than one of these approaches are proffered in the same proceeding, and the Judges consider whether to apply more than one model in rendering a determination. Here, the parties have provided evidence from the regulated market itself, in the form of regression analyses, and survey evidence, in the form of the Bortz Survey.

Focusing here on the criticism of the regression evidence generated from the regulated market itself,[17] the Judges consider the emphasis of the regression opponents upon the exactitude of the price proxies, and find that fixation to be dubious. As the Judges have explained, also in their rate determinations, intellectual property goods (whether retransmitted television stations or streams of musical works or sound recordings) are often licensed at various royalty rates because the nature of these goods invites price discrimination. *See, e.g.,* Final rule and order, *Determination of Royalty Rates and Terms for Making and Distributing Phonorecords (Phonorecords III),* 84 FR 1918, 1980 (Feb. 5, 2019) (dissent, Strickler, J.) (for intellectual property goods there ''exist many alternative rate structures with varying rates for various segments of the market . . . forms of 'price discrimination,' which, in the broadest sense, means simply a departure from a single, per-unit price.''). Thus, the very idea of a single econometrically correct price for the royalties at issue in this proceeding is fanciful, particularly in the absence of any evidence of such prices or even a methodology to establish price.

Additionally, in line with the D.C. Circuit's acknowledgment that these allocation proceedings may afford the Judges only the ability to dispense ''rough justice,'' the Judges note an economic corollary: It is better to be ''roughly correct'' than ''precisely wrong.''[18] Similarly, in matters of *econometrics,* Professor Kennedy, cited *infra* by parties on both sides of the regression divide in this proceeding, has cautioned econometricians against making what he calls ''Type III errors[,] . . . when a researcher produces the right answer to the wrong question.'' Peter Kennedy, *A Guide to Econometrics* 391 (5th ed. 2003). Indeed, Professor Kennedy, then echoing the quote attributed to Keynes, advises that in econometric practice ''a corollary of this rule is that an appropriate answer to the right question is worth a great deal more than a precise answer to the wrong question.'' *Id.*

In this proceeding, counsel for the SDC, a party vigorously advancing the price-based criticism of the regressions, argues that application of any regression analyses would indeed be ''rough'' but acknowledges that, as for ''justice,'' only the Judges could say. 6/12/23 Tr. 6007–08 (closing argument). Counsel is essentially correct on both points. First, the use of regression analyses is not precise, but rather ''rough,'' at least compared to the exactitude of a full-

[16] ''Fee-generation,'' discussed elsewhere in this determination, is a method proffered to identify relative marketplace value. *Id.* at 26804 (the ''fee generation approach should be accorded deference, not as *the* methodology to determine *the* relative marketplace value but as *a* methodology to determine that value.''). Other approaches proffered more recently have been advanced in order to apply the present standard, ''relative marketplace value.'' *See* 2010–13 Determination at 3556 (identifying [r]egression analyses, CSO survey results, viewership measurements, a changed circumstances analysis, and a cable content analysis'' as approaches to estimate relative marketplace value).

[17] The Judges focus on the Bortz Survey *infra.*

[18] Attributed to John Maynard Keynes. *See, e.g.,https://graciousquotes.com/john-maynard-keynes/* (last accessed August 28, 2023).

fledged hedonic regression or a discrete choice approach noted by SDC's economic witnesses as possible alternatives (but not proffered as alternative models). And further, Congress most clearly left to the Judges the decision as to the standard to be applied and the methods by which the standards could be effectuated.[19]

V. Minimum Fee Issue

A. CCG Position on the Minimum Fee Issue

CCG argues that ''[it] is incorrect to claim that regressions are not useful . . . because of the minimum fee structure,'' or because of ''the presence of more minimum fee or 'excess capacity' systems'' in the 2015–2017 period compared to the prior four years. Proposed Findings of Fact and Conclusions of Law of the Canadian Claimants Group (CCG PFF) at 72–73. In support of this argument, CCG asserts that the regressions proffered in this proceeding do not require accurate measures when the royalty fees ''*actually paid*'' are the minimum fees, even though they may be ''poor proxies for price.'' CCG PFF ¶ 197 (and record citations therein) (emphasis added). Rather, CCG maintains that the regression coefficients—which are calculated using unpaid subscriber-group base fees—nonetheless provide useful information regarding the correlation between ''carriage decisions and royalty payments.'' CCG PFF ¶ 197 (and record citations therein). In further support, CCG cites to a statement by the Judges in the prior proceeding, citing Final Allocation Determination, *Distribution of Cable Royalty Funds,* Docket No. CONSOLIDATED 14–CRB–0010–CD (2010–2013), 84 FR 3552, 3555–56 n.17 (Feb. 12, 2019) (2010–13 Determination).[20]

CCG acknowledges though that reliance in these regressions on minimum-fee-paying CSOs generates ''measurement error,'' but claims that this is not a concern, because it is ''an ordinary part of regression . . . reduc[ing] precision but . . . not bias[ing] claimant shares.'' CCG PFF ¶ 198 (citing 4/18/23 Tr. 5125–26 (George)). In fact, CCG maintains that the data pertaining to CSOs that pay only the minimum fee reveals that, for them, the value of the distant signal is essentially zero—information that could not have been ascertained from data in an unregulated market.[21] CCG ¶ 199 (citing 4/18/23 Tr. 5139–41 (George); Written Rebuttal Testimony of Lisa George, Trial Ex. 7404, at 15–16, 47 (George WRT)).

Focusing on the dramatic increase in the number of minimum-fee-only CSOs, CCG dichotomizes this cohort. With regard to CSOs that ''do not carry distant signals'' at all, CCG reasons that their voluntarily refusal to retransmit means that they cannot be used to determine the value of distant signals in a regression.[22] CCG PFF ¶ 201 (citing George WRT at 15; 4/18/23 Tr. 5141 (George). And, with regard to the CSOs that do carry *some* distant signals, but still have ''excess capacity'' and thus also pay only the minimum fee, CCG maintains that ''these are the same ones that would determine value absent the compulsory license.'' CCG PFF ¶ 201 (citing George WRT at 15; 4/18/23 Tr. 5141 (George)).

B. Program Suppliers Position on the Minimum Fee Issue

According to Program Suppliers, notwithstanding the increase in the number of minimum-fee-only CSOs, regression remains the most useful technique for estimating relative marketplace value. Program Suppliers' Proposed Findings of Fact and Conclusions of Law (PS PFF) at 78. They note that, despite this increase, still ''20% of CSOs who carry distant signals have a calculated royalty fee which is approximately the size of the minimum fee.'' This ''cluster of CSOs at the threshold . . . provides evidence that . . . certain CSOs that paid the minimum fee nevertheless engaged in economic decision-making with regard to distantly retransmitted signals carried.'' Amended and Corrected Written Direct Testimony of Cleve B. Tyler, Ph.D., Trial Ex. 7600, ¶¶ 151–52 (Tyler ACWDT). Further elucidating this point, Program Suppliers rely on additional oral testimony by Dr. Tyler, explaining that his regression model ''is based in part on the . . . likely uncertainty, at the time that carriage decisions are made, as to whether the minimum fee or the calculated rate [*i.e.,* the base rate] would bind . . . increas[ing] the economic content within the decision-making process, even where the minimum fee *ultimately* binds.'' PS PFF ¶ 323 (citing 4/19/23 Tr. at 5521–22 (Tyler)) (emphasis added).[23] Further in this regard, Program Suppliers aver that even CSOs with *zero distant signal carriage* derive ''option value'' from the section 111 license, because they are always permitted (''privileged'' in the language of section 111) to engage in such retransmission. Tyler ACWDT ¶ 102. According to Dr. Tyler, the base fee calculation would tacitly reflect this option value. *Id.*

In any event, Dr. Tyler rejects as ''too extreme'' the alternative of ''[d]ropping most of the observations'' by excluding the minimum-fee-only CSOs, because that would implicitly incorporate the assumption that ''there is essentially no value associated with any of the minutes for the systems paying the minimum fee.'' 4/19/23 Tr. 5474 (Tyler). In support of this point, Program Suppliers note that ''[n]o expert in this proceeding took the approach of dropping minimum fee systems from the analysis.'' PS PFF ¶ 327 (and record citations therein).[24] [25]

Despite Program Suppliers' assertion that there is economic evidence from the carriage decisions of minimum-fee-only CSOs, they acknowledge that there is also merit to considering a version of the model that includes *only* CSOs paying above the minimum fee. Tyler

[19] SDC's counsel's argument was in line with the D.C. Circuit's understanding that the Judges must by necessity engage in ''rough justice'' in these allocation proceedings, but he protested that any rough variant of justice that relied on one or more of these regressions would not constitute ''rough *economic* justice.'' *Id.* (emphasis added). The Judges disagree, as do their predecessors who have relied on these models, and as do the economists/econometricians who have proffered regression-based models in this and prior proceedings. In this regard, the Judges were struck by a warning given by SDC's counsel that, if the Judges ''adopt[ed] the Tyler [M]odel on a theory of ''rough economic justice'' *without* discarding the ''relative market value'' standard, [they] would inhibit the parties' ability to present top-shelf economists . . . '' SDC PHB at 64 (emphasis in original). The Judges agree with Program Suppliers' counsel who rightly took umbrage at the ''not-so-subtle condescending posture of this remark . . . '' Program Suppliers PHRB at 41. The expert witnesses certainly do disagree among each other, but the experience and education of the economists/econometricians who have proffered their regression approaches belie the *ad hominem* argument by SDC's counsel.

[20] In fact, footnote 17 cited by CCG does not address this minimum fee issue.

[21] The minimum fee is a fixed (sunk) cost. A CSO that pays only the minimum fee has a marginal royalty cost to retransmit a signal equal to zero. Thus, a minimum-fee-paying CSO's decision not to retransmit any signal indicates that the net value of retransmittal is zero for that CSO (and may even be negative given transmission and/or opportunity costs).

[22] CCG maintains that these non-transmitting CSOs also cannot be utilized in the Bortz Survey.

[23] In a following colloquy with Judge Strickler, Dr. Tyler acknowledged that, by contrast, where the base fees calculated by CSOs were well below the minimum fee ultimately paid, their base fees provided ''less economic content.'' 4/19/23 Tr. 5525 (Tyler).

[24] This argument is misleading. As described *infra,* the SDC, JSC, and CTV, through their experts, all relied on the large number of minimum-fee-only CSOs as a basis to throw out the regressions *entirely* for the 2015–2017 period (and the SDC and JSC also reject the minimum-fee-only data for 2014 as part and parcel of their wholesale rejection of the regression approach).

[25] Program Suppliers also note that the Bortz Survey likewise considers the stated preferences of survey respondents whose systems pay only the minimum fee. PS PFF ¶ 328.

ACWDT ¶¶ 155–156. According to Dr. Tyler, this restricted data set presents with the ''highest degree of confidence'' the CSO tradeoffs between different stations and categories of minutes. Tyler ACWDT ¶ 155. To this end, Dr. Tyler undertook a ''sensitivity'' analysis that considered only CSOs paying more than the minimum fee, and determined the following estimated shares (and standard errors):

FIGURE 6.3

Model Including Only CSOs Paying More than the Minimum Royalty

Year	Program Suppliers	JSC	CTV	PTV	SDC	CCG
2014	29.1% (4.7%)	32.4% (9.2%)	11.3% (2.6%)	14.3% (1.9%)	5.1% (1.2%)	7.6% (1.1%)
2015	41.0% (2.4%)	2.1% (1.5%)	11.3% (2.2%)	12.7% (0.8%)	9.7% (1.2%)	23.2% (0.9%)
2016	31.3% (3.0%)	1.3% (1.9%)	13.3% (3.4%)	14.7% (0.8%)	8.3% (1.0%)	31.1% (1.4%)
2017	33.0% (2.2%)	0.5% (1.0%)	9.9% (2.0%)	14.2% (0.8%)	7.8% (1.0%)	34.6% (2.1%)
	Adjusted R2:	83.8%				

Tyler ACWDT fig.6.3.

According to Dr. Tyler, these shares are sufficiently close to the shares he proposes through his analysis of all CSOs, *i.e.,* including those only paying the minimum fee. *Compare* Tyler ACWDT fig.3.2, *with* Tyler ACWDT fig.6.3. According to Dr. Tyler, this ''sensitivity'' comparison of his recommended share allocation and the allocation generated by above-minimum-fee-only CSOs reveals that his ''modeling approach . . . is reasonably robust and . . . sufficiently reliable for informing allocation of the 2014–2017 Cable Royalties among the Allocation Phase claimant categories.'' Tyler ACWDT ¶ 105.

C. PTV Position on the Minimum Fee Issue

PTV, like CCG, finds economic significance in the choices of a CSO ''to retransmit a distant signal to particular subscriber groups'' despite the fact that the CSO pays the minimum fee, relying in part on Dr. Marx's testimony that those choices reveal only *ordinal* preferences as to distant programming types. Public Television's Proposed Findings of Fact and Conclusions of Law (PTV PFF) ¶ 58 (citing, *inter alia,* 4/11/23 Tr. 4165 (Marx)). Thus, PTV finds it appropriate to rely on what it describes as the ''ample variation in the decision-making of CSOs that pay the minimum fee . . . to . . . inform[ ] . . . relative marketplace value. . . .'' PTV PFF ¶ 59.

As an alternative basis for finding relevance in the decision-making of CSOs that paid only the minimum fee after the WGNA conversion, PTV finds relevance in the fact that many CSOs had distantly carried certain PTV signals pre-conversion *together with* WGNA, paying above the minimum fee, and *continued* to transmit that companion signal post-conversion, when only the minimum fee applied. According to PTV, this continuity of PTV carriage is record evidence of the value of the PTV carriage during the minimum-fee-only periods. PTV PFF ¶ 60; Johnson WRT ¶ 78 (''The WGN conversion in 2015 does not mean the value of KAET–DT [Public Television signal] declined or disappeared altogether.''); *see generally* Johnson WRT ¶ 79 (As in the KAET example, ''there were 1,115 CSO-Public Television distant signal combinations in the 2015–2017 period where the CSO paid a minimum fee during those years [and] [f]or *55 percent* of these combinations, the same CSO also carried the same Public Television distant signal, at a different point in time, when it paid section 111 royalties greater than the minimum fee.''(emphasis added)).

As another alternative, Dr. Johnson, on behalf of PTV, and like Dr. Tyler, undertook a ''sensitivity test'' that excluded the minimum-fee-paying CSOs. According to PTV, the results of this sensitivity test were sufficiently consonant with the coefficients in Dr. Johnson's preferred ''baseline'' fee-based regression, which included the minimum-fee-only CSOs, to suggest that decisions made by CSOs that paid minimum fees are informative as to the question of relative value. PTV PFF ¶ 84 (and record citations therein); *compare* Johnson WDT fig.11 (baseline model coefficient, *with* Johnson WDT fig.14 (''sensitivity test'' coefficients excluding minimum-fee-paying CSOs). This consonance was important, according to Dr. Johnson, because it justified his use of the ''baseline'' model, which, because it included the minimum-fee-paying CSOs, relied on 18,666 observations, and therefore was more precise than his ''sensitivity test'' approach. Johnson WDT ¶ 84.

From yet another economic perspective, PTV maintain that for minimum-fee-paying CSOs making some retransmissions, the value of the retransmitted programming must have some marginal value, in excess of ''opportunity costs'' regarding alternative uses of bandwidth including streaming alternatives. PTV PFF ¶¶ 62–63. Taken together, PTV asserts that the foregoing facts support the inclusion of the base-fee decisions of minimum-fee-paying CSOs. PTV PFF ¶ 97.

D. CTV Position on the Minimum Fee Issue

CTV presents a nuanced argument regarding the relevancy of minimum-fee-only CSOs, consistent with the opinions of their economic expert, Dr. Leslie Marx. On the one hand, CTV and Dr. Marx maintain that the retransmission decisions of minimum-fee-only CSOs were *not* so numerous as to preclude the use of base fee data from minimum-fee-only CSOs in a regression for the years 2010–2013 (addressed in the prior determination) and for 2014 (the earliest year addressed in the present proceeding). 4/11/23 Tr. 4157 (Marx) (testifying that ''the mere presence of royalties from excess capacity CSOs'' does not make the fee-based regressions invalid'' because ''it's a matter of degree . . . .''). On the other hand, CTV and Dr. Marx maintain that the retransmission decisions of the minimum-fee-only CSOs *were so pervasive* during the years 2015–2017 as to preclude the use of fee-based regressions for those three years. *Id.* at 4157–58. *See generally* Commercial Television's Proposed Findings of Fact and Conclusions of Law (CTV PFF) at 38 (describing CTV's and Dr, Marx's approach as measured, because it ''utilize[ed] a fee-based regression only for 2014, [which was] the sole year at issue in this proceeding without significant marketplace changes.'') [26]

CTV continues its argument on this point by pointing out that when a CSO elects to carry a set of distant signals resulting in a payment higher than the minimum fee, that indicates the CSO sufficiently values the programming minutes bundled into the carriage to make it willing to pay marginal royalty payments above the minimum fee. Written Rebuttal Testimony of Leslie M. Marx, Ph.D., Trial Ex. 7208, ¶ 21 (Marx WRT). Alternatively stated, for these CSOs which CTV accurately describes as ''above-capacity'', *i.e.,* retransmitting more than 1.0 DSE and thereby paying above the minimum fee, the base fee royalties reported by their subscriber groups are their actual royalty payments, revealing the CSO's perceived value of the distantly retransmitted stations and their constituent programs. Written Rebuttal Testimony of Christopher Bennett, Ph.D., Trial Ex. 7035, ¶ 15 (Bennett WRT); CTV PFF ¶ 158.

To contrast from the ''above-capacity'' CSOs, CTV and its experts examine the carriage decisions of CSOs that had carried WGNA in 2014, either solely or with other signals, but could not, and thus did not, carry WGNA after 2014. CTV asserts that because the WGNA conversion generated the explosion of minimum-fee-only CSOs, the majority of the royalties and CSOs do not reflect incremental costs associated with incremental carriage. CTV PFF ¶¶ 177, 186. This change is reflected in a series of figures presented by Dr. Marx. First, she demonstrates the *share of royalty payments* by CSOs carrying distant signals relative to the minimum fee, across the relevant years:

Figure 2: Shares of royalty payments, by the extent of royalties relative to the minimum fee

Bucket		2014-1	2014-2	2015-1	2015-2	2016-1	2016-2	2017-1	2017-2
Royalties paid by CSOs carrying distant signals ($ millions)		$106.9	$108.5	$85.1	$80.2	$72.7	$71.6	$73.0	$73.4
> the minimum fee		59%	57%	24%	12%	7%	7%	7%	7%
= minimum fee		23%	24%	18%	14%	2%	3%	3%	3%
< minimum fee		18%	19%	58%	74%	91%	91%	91%	90%
% of minimum fee	75%-99%	34%	38%	4%	4%	3%	5%	5%	4%
	50%-75%	10%	8%	9%	6%	4%	4%	5%	4%
	25%-50%	19%	19%	16%	20%	20%	21%	20%	25%
	< 25%	38%	35%	71%	70%	73%	71%	70%	67%

Note: For each accounting period (2014-1 – 2017-2), the SOA reports the imputed royalties for a given subscriber group of a CSO. The sum across the CSO's subscriber groups is the imputed royalties of the CSO. For each CSO, I calculate the minimum fee as 1.064% of the CSO's gross receipts. I categorize CSOs as (1) "minimum fee" CSOs if they paid [99%, 101%] of the calculated minimum fee, (2) "above the minimum fee" CSOs if they paid more than 101% of the calculated minimum fee, and (3) "excess-capacity" CSOs if their imputed royalties are less than 99% of the calculated minimum fee. Excess-capacity CSOs are further categorized into those whose imputed royalties are [75%, 99%), [50%, 75%), [25%, 50%), and less than 25% of the calculated minimum fee. The share of royalties in each category is the share of royalties associated with CSOs in each category in that accounting period. Source: CDC data

[26] This nuanced position is not an inconsistent *economic* argument. Rather, it is an argument regarding data differentiation and the concomitant *weighing of evidence.* CTV and Dr. Marx assert that, as a matter of ''degree,'' too high a percentage of the number of CSOs paying only the minimum fee (and/or too high a percentage of all royalties paid by minimum-fee-only CSOs) will render the incorporation of the retransmission decisions of those CSOs (and/or the royalties they paid) fatal to a fee-based regression. However, they assert that when those minimum-fee-only CSOs and their royalties are only approximately half of the CSOs and royalties paid, as in the 2010–2013 period, and when they principally apply to CSOs with only one subscriber group (and thus are excluded anyway from the Crawford-style regression), their inclusion is too small to preclude use of a fee-based regression. *See generally* CTV PFF at 20 *et seq.* (''The lack of informative data renders any fee-based regression inappropriate and unreliable for 2015, 2016 and 2017.'').

Next, Dr. Marx identifies the percentage of all CSOs carrying distant signals that are paying the minimum fee over the relevant years:

Figure 3: Categorization of CSOs, by the extent of royalties relative to the minimum fee

Bucket		2014-1	2014-2	2015-1	2015-2	2016-1	2016-2	2017-1	2017-2
Count of CSOs carrying distant signals		826	819	674	585	525	515	516	508
> the minimum fee		48%	47%	30%	21%	19%	19%	20%	19%
= minimum fee		35%	36%	25%	16%	6%	7%	6%	8%
< minimum fee		17%	17%	45%	63%	74%	74%	74%	73%
% of minimum fee	75%-99%	17%	22%	10%	11%	11%	14%	14%	11%
	50%-75%	18%	13%	12%	11%	9%	12%	13%	13%
	25%-50%	21%	22%	23%	23%	26%	24%	23%	23%
	< 25%	43%	42%	55%	55%	54%	51%	49%	53%

Note: For each accounting period (2014-1 – 2017-2), the SOA reports the imputed royalties for a given subscriber group of a CSO. The sum across the CSO's subscriber groups is the imputed royalties of the CSO. For each CSO, I calculate the minimum fee as 1.064% of the CSO's gross receipts. I categorize CSOs as (1) "minimum fee" CSOs if they paid [99%, 101%] of the calculated minimum fee, (2) "above the minimum fee" CSOs if they paid more than 101% of the calculated minimum fee, and (3) "excess-capacity" CSOs if their imputed royalties are less than 99% of the calculated minimum fee. Excess-capacity CSOs are further categorized into those whose imputed royalties are [75%, 99%), [50%, 75%), [25%, 50%), and less than 25% of the calculated minimum fee. The share of royalties in each category is the share of royalties associated with CSOs in each category in that accounting period. Source: CDC data

These data present the contrast between how the actual royalty obligations through 2014 were directly linked to base fees at the subscriber-group level and the actual royalty obligations in the 2015–2017 period where they were instead predominantly a function of the minimum fee. CTV PFF ¶ 167 (citing Bennett WRT fig.5). Likewise, Dr. Marx testified that there was no substantial dissimilarity in the 2010–2014 period between: (1) the overall regression coefficients (not allocation shares) for all CSOs and (2) the regression coefficients for *only* CSOs carrying fewer distant signals than the minimum fee would permit, which Dr. Marx aptly described as ''excess capacity'' CSOs. Marx WRT ¶ 62. This substantially similarity was depicted as follows by Dr. Marx:

Figure 4: Normalized coefficients from Crawford model using 2010-2014 data

Samples	Sports	Program Suppliers	Commercial TV	PTV	Canadian	Devotional
All CSOs	76.2%	4.0%	7.7%	2.9%	7.5%	1.7%
CSOs with no excess capacity	77.2%	3.9%	7.8%	3.0%	7.4%	0.8%
Average absolute difference	0.4%					

Note: Estimated coefficients multiplied by 1,000,000.

Source: Crawford CWDT; CDC data and Red Bee Media data

Moreover, according to Dr. Marx, many of the CSOs with ''excess capacity'' also had less than the two subscriber groups necessary to be observed by the Crawford regression, thus making their ''excess capacity'' status inconsequential to the regression for this independent reason. 4/11/23 Tr. 4157 (Marx).

The scenario for the 2015–2017 period was drastically different, according to Dr. Marx. She also presents coefficients (not allocation shares) for this latter three-year period, and shows how the coefficients for all CSOs differed from those with no excess capacity:

Figure 5: Normalized coefficients from Crawford model using 2015-2017 data

	Sports	Program Suppliers	Commercial TV	PTV	Canadian	Devotional
All CSOs	63.7%	3.3%	9.9%	3.9%	14.7%	4.5%
CSOs with no excess capacity	15.0%	2.2%	17.9%	2.8%	43.4%	18.7%
Average absolute difference	17.0%					

Note: Estimated coefficients multiplied by 1,000,000.

Source: CDC data and Red Bee Media data

Marx WRT fig.5.

With regard to the necessity of at least two subscriber groups within a system during an accounting period (required by Dr. Crawford's system-accounting period fixed effect), Dr. Marx reported that, beginning in 2015, fully 62% of CSOs, accounting for almost 35% of total royalties, did not satisfy this requirement. Amended Corrected Written Direct Testimony of Leslie M. Marx, Ph.D., Trial Ex. 7204, ¶ 58 (Marx ACWDT). By 2017, 93.8% of the royalties were paid via the minimum fee, rather than the base fees. CTV ¶ 189 (citing Marx WRT, fig.14).

Although CTV and Dr. Marx do not consistently characterize the evidentiary weight of the royalty data from ''excess-capacity'' CSOs as wholly uninformative, they unambiguously report Dr. Marx's own opinion that the 2015–2017 minimum fee royalty data is decidedly ''less informative'' than the royalty data from CSOs that transmitted more than 1.0 DSE. Marx WRT ¶ 22.

Further bolstering the point that minimum-fee-only-CSO royalty data dominated the 2015–2017 landscape, CTV points to the following data:

> CSO carriage of fewer distant signals after 2014 sharply increased the percentage number of excess capacity CSOs, from less than 20% of CSOs in 2014 to 73% of CSOs in 2016 onward. Marx WRT ¶ 64.
>
> The percentage of CSOs paying more than the minimum fee decreased from 48% in 2014 to only 19% by the end of 2017 (measured by including CSOs with zero retransmittals).

CTV PFF ¶¶ 209–210 (and record citations therein).

> Based on the foregoing, CTV relies on Dr. Marx's conclusions that:
>
> The changed circumstances in the real-world market have infected the quality of the data and reduced the quantity of the data utilized by the proffered fee-based regressions making those regressions in the 2015 to 2017 timeframe unreliable. 4/11/23 Tr. 4510–12 (Marx).
>
> A regression requires reliable data that fits the underlying assumptions, otherwise the model is putting ''garbage in'' and getting ''garbage out.'' The data no longer represents carriage decisions based off of royalty payments from the CSOs. 4/11/23 Tr. 4147; 4194 (Marx).

CTV PFF ¶¶ 299–300. *See also* Marx WRT ¶ 82 (''[F]or a minimum fee-paying CSO, the inclusion of a distant signal in the channel line-up to a subscriber group . . . reflects the CSO's choice over other alternative signals that also have no incremental cost. This can be informative as to the value of the program minutes on whatever signal the CSO elects to offer.'').

E. JSC Position on the Minimum Fee Issue

Like CTV, JSC contrasts the 2010–2014 period with the years 2015–2017. In the former period, JSC notes, *most* CSOs calculated ''a Base Fee + their 3.75% Fee that equaled or exceeded the Minimum Fee.'' More particularly, JSC specifies that, ''in 2014, 71.8% of all CSOs calculated a Base + 3.75% Fee that met or exceeded their minimum fee obligation, and during the 2010–13 period, 73.0% of all CSOs did so . . . account[ing]for 76.5% of total royalties paid in 2014 and 79.9% of total royalty fees paid during the 2010–13 period.'' Proposed Findings of Fact and Conclusions of Law of the Joint Sports Claimants (JSC PFF) ¶ 17 (citing 3/30/23 Tr. 2578 (Majure); Harvey CWDT ¶ 17 & tbl.3; Corrected Bortz Report, Trial Ex. 7101, at 9 (Bortz Report).

Further, JSC maintains that even if an economic model could produce reliable *ordinal* rankings, which none of the regressions in evidence attempted, it is not possible to make the leap from such rankings to cardinal relative values, *i.e.,* allocation of specific royalty amounts to each of the claimant categories in this proceeding. 3/30/23 Tr. 2512–13 (Asker).

JSC also maintains that the base fee calculations of *any* minimum-fee-only CSO cannot reveal the programming preferences of such CSOs or otherwise be useful in the estimation of relative marketplace value. Specifically, JSC first maintains that ''[a]ny alleged uncertainty about application of the Minimum Fee is speculative.'' Reply Proposed Findings of Fact and Conclusions of Law of the Joint Sports Claimants (JSC RPFF) at 11. Not only does JSC find this uncertainty to be speculative, they further argue that it is ''highly unlikely that most Minimum Fee CSOs would have been uncertain about whether a carriage decision would affect their royalty payment.'' JSC RPFF ¶ 32. In support of this point, JSC notes that, after 2014, among minimum-fee-only CSOs that retransmitted at least one distant signal, approximately 86% calculated a base fee + 3.75% Fee that was 75% or less of the CSO's minimum fee. JSC RPFF ¶ 32. Further to this point, JSC takes note of Dr. Tyler's acknowledgement that ''the further you are away from the minimum fee threshold, the less likely it would be that there would be that risk of exceeding it.'' JSC RPFF ¶ 32.[27]

In further criticism of the usefulness of regressions, particularly for the two-year 2016–2017 period, JSC notes that only 55.2% of [CSOs chose to carry] distant signals. Harvey CWDT ¶ 26. JSC further notes that, out of this 55.2%,

[27] However, JSC also acknowledges that the Bortz Survey, on which it relies, likewise ''decided to adopt Base [Fee] + 3.75% Fee . . . weighting ''[o]nce Bortz realized that many . . . systems were paying the Minimum Fee. . . .'' JSC RPFF ¶ 105.

approximately 74% paid only the minimum fee.

Additionally, JSC notes that during the two-year 2016–2017 period, 14% of all CSOs met or exceeded the minimum fee, accounting for but 6.8% of total royalty payments, which reflected a 91% decrease compared to 2014. Harvey CWDT tbl.11.[28]

With regard to 2015, JSC relies on Mr. Harvey's finding that, after he removes reported WGNA carriage, 72% of CSOs carrying at least one distant signal then paid only the minimum fee. JSC notes that Mr. Harvey found that only 13.4% of CSOs calculated a minimum fee, accounting for 85.2% of total royalty payments for that year. JSC PFF ¶ 46 (citing the Harvey CWDT).[29] Considering these 2015 data from the opposite perspective, JSC cites Mr. Harvey's calculation that only 13.4% of CSOs calculated a base fee + a 3.75% fee in excess of the minimum fee, reflecting only 9.8% of the total royalties paid in that year. JSC PFF ¶ 47 (further the Harvey CWDT).

JSC also relies on another of its expert witnesses, the economist Dr. W. Robert Majure, who explained that, in the 2015–2017 period, most CSOs that formerly carried WGNA under the section 111 license chose not to replace it with an equivalent number of DSEs, and as a result ''made far less use of the section 111 license.'' JSC PFF ¶ 49 (citing Written Direct Testimony of W. Robert Majure, Ph.D., Trial Ex. 7103, ¶ 77 (Majure WDT)).

Based on these data related to the minimum fee, JSC maintains that the fee-based regressions, as they relate to the 2015–2017, period wrongly use base fees (with or without the 3.75% fee) as ''price proxies,'' in that when the minimum fee binds, the marginal royalty cost of carriage is zero. JSC PFF ¶¶ 148–152 (and record citations therein).

In econometric terms, Dr. Asker, on behalf of JSC, measured the alleged errors that Drs. George, Johnson, and Tyler introduced into their regressions by using the incorrect base-fee-related price proxies. These alleged ''measurement errors,'' according to Dr. Asker, were correlated with the variables measuring distant signal content minutes in the entire 2014–2017 period and equal the difference between the improper price proxies y and the zero price implied by the payment of the minimum fee. Written Rebuttal Testimony of John Asker, Ph.D., Trial Ex. 7114, ¶ 79 (Asker WRT).

JSC further notes in this regard that Dr. George herself conceded that the link between base rate royalties and actual CSO demand is ''not super tight,'' and adds the very sort of ''measurement error to the dependent variable'' that Dr. Asker has calculated. JSC PFF ¶ 154 (citing Dr. George's hearing testimony).

Dr. Asker also takes issue with the regression experts' use of the base fee as a price proxy *even for CSOs paying above the minimum fee.* He explains that for a perfectly rational CSO calculating price, the true marginal cost of distantly retransmitting a local station in this context—the difference in cost to the CSO between retransmitting and not retransmitting—is not the base fee, but rather the difference between (1) the total fees that would bind, which may have been the minimum fee, without retransmitting that local station, and (2) the total base fees that would bind (the minimum fee having been exceeded) if that local station was distantly retransmitted. *See* Asker WRT ¶¶ 59–77 (applying the definition of price, stated in ¶ 61, as ''the extra expenditure required to have it, as compared to not having it.'').

Finally, JSC takes note of Dr. Asker's point that it is standard practice among statisticians and econometricians to test the validity of a regression against other available external evidence, as a sort of ''reality filter.'' JSC PFF ¶ 169 (citing Asker WRT ¶ 104); *see also* 3/28/23 Tr. 1910–11 (Harvey) (agreeing with Judge Strickler that ''validity test'' is synonymous with ''reality filter''). Here, JSC points out that the validity of the regressions is refuted by the fact that, during the 2015–2017 period, CSOs did not behave in accordance with the assumption behind the regressions. That is, despite the assumption that the incremental benefits of distant carriage were positive (according to the regression estimates) and the incremental royalty cost was zero, most CSOs elected not to add additional distant signals. Thus, the regressions purportedly were invalid, unrealistic, and self-contradictory (''false within their own premise'' one might say), according to JSC. Written Rebuttal Testimony of W. Robert Majure, Ph.D., Trial Ex. 7104, ¶¶ 15, 47–50 (Majure WRT); 3/30/23 Tr. 2594–95, 2598–99 (Majure).

F. SDC Position on the Minimum Fee Issue

At the outset, when framing the relevant minimum fee issue, the SDC maintain that, ''while it may be true'' that CSOs' *ordinal* decision-making shows their ranked preferences, ''no regression model in this case has been specified for such a theory.'' SDC PFF ¶ 39. Rather, these regressions consider the calculated (but not paid) base fees (and the 3.75% Fee, depending on the regression at issue) of these minimum-fee-only CSOs.

But the SDC maintain that the minimum fee ''confounds any interpretation of a fee-based regression'' premised on the CSOs' ''willingness-to-pay.'' Settling Devotional Claimants' Proposed Findings of Fact and Conclusions of Law (SDC PFF) at 27. In this regard, the SDC point to the testimony of several experts who opine that the minimum fee structure ''largely obviate[s] the purported causal theory based on 'willingness-to-pay,' '' because the minimum-fee-only CSOs ''are required to pay a minimum fee equivalent to a 1.0 DSE . . . whether they are 'willing' or not.'' SDC PFF ¶ 60 (citing Asker WRT ¶¶ 78–86; Marx WRT ¶ 22.). Stating the point in economic terms, the SDC state that ''there is no marginal cost'' incurred by a CSO unless and until ''the minimum fee is exceeded.'' SDC PFF ¶ 60.

The SDC do not limit their criticism of the minimum fee issue to the regressions proffered in this proceeding. They also look back to the 2010–13 proceeding, where ''approximately 50% of the CSOs paid only the Minimum Fee,'' which, the SDC maintain now (as they did in the 2010–13 proceeding), constituted a ''serious problem'' for the Crawford regression upon which the Judges relied in the prior proceeding. SDC PFF ¶ 61.

But the SDC assert that their criticism in the 2010–13 proceeding is even more relevant in the present proceeding, in that this minimum fee problem is ''exacerbated after 2014, [because] the proportion of fees paid by systems paying the Minimum Fee went up from 39.2% to 93.8%.'' SDC PFF ¶ 62 (citing Ex. 7204 at 29, Marx ACWDT ¶ 65). In this environment, the SDC maintain, it is difficult to see how any inferences could be drawn about ''willingness to pay.'' SDC PFF ¶ 62.

[28] More particularly, in the years 2016–2017, only 3.2% of CSOs calculated a base fee + 3.75% Fee that ''met'' (rather than ''exceeded) the minimum fee. JSC PFF ¶ 54 (citing Harvey CWDT tbl.14).

[29] It is hardly clear that Mr. Harvey was justified in removing reported carriage of WGNA in 2015. The record reflects the existence of SOAs filed for 2015 that reported such carriage, and there is uncertainty as to whether those SOAs were erroneous or whether there was residual WGNA carriage as WGNA transitioned from a broadcast channel to a cable station. *But see* Kent Gibbons, *WGN America Converts to Cable in Five Markets,* Broadcasting & Cable (Dec. 14, 2014) (''Tribune Media Co. said its WGN America is debuting on cable television systems in Chicago, Boston, Philadelphia, Seattle and Washington, DC, starting Tuesday, as it begins converting from a superstation to a cable network . . . on Comcast systems [with] more launches and conversions . . . happening on distributors this month and *throughout 2015.*'') (emphasis added).

The SDC then evaluate the attempts by the regression experts to address the minimum fee issue, as summarized below:

—The SDC acknowledge that Dr. Tyler's ''sensitivity test of this issue,'' in which he dropped the minimum-fee-only CSOs, ''might provide some *rough guidance* as to the potential direction and magnitude of bias introduced by the presence of minimum fees.'' SDC PFF ¶ 63 (emphasis added) (citing Tyler ACWDT ¶ 156). But the SDC take note of what they characterize as ''the vast amount of data'' that Dr. Tyler had to discard to apply this sensitivity test, leading the SDC to conclude that Dr. Tyler's attempt to drop all minimum-fee-paying CSOs was ''probably too extreme.'' SDC PFF ¶ 63 (citing 4/19/23 Tr. 5473–74 (Tyler).

—Dr. Johnson's sensitivity test, in which he too applied his model only to systems paying above the minimum fee, resulted in large swings in the JSC coefficients, rendering them statistically insignificant. SDC PFF ¶ 104.

—The SDC acknowledge that Dr. Marx ''makes good points about the confounding effects of minimum fee-paying systems . . . in the 2015–2017 timeframe,'' but find ''her position on the reliability of the model before 2015 . . . too convenient to credit.'' Harkening back to their criticism of the 2010–13 Determination's adoption of the Crawford regression, the SDC maintain that Dr Marx's Bayesian regression for 2014 is deficient with regard to this minimum fee issue because '' 'CSOs paying the minimum fees accounted for a large proportion already before the conversion of WGNA,' '' and any 2014 modeling '' 'should have been specified' '' to address this issue. SDC PFF ¶ 130 (citing Written Rebuttal Testimony of Daniel L. Rubinfeld, Trial Ex. 7505, ¶ 95 (Rubinfeld WRT) (''The fact that Dr. Crawford's model does not hold up when applied to 2014–2017 data in the current proceeding reveals that the regression specification put forth by Dr. Crawford was not robust or informative.'').

G. The Judges' Analysis and Conclusions Regarding the Minimum Fee Issue

The Judges find that the dramatic increase in the number of minimum-fee-only CSOs (*i.e.,* those with no distant retransmittals and those with some distant retransmittals but with ''excess capacity'') renders regression analyses that include those CSOs less reliable and thus can be accorded only very limited economic evidentiary weight. Moreover, the Judges accord significantly more evidentiary weight to regression modeling that focuses only on the CSOs that actually revealed their preferences by willingly paying above the minimum fee, *i.e.,* at the base fee level.

In particular, as discussed *infra,* the Judges rely on the Tyler Model, as Dr. Tyler applied his model to the CSOs paying above the minimum fee. *See* Tyler ACWDT ¶ 156 & fig.6.3 (discussed *infra).* Although there is hardly a consensus as to the adoption of this variant of the Tyler Model, the Judges are struck by the supportive argument of the SDC, set forth below, regarding the Tyler Model as applied to above-minimum-fee-paying CSOs:

> Dr. Tyler, whose rate-based methodology is the most explicitly based on a ''minimum willingness to pay'' theory . . . offers a sensitivity test of this issue. Tyler [ACWDT] ¶ 156. (It is a fairer sensitivity test than Dr. Johnson's similar test, which was selected retrospectively out of hundreds of tests that were tried and is performed in the presence of the distortion of multiple misspecifications). Dr. Tyler's sensitivity test might provide some rough guidance as to the potential direction and magnitude of bias introduced by the presence of minimum fees.

SDC PFF ¶ 156. *See also* 4/19/23 Tr. 5473 (SDC's counsel's statement to Dr. Tyler on cross-examination) (''I do want to point out to your credit that your first sensitivity test tries to address this issue.''). This argument is generally consistent with Dr. Tyler's response to SDC counsel on this point, agreeing that it was important to be ''cognizant'' of this minimum fee issue and that it be ''considered and addressed'' because there is ''reasonable disagreement about how to handle the issue.'' *Id.* at 5473–74.

The Judges do not see the disagreement as necessarily ''reasonable'' regarding whether to rely on the calculated base fee data of all CSOs (including the CSOs paying only the minimum fee) or only those who actually paid their calculated base fees. But, however one couches this disagreement, the Judges find the latter approach appropriate, and that—to borrow the SDC's phrase—the variant of the Tyler Model in Figure 6.3 of the Tyler ACWDT offers the Judges' ''rough guidance'' in the allocation of shares.[30]

With regard to the issue of precision, mathematical or economic, the Judges do not adopt Dr. Asker's analysis, discussed above, that the appropriate method to calculate royalties for above-minimum-fee-paying CSOs should be based on the difference between (1) the actual royalty amount paid when a distant station is added; and (2) the amount that the CSO would have paid pursuant to the minimum fee calculation if it would bind in the absence of transmittal of that station. Although in theory that would appear to be a rational approach, there is no evidence that any CSO actually engages in such an activity. Further, as the Judges note elsewhere in this determination, they credit the designated testimony of Ms. Hamilton, a cable industry expert, who stated that the amount of money at issue regarding section 111 royalties is essentially *de minimis* to the CSOs (although quite significant to the parties in this proceeding), and that the CSOs do not devote much attention to issues regarding distant retransmittals. In this context, and in the absence of any evidence to the contrary, the Judges cannot assume, let alone apply, a pricing rationale that suggests a tunnel-vision sort of hyperrationality, when Ms. Hamilton's testimony suggests a broader rationality, whereby CSOs rationally apply their scarce time and attention to more economically consequential matters.[31]

VI. The Allegations of ''Specification Searching'' [32]

A. Allegations of Concealed Specification Searching by Dr. Crawford Applicable to the Present Proceeding

In their determination in the 2010–13 cable proceeding, the Judges relied predominantly, although not solely, on the fee-based regression model presented by Dr. Crawford, who was then a witness on behalf of CTV. In deciding to rely on Dr. Crawford's regression (the Crawford Model), the Judges credited his testimony denying allegations by the SDC that he had improperly attempted and rejected many alternative regression models. 2010–13 Determination at 3566–3567; *see also* SDC PFF ¶ 68 (and record citations therein).

[30] Evidence that provides ''rough guidance'' is useful evidence in these proceedings. As noted elsewhere in this determination, the D.C. Circuit has acknowledged that the nature of this statutorily-mandated, but statutorily standardless, allocation process can require a measure of ''rough justice,'' in the face of inevitable mathematical imprecision.

[31] This finding is consistent with a broader point made by the economist Ronald Coase, who won the Nobel Prize for his foundational work on transaction costs, regarding an overemphasis on what he coined ''blackboard economics.'' As Dr. Coase explained: ''[When] [t]he policy under consideration is one which is implemented on the blackboard [and] [a]ll the information needed is assumed to be available and the teacher plays all the parts . . . there is no counterpart to the teacher within the real economic system . . . no one who is entrusted with the task that is performed on the blackboard.'' R. Coase, *The Firm, the Market, and the Law* 19 (1990). Substitute ''expert witness'' for ''teacher'' and ''in the testimony'' for ''on the blackboard'' and Dr. Coase's point applies here.

[32] Specification searching (also known as ''data fishing.'') is defined as ''the practice of searching numerous research methodologies—including different models, design components, analytical methods, and hypotheses—and selectively reporting only those that produce significant or otherwise favorable results. H. Bavli, *Credibility in Empirical Legal Analysis,* 87 Brook. L. Rev. 501, 509 (2022).

The SDC maintain that three of the four fee-based regression models presented in this proceeding, PTV's, CCG's, and CTV's, are based upon the Crawford Model. In order to understand the relationship of these three models to the Crawford Model, the SDC argue (and the Judges agree) that it is necessary to understand the characteristics and history of the Crawford Model, comparing what was known at the time of the 2010–13 cable proceeding with what was subsequently uncovered. SDC PFF ¶ 69 (and record citations therein).

To begin its review of the Crawford Model, the SDC point to the basic hypothesis undergirding the approach—attempting to ''relat[e] a measure of royalty fees to numbers of [program] category minutes.'' SDC PFF ¶ 70. The SDC state that, although the Crawford Model ''followed a framework that somewhat resembled . . . the model offered by Dr. Waldfogel [the Waldfogel Model] in the 2004–05 cable proceeding,'' Dr. Crawford actually made ''multiple dramatic departures.'' SDC PFF ¶ 70 (citing 2010–13 Determination at 3557 for a description of Dr. Waldfogel's model). Dr. Crawford departed from the Waldfogel Model, according to the SDC, because after he ''tested Dr. Waldfogel's model as a starting point using 2010–13 data (which he falsely denied doing), the Waldfogel [M]odel yielded implausible results . . . demonstrating, at a minimum, that [the Waldfogel Model] . . . performed poorly on out-of-sample data.'' SDC PFF¶ 70 (and record citations therein). Moreover, the SDC assert that Dr. Crawford undertook, but failed to disclose, his sensitivity testing when he constructed the Crawford Model, which showed that the results of the Waldfogel Model were extremely sensitive to annual changes, suggesting that the Waldfogel Model may have been ''selected to fit the data in 2004–05.'' SDC PFF ¶ 70 (and record citations therein).

Expanding on the foregoing, the SDC imply that specification searching is widespread, noting that ''[a]t least 10 different expert witnesses have presented at least 10 different fee-based regression models in the last five allocation proceedings: Dr. Rosston (CTV, 1998–99 cable), Dr. Waldfogel (CTV, 2004–05 cable), Dr. Crawford (CTV, 2010–13 cable), Dr. Israel (JSC, 2010–13 cable), Dr. George (CCG, 2010–13 cable, 2014–17 cable), Dr. Heeb (CTV, 2010–13 satellite), Dr. Gray (PS, 2010–13 satellite), Dr. Johnson (PTV, 2014–17 cable), Dr. Tyler (PS, 2014–17 cable), and Dr. Marx (CTV, 2014–17 cable). Further, the SDC emphasize that only Dr. George has appeared more than once, and that her models in the 2010–13 proceeding and in this proceeding are ''very different'' from each other. SDC PFF ¶ 73 (and record citations therein).

Dr. Erdem, also, later discovered, based on CTV's compelled production in the 2010–13 *satellite* case, that Dr. Crawford had actually tested many different functional forms before deciding to use the log-linear form. Only then did he perform the appropriate statistical test (the ''Box-Cox'' test), which Dr. Erdem claims ''specifically rejected the log-linear form.'' Dr. Erdem further claims that Dr. Crawford improperly failed to run the test on the independent variables, limiting the test to the dependent variable (the royalty measure). Amended Written Direct Testimony of Erkan Erdem, Ph.D., Trial Ex 7502, ¶¶ 41–42 (Erdem AWDT); *see also* Supplemental Written Rebuttal Testimony of Erkan Erdem (2010–13 satellite proceeding), Trial Ex. 7054, ¶¶ 16–18 & Ex. 3. *See* SDC PFF ¶ 76 (and record citations therein).

According to Dr. Erdem, the failure of Dr. Crawford and CTV, in the 2010–13 cable proceeding to disclose, in Dr. Crawford's direct testimony or in discovery, this testing and the results thereof served to conceal the potential for ''distortion and bias'' in the Crawford Model arising from the use of a ''linear form'' of a control variable for the number of subscribers in the subscriber group during the prior accounting period (the so-called ''lagged subscribers'') as affecting the dependent variable (royalties) expressed not in level (*i.e.,* linear) form, but rather in log form. *See* Erdem AWDT ¶¶ 51, 71; *see also* Asker WRT ¶¶ 98–99; Written Rebuttal Testimony of R. Garrison Harvey, Trial Ex. 7106, ¶¶ 194, 197, 202 & Ex. H (Harvey WRT); *see also* SDC PFF ¶ 77.

The SDC maintain that the foregoing exemplifies the ''poor economic practice'' and econometric ''sin'' of specification searching broadly undertaken by Dr. Crawford. SDC PFF ¶ 87 (citing Kennedy, *supra,* at 367).[33]

Moreover, the SDC assert that Dr. Crawford did not merely commit the ''sin'' of specification searching; he also lied by repeatedly denying his econometric misconduct. Erdem AWDT ¶ 36; Written Rebuttal Testimony of Erkan Erdem, Ph.D., Trial Ex. 7503, ¶ 77 (Erdem WRT). According to the SDC, Dr. Crawford instead ''acknowledged performing only a single alternative analysis,'' and the Judges trusted and relied on his testimony. SDC PFF ¶ 88 (citing 2010–13 Determination at 3568 (finding that Dr. Crawford ''had not run such an alternative regression by generating a regression and then discarding it . . . .'')). In fact, according to the SDC, Dr. Crawford ''had performed and rejected . . . undisclosed alternative models . . . with different combinations of variables, interactions of variables, no fixed effects, different forms of fixed effects, and a wide range of functional forms . . . produc[ing] wide ranges of implied shares, including 0% shares for every . . . category in . . . some models.'' SDC PFF ¶ 88 (and record citations therein).

According to the SDC, a telltale sign that Dr. Crawford had engaged in specification searching was the Crawford Model's inclusion of ''indicator variables that had no function . . . [given] his system-accounting period fixed effects . . . [thereby] suggesting that he had tested the regression with no fixed effects or at other levels of fixed effects . . . . [But] Dr. Crawford repeatedly denied trying a specification without fixed effects or at a different level of fixed effects.'' SDC PFF ¶ 90 (and record citations therein). Moreover, the SDC claim that, in response to a question from Judge Feder, Dr. Crawford lied by claiming he did not test regressions without fixed effects; his test results, later produced in the satellite proceeding, showed that he ''ran most of his hundreds of models *without fixed effects and at different levels of fixed effects, searching for the best results.*'' SDC PFF ¶ 91 (and record citations therein) (emphasis added).

Returning to the issue of whether to transform variables from linear to log form, the SDC claim to have identified ''[p]erhaps the clearest fingerprint'' of Dr. Crawford's specification search. Specifically, although Dr. Crawford had testified that he did not perform a sensitivity test on a log-log form of regression because he ''strongly fe[lt] that including log subscribers is not an appropriate specification as an

[33] A pernicious aspect of covert specification searching is that it masks from the reader (whether Judge, adversary party, journal editor or academic referee) conduct that bears importantly on the regression ultimately produced. The classic example of a simple hidden specification search is the following: ''[Although] the probability of flipping a coin and obtaining heads in ten consecutive flips out of ten tries is almost zero. . . . if 15,000 individuals attempt this, it is virtually certain that one or more will succeed.'' M. Klock, *Finding Random Coincidences while Searching for the Holy Writ of Truth: Specification Searches in Law and Public Policy or Cum Hoc Ergo Propter Hoc,* Wis. L. Rev. 1007, 1010 (2001). An experimenter who ''searches'' for, and reports only, the 1 out of 15,000 times the experiment generates ten consecutive heads, and who conceals the 14,999 times this result did not occur, is misrepresenting his or her work and the usefulness of the result.

explanatory variable'', this ''was a lie'' because the discovery in the satellite proceeding showed that Dr. Crawford did test a log-log form of regression, which resulted in ''an approximately 10-point drop in CTV shares (about an $80 million value).'' SDC PFF ¶ 93 (and record citations therein).

After reviewing the satellite discovery, which included approximately 500 regression model runs, and weighing it against Dr. Crawford's cable testimony, SDC expert Dr. Rubinfeld stated: ''I've never seen anything on this scale . . . .'' 4/6/23 Tr. 3638 (Rubinfeld). The SDC characterize Dr. Crawford's purported specification searching and related alleged untruths as ''[e]vidence of fraud in a past proceeding'' that constitutes ''changed circumstances,'' thus ''requir[ing] a reevaluation of those characteristics of a Crawford-like regression that have infected the regression models *presented in this proceeding.*'' SDC PFF ¶ 96 (emphasis added).

In this regard, the SDC take particular note that Dr. Marx acknowledges that because her Bayesian model relies directly on Dr. Crawford's results her results are unreliable if Dr. Crawford's results are unreliable. SDC PFF ¶ 129 (citing 4/11/23 Tr. 4323–24 (Marx)).

B. CCG Response Regarding Alleged Specification Searching by Dr. Crawford

CCG's ''primary response'' to the SDC's claim is that any specification searching by Dr. Crawford is irrelevant because ''regression has the advantage of transparency and replicability.'' CCG PFF ¶ 217 (and record citations therein). This occurred in the present proceeding, CCG maintains, as the work of various experts presenting testimony in this case showed, that every aspect of a regression such as the Crawford Model could be and was examined and tested. 4/18/23 Tr. 5177–79 (George); George WRT at 53.

Further, CCG maintains it is appropriate for experts in the present proceeding not to ''mov[e] away from an approach that the Judges have found highly useful in determining relative market value'' unless there were ''clear theoretical or empirical reasons'' to do so. CCG PFF ¶ 218 (and record citations therein). CCG analogizes to the ''academic setting,'' in which ''differing views'' among econometricians can be ''addressed through the 'referee' process . . . where the most important criterion for evaluating a proposed alternative model is whether the proposed change undermines the theoretical relationships in some way . . . .'' George WRT at 52.

Applying the foregoing points, Dr. George was unconcerned that Dr. Crawford's procedures appeared to include ''more than one model.'' She analyzed the Crawford Model on its merits, concluding that it ''was tightly linked to the economics of the cable marketplace and estimated to minimize bias.'' It was on this basis, as well as the Judges' endorsement of the model, that Dr. George used the Crawford Model as the basis for her work in this proceeding. 4/18/23 Tr. 5131, 5176 (George); George WDT at 6; Ex. 7404; George WRT at 10–11, 13, 43–44; *see also* CCG PFF ¶ 220.

C. CTV Response Regarding Alleged Specification Searching by Dr. Crawford

When asked whether she believed Dr. Crawford had or had not engaged in improper specification searching, Dr. Marx demurred stating that she was ''not offering that opinion.'' 4/11/23 Tr. 4119 (Marx). When asked specifically about the more detailed arguments made by the SDC witnesses regarding Dr. Crawford's alleged specification searching based on supplemental discovery Dr. Marx sought to make sure her ''no-opinion'' testimony was unambiguous:

> I want to be clear that I didn't reach an opinion about whether or not [Dr.] Crawford had a fair underlying theoretical structure behind the regressions that he ran. I didn't see anything in what I reviewed that raised red flags that that was not the case, but *what I saw was consistent with or at least not inconsistent with proper econometric practice.*

4/11/23 Tr. 4121 (Marx) (emphasis added). *See also* 4/11/23 Tr. 4226 (Marx) (testifying similarly in response to questioning by Judge Strickler); 4/11/23 Tr. 4257 (Marx) (same). On cross-examination, Dr. Marx elaborated while reiterating her ''no opinion'' regarding the characterization of Dr. Crawford's consideration of hundreds of regression alternatives:

> [Dr. Marx]
>
> [I]n my direct testimony . . . I wanted to emphasize that I am not opining that [Dr.] Crawford had an underlying theoretical structure. I'm just saying that what I saw was consistent with that. What I saw was not inconsistent with proper econometric practice, but I'm not offering an opinion about what [Dr.] Crawford was thinking in the process of running these tests. And I'm not trying to speak for [Dr.] Crawford.
>
> [SDC counsel Mr. MacLean]
>
> So you would agree that . . . running hundreds of different models and then selecting models based on preferred or expected results or what you referred to as casting about, that would not be a good research practice . . . ?
>
> [Dr. Marx]
>
> It is not a good research practice to cast about without thinking and without an underlying theoretical structure . . . without the underlying economics being kept in mind. The mere observation of a large number of regressions being run, by itself, in the context of the 2010 to 2013 proceeding, I don't find at all surprising, and seeing that did not raise any concerns in my mind about either the reliability of the work or my ability to use my usual procedure and thinking to assess the reliability of the work.

4/11/23 Tr. 4325–27 (Marx).

However, after being confronted with Dr. Crawford's testimony that he had ''perform[ed] only one alternative analysis, that he hadn't provided'' in discovery, in contrast to what was uncovered in the satellite discovery, Dr. Marx acknowledged that as to Dr. Crawford's oral testimony ''there are statements that were made that seem in retrospect not accurate.'' 4/11/23 Tr. 4332 (Marx). Dr. Marx then nonetheless retreated to one of her stock statements, asserting that ''nothing that I saw raised any concerns in my mind that [Dr.] Crawford's results were not reliable . . . .'' 4/11/23 Tr. 4334 (Marx).

Accordingly, rather than render her own judgment as to the appropriateness of Dr. Crawford's conduct or adjust her application of the Crawford Model in light of these issues, Dr. Marx testified that she reviewed and assessed Dr. Crawford's 2010–13 regression model as she would consider any such model, whether in her role as an economist or as an academic journal referee (which is a function she performs). On this basis, she determined that Dr. Crawford's model was reliable, *i.e.,* regardless of any of the specification searching and dissembling that SDC claimed had been uncovered in the satellite proceeding discovery. Marx WRT ¶¶ 42–54; 4/11/23 Tr. 4112–20, 4325–4327, 4334 (Marx); CTV PFF ¶¶ 366–69; Reply of the Commercial Television Claimants to Proposed Findings of Fact and Conclusions of Law (CTV RPFF) ¶ 169.

A key reason why Dr. Marx declined to express an opinion as to Dr. Crawford's alleged specification searching is the following: What the SDC characterize as Dr. Crawford's wrongful experimentation with alternative model specifications, Dr. Marx maintains it can also be understood as a form of sensitivity analysis—not only a standard activity, but actually a best practice in econometric analysis. Marx WRT ¶ 10; 4/11/23 Tr. 4120–21 (Marx). More broadly, CTV asserts that what Drs. Erdem and Rubinfeld criticize as evidence of the improper practice of specification searches can all be understood as the ''standard practice of economists''—involving ''[r]obustness checks, sensitivity analyses, and

differences across economists in regression specifications.'' CTV PFF ¶ 371 (citing Marx WRT ¶¶ 31–36).

D. PTV Response Regarding Alleged Specification Searching by Dr. Crawford

PTV's expert economic witness, Dr. Johnson, did not address the soundness of Dr. Crawford's 2010–13 regression methodology, which, to repeat, the SDC economic experts characterize as the wrongful undertaking of a specification search.[34] But PTV emphasizes that, although Dr. Johnson acknowledges that his own regression analysis is based on the economic theory and principles underlying Dr. Crawford's regression analysis, Dr. Johnson modified and improved some aspects of Dr. Crawford's regression model. PTV PFF ¶¶ 113, 115 (citing Crawford WDT ¶¶ 32–36, 46.) Thus, PTV argues, even if Dr. Crawford engaged in wrongful specification searching to construct his 2010–13 model, ''it makes no sense for it to adversely affect the reliability of Dr. Johnson's regression specification, which has a different set of variables and has been tested on the 2014–17 data.'' PTV PFF ¶ 143.

E. Allegations of Concealed Specification Searching by Dr. Johnson in This Proceeding

Turning from the work of Dr. Crawford to the work of Dr. Johnson, on behalf of PTV in the present proceeding, the SDC accuse PTV and Dr. Johnson of similar misconduct as they allege was committed by Dr. Crawford in the 2010–13 proceeding. SDC charge that Dr. Johnson concealed numerous regression modeling tests in discovery, limiting production to only a few sensitivity tests. SDC PFF ¶ 105. Despite this modest discovery, based on the documentation that had been produced by PTV, Dr. Erdem saw evidence suggestive of specification searching. 4/5/23 Tr. 3429; 4/6/23 Tr. 3552–55 (Erdem). These suspicions gave rise to the SDC's motion to compel SDC's production of all regression models that Dr. Johnson had considered, and the Judges granted the motion. *See* Order 24 Granting the SDC Motion to Compel PTV to Produce Documents (Jan. 19, 2023).

F. SDC Assertions After Further Discovery

After PTV was compelled by the Judges to provide further discovery, it produced documents revealing that Dr. Johnson's team had selected the four models that he presented out of more than four hundred models. He and his professional subordinates had actually engaged in over 400 runs of regression approaches over several different data sets (resulting in numerous different results in terms of program category coefficients implied allocation shares). Erdem WRT ¶ 82; Supplemental Written Rebuttal Testimony of Erkan Erdem, Trial Ex. 7504, ¶ 3 n.3 (Erdem SWRT); 4/5/23 Tr. 3403 (Erdem); SDC PFF ¶ 106. Further, the SDC cataloged the use by Dr. Johnson and his professional subordinates of 44 different dependent variables (including log transformations) and wide ranges of shares (negative as well as positive) in all claimant categories. Erdem WRT ¶ 82; Supplemental Written Rebuttal Testimony of Daniel L. Rubinfeld, Trial Ex. 7506, ¶ 21, tab 2 (Rubinfeld SWRT).

Dr. Erdem analyzed these tests according to dates and sequence numbers included in the documents produced by PTV and claimed to find that the successive testing by Dr. Johnson and/or his team was correlated with a steady rise in PTV's allocation share. Erdem SWRT Ex. 2.

The SDC dismissed as implausible Dr. Johnson's explanation of this correlation. Specifically, the SDC rejects Dr. Johnson's claims that the correlation was a ''coincidence'' or that it could be explained by incomplete and erroneous data that needed to be corrected or updated. SDC PFF ¶ 109 (citing 3/22/Tr. 737–39 (Johnson)).[35]

In any event, Dr. Erdem testified that if Dr. Johnson and his team were not engaged in specification searching, the allocation results arising from the data updates or corrections should have been more randomly distributed, and, further, that as a matter of regression methodology it was inexplicable that data changes would serve to generate hundreds of regressions with different combinations of specifications. 4/6/23 Tr. 3565–67 (Erdem). Moreover, Dr. Erdem accused Dr. Johnson and his professional subordinates of self-servingly searching not only for the specifications that would increase PTV's allocation share, but also of attempting to search for an optimal combination of a specification set and a dataset for increasing PTV's allocation share. 4/6/23 Tr. 3552–55 (Erdem). As purported proof, Dr. Erdem points to his running of Dr. Johnson's preferred (''baseline'') model, but with Dr. George's dataset, which caused PTV's allocation share to decrease by 8 percentage points, with the share of every other category increasing. Erdem WRT Ex. 8.

In addition to the more technical econometric evidence relied on by the SDC, they also point to physical evidence. Specifically, the SDC relies on notes left by a project manager on this assignment, Ms. Yan, which showed the search criteria that Dr. Johnson's team applied: a search for positive and statistically significant coefficients on all content and a high allocation share for PTV, denoted in a document as ''PBS↑'' (*i.e.,* an ''increase value to shift w/lots of minutes''). Erdem SWRT ¶¶ 8–9 & app. E; SDC PFF ¶ 114. The SDC's other econometric expert, Dr. Rubinfeld, using the essentially synonymous phrase ''p hacking'' to describe the alleged specification searching conduct of Dr. Johnson's professional subordinates, asserts that this behavior ''invalidates'' Dr. Johnson's statistical tests. Rubinfeld SWRT ¶ 23. SDC's counsel characterizes this note from Ms. Yan as the proverbial ''smoking gun.'' SDC PFF ¶ 115.

The SDC further assert that when the hundreds of regression models developed by Dr. Johnson and his team were culled to a sub-group of those with ''positive and statistically significant coefficients for all categories,'' only four had higher share allocations for PTV. Moreover, Dr. Erdem opined that these other four had data and statistical anomalies that would have made them difficult for Dr. Johnson to defend in any event. 4/5/323 Tr. 3424–25 (Erdem). The SDC thus concludes that Dr. Johnson and his team essentially chose the model with the highest PTV share that they thought they could defend. SDC PFF ¶ 116.

The SDC also maintain that there was an intentional separation between Dr. Johnson and other professionals at his consulting firm, Edgeworth Economics (''Edgeworth'') intended to shield Dr. Johnson from regression specifications that would have generated lower shares for PTV—a form of ''plausible deniability.'' In support of this assertion, the SDC point to written communications within Edgeworth indicating that certain documents

[34] Dr. Johnson testified he never received Dr. Crawford's workpapers unearthed in discovery in the 2010–13 satellite proceeding on which the SDC relies for its specification search allegation (despite the production of those documents by the SDC to all counsel, including PTV's counsel, in this proceeding.).

[35] It is important to note here that the SDC is mischaracterizing Dr. Johnson's specific testimony. He clearly did not say the correlation was a mere coincidence or explainable as a data issue. Rather he claimed in his testimony that the increase in PTV shares was coincidental with *and* caused by the inputting of additional and correct data, and that it was the data that generated PTV's higher share. See 3/22/23 Tr. 738 (Johnson) (''*I completely refute . . . that it's a coincidence.* The reason that this happened is . . . tied to specific data issues . . . [and] the data is what it is.'') (emphasis added).

needed to be kept from Dr. Johnson or else PTV would be required to turn them over in discovery. *See, e.g.,* Erdem SWRT ¶ 8 (reproducing notes of Edgeworth employee Eduardo Munoz-Alonso, dated 7/8/2021, distinguishing between material for ''John's report (he'll see) [and] other stuff (John won't)''; Erdem SWRT ¶¶ 8–9 & app. E (5/26/22 note written by Esther Yan, 5/26/2022 stating ''Anything we show John gets turned over. . . .''); and Erdem SWRT ¶ 8 (an email containing a link to CDC distant signals data sent to Dr. Johnson's team includes the caveat: ''. . . these data files are being shared for consulting purposes only and should not be shared with John'').

Looking at the entirety of the record regarding the procedures undertaken by Dr. Johnson and others at Edgeworth, Dr. Rubinfeld, one of the two SDC expert witnesses, opined:

> Dr. Johnson's practices (or the practices of other experts or their staff on behalf of PTV Claimants) are counter to sound empirical research practices. Their analyses involve the misuse of the regression methodology to obtain statistically significant results that deliver coefficient values that generated relatively high shares for PTV Claimants.

Rubinfeld SWRT ¶¶ 28–30.[36]

G. Rebuttals to the SDC's Assertions of Specification Searching

Dr. Johnson maintains that the SDC and other critics of his work (including Dr. Tyler and Mr. Harvey) have misunderstood the nature of the many regression specifications that were generated and run on behalf of PTV. More particularly, he explains in detail that he and his team ran many of the regression specifications for the purpose of testing the data, a process that needed to be repeated to incorporate corrections and updates to the data. 3/21/23 Tr. 416–23, 627–745 (Johnson) (explaining the regression log, the research process, Edgeworth team structure and personnel, timing of data receipts and updates from vendors and scope of discovery productions). *See also* PTV PFF ¶¶ 139, 145.

Dr. Johnson further maintains that assuming arguendo there was any untoward activity in the nature of a specification search, it is essentially a moot point because through discovery (including the discovery PTV at first withheld and later produced only in response to an order compelling production) every regression specification that he and his team ran has now been produced. This production, according to Dr. Johnson, eliminates any concern that the Johnson Model was misspecified, whether intentionally or otherwise. 3/21/23 Tr. 641 (Johnson) (''Again, you actually have everything. . . . I followed . . . what counsel instructed me to do in terms of what I was required to turn over. And when we were required to turn over everything, everything has been turned over that my team ever ran, so we have given you everything.''). *See also* PTV PFF ¶ 146.

Additionally, many of the regression models generated and run by Dr. Johnson and other professionals at Edgeworth Economics (Dr. Johnson is the founder and CEO), according to Dr. Johnson, reflected their efforts to understand the Crawford Model proffered in the 2010–13 proceeding and to determine whether the Crawford Model could be applied to the 2014–17 data. 3/21/23 Tr. 367–68, 370–73 (Johnson). Those purposes, PTV maintain, are inconsistent with a characterization of their work as specification searching. Public Television's Reply Proposed Findings of Fact and Conclusions of Law (PTV RPFF) ¶ 208.

Overall, given the full disclosure of all the work by Dr. Johnson and his fellow professionals at PTV, PTV maintains that this comprehensive body of evidence shows that the Johnson Model generated regression results that are unbiased and best reflect the data available to be input into the Johnson Model. PTV RPFF ¶ 210.

H. The Judges' Analysis and Conclusions

As an initial matter, the Judges reject SDC's argument that Dr. Crawford's deviations from the prior regression models presented by Drs. Joel Waldfogel and Gregory Rosston *ipso facto* demonstrate, or even suggest, that Dr. Crawford engaged in the wrongful process of specification searching. The record reflects no legal, economic or econometric principle that an expert cannot alter, revise, add to or subtract from a prior economic model. Indeed, the history of the Judges' acceptance of fee-based regression models as evidence shows quite the opposite. A brief examination of the evolution the regression methodology, set forth immediately below, makes that clear.

In the allocation (Phase I) proceedings for the 1998–99 royalties, the CARP described the first fee-based regression relies upon in such proceedings:

> Dr. Rosston's regression attempts to analyze the relationship between royalties paid by cable operators for the carriage of distant signals in 1998–1999 and the quantity of programming minutes by programming category on those distant signals. . . . It compares the relative volume of the various Phase I categories of programming contained in the station signals actually purchased by CSOs in 1998 1999 with the total royalties each CSO actually paid for that programming . . . identifying the amount of royalties as the dependent variable . . . .
>
> . . .
>
> Dr. Rosston included more than royalties and programming minutes in the dataset he used for his regression analysis. In order to account for the non-programming factors that may affect the royalties paid by a cable system, Dr. Rosston added the following variables: (1) the number of subscribers to the cable system in the prior period (the so-called ''lagged subscribers'' variable); (2) the number of activated channels for the cable system; (3) the average household income of the market in which the cable system was located; (4) the total number of local channels carried; (5) a variable to account for the payment of 3.75% royalties; and (6) a variable to account for the carriage of partially distant signals.

Report of the Copyright Arbitration Royalty Panel to the Librarian of Congress, in Docket No. 2001–8 CARP CD 98–99 (''1998–99 CARP Report'') at 45–46 (Oct. 21, 2003). The CARP accepted Dr. Rosston's fee-based regression, but only as corroborative of survey results also in evidence. *Id.* at 50. The CARP declined to give more evidentiary weight to the Rosston regression, relative to the Bortz Survey (which the CARP found to be ''extremely robust,'' *id.* at 30).

In the allocation (Phase I) proceeding for the 2004–05 years, the Judges received in evidence the Waldfogel fee-based regression. Dr. George has described in her testimony in this proceeding the key changes made by Dr. Waldfogel to the Rosston regressions:

> (1) estimating the marginal value of additional programming minutes (regression

[36] A JSC expert statistical witness, Mr. Harvey, likewise concluded that Dr. Johnson had engaged in a specification search. However, the JSC did not emphasize this point, maintaining instead that ''it is unnecessary to conclude that Dr. Johnson intentionally searched for a specification favoring PTV in order to find his model untrustworthy [because] the selection of data inputs and specifications'' was improperly undertaken. JSC PFF ¶¶ 195–196 (and record citations therein).

Program Suppliers' expert economic witness, Dr, Tyler, also concluded that the work by Dr. Johnson and/or his team ''provides evidence that, rather than letting the facts of the industry guide the modeling decision, [they] tested many different models, and then sought to justify certain specifications with economic theory.'' PS PFF ¶ 377 (and record citations therein). Further, Program Suppliers maintain that ''[t]he evolution of Dr. Johnson's calculated shares for PTV over time provides evidence that data mining [*i.e.,* specification searching] and/or overfitting occurred.'' *Id.* Further, Program Suppliers find it problematic that, in this context, ''[o]ut of the many regression specifications that Dr. Johnson ran, he selected for his baseline model one in which the PTV share is substantially higher than the median results from the models considered . . . .'' *Id.* at ¶¶ 377–378 (and record citations therein).

coefficients) using pooled data for all years, improving the precision of the estimates;

(2) calculating claimant shares using only compensable programming; and

(3) estimating the regression model with a sample of programming covering three full weeks per accounting period.

George WDT at 24 n.22. *See also* 2004–05 Distribution Order at 57068 (noting that the Waldfogel regression was ''similar'' to the Rosston regression, not identical).

Similarly, in the 2010–13 proceeding, the Judges found that the regression approach on which they relied—the Crawford Model—reflected an improvement over the Waldfogel Model, because, *inter alia,* the Crawford Model: (1) relied on more granular subscriber group data (made available by statutory changes in CSO reporting requirements); and (2) employed ''fixed effects'' to diminish the impact of potentially ''omitted variables.'' 2010–13 Determination at 3569. *See also* George WDT at 24–26 (identifying the improvements made by Dr. Crawford).

This history clearly shows that the Judges have not found that the mere presence of model modifications reveals any inherent defect in fee-based regressions writ large or in any such model in particular. Rather, a modification of a fee-based regression model may properly reflect (1) improvements in the model; (2) improvements in the data; (3) changes in the underlying industry; (4) changes in applicable economic theory; and/or (4) wrongful specification searching. Without further analysis, deviations from prior models is not itself informative.

But the SDC maintain that Dr. Crawford's development of his model was—to say the least—troubling, and not consistent with an attempt simply to improve upon prior regression models or to generate a more relevant model for this proceeding. As noted *supra,* SDC argue essentially that Dr. Crawford engage in the improper process of specification searching, and lied on the witness stand to cover-up that improper conduct. To summarize, SDC contends that Dr. Crawford lied under oath about the following:

—his testing of many different functional forms
—his development and rejection of many undisclosed alternative models
—his inclusion of indicator variables with no apparent function
—his running of hundreds of models without Fixed Effects when he actually ran these models at various levels of Fixed Effects.

See SDC PFF ¶¶ 90–91, 99, 106.

As Chief Judge Shaw noted at the hearing, the Judges are not in a position to find whether Dr. Crawford did or did not engage in improper professional conduct, as alleged by SDC, because he is not appearing as a witness in this proceeding. 3/22/23 Tr. 894–95 (Shaw, C.J.) Thus, the Judges were loath to conduct a ''trial-within-a-trial'' as to Dr. Crawford's work and procedures.

However, that is hardly the end of the matter. SDC has presented compelling evidence of potential specification searching and dissembling by Dr. Crawford. Moreover, SDC provided to the other parties in this proceeding, as voluntary discovery disclosures, Dr. Crawford's internal workpapers, which the Judges had ordered produced in the 2010–13 *satellite* proceeding that followed on the heels of the 2010–13 cable *proceeding*—disclosed only after SDC's Motion to Compel and the Judges' *in camera* review of those documents.

The fee-based regression experts view Dr. Crawford's potential transgressions with less concern. Dr. George, CCG's expert witness, maintains that Dr. Crawford's non-disclosures and untruths, as cataloged and characterized by SDC, are of no consequence, because she, and the other experts, were able to examine the Crawford Model as it was presented, and evaluate it on its merits. George WRT at 53. In essence, this response is in the nature of a ''no harm, no foul'' rationale for disregarding any of Dr. Crawford's alleged improprieties as alleged by SDC. And, in that context, Dr. George examined the Crawford Model and found no cause to reject it as a starting point for her analysis (although she modified the Crawford Model to account for marketplace changes, arising predominantly from the WGNA conversion, that she found to necessitate modeling changes particularly with regard to the use of fixed effects). George WRT at 50–54.

Dr. Marx's carefully repeated testimony is similar, but nuanced, hedged and cast in the form of a double negative: ''[W]hat I saw was consistent with or at least not inconsistent with proper econometric practice.'' 4/11/23 Tr. 4121 (Marx). She does make a more specific defense of Dr. Crawford, offering her opinion that, the ''mere observation of a large number of regressions'' in Dr. Crawford's workpapers is ''not surprising,'' and is what one would expect to see as a ''sensitivity'' analysis, which is a ''best practice'' in regression modeling. Marx WRT ¶ 10. As a final defense of Dr. Crawford's modeling conduct, Dr. Marx analogizes his proffer of expert testimony before the Judges to an academic economist's submission of a proposed article to a professional journal, which would be reviewed by an editor and referees, in a process that is within the ambit of Dr. Marx's professional responsibilities. In that context, Dr. Marx would not require that all the modeling decisions by the econometrician be set forth in the proposed article, 4/11/23 Tr. 4328 (Marx) (''in my work as a professional economist, as a referee, as an editor, I don't expect to see the full list of every regression that was ever run.'') and she notes that she was able to evaluate Dr. Crawford's submission on its own merits, like a proposed article, without all the prior regression runs. *Id.* at 4111–4115.[37]

The Judges find that the other experts in this proceeding—particularly Drs. Johnson, George and Marx—who proffered fee-based regression models—were obligated to adequately address the impact of Dr. Crawford's workpapers, as well as the assertion that they demonstrated he lied in his testimony in the prior proceeding. This obligation existed because, as SDC witness Dr. Rubinfeld testified, in his decades of experience, he has ''never seen anything on this scale'' where ''a researcher selected a model from hundreds that were tried.'' 4/6/23 Tr. 3638 (Rubinfeld). The economists' careful analysis of Dr. Crawford's work is necessary, because—as explained in more detail *infra*—the discovery of his potential concealment and dissembling, which was unearthed in discovery in the satellite proceeding, may have been procedural in origin, but procedural matters can be outcome-determinative, or at least impactful as to the outcome of a legal proceeding.[38] As explained below, *Drs. George, Johnson and Marx all failed in this regard.*

The fundamental problem with the self-exculpations by these experts is that they failed to address an issue that the Judges made explicit in the 2010–13 Determination. Specifically, in response to the SDC's speculation that Dr. Crawford had engaged in specification searching, the Judges agreed that the problem inherent in such improper

[37] The Judges also take note of Dr. Marx's awkward position as to this issue. As SDC notes, she is a partner at Bates White, an economic and econometric consulting firm (in addition to her position as an economics professor at Duke University's Fuqua School of Business). Dr. Crawford likewise is a partner at Bates White (as is another CTV testifying expert in this proceeding and in the 2010–13 proceeding, Dr. Bennett). Further, Dr. Crawford testified in the prior proceeding on behalf of CTV, whereas Dr. Marx is the economic expert now testifying on behalf of the same party, CTV.

[38] Courts have long been concerned with whether what appears facially to be procedural is in actuality outcome-determinative. *See Erie R. Co.* v. *Tompkins,* 304 U.S. 64 (1938). The Judges in the present case expected the same concern from the economic experts in the context of their analysis.

behavior was that it would ''consum[e] . . . 'phantom degrees of freedom,' *i.e.,* 'variables that were tried and rejected—rather than included in the regression model in evidence.' '' 2010–13 Determination at 3566.[39]

In that prior proceeding, the Judges found that the record did not reveal evidence of specification searching (recall that this finding was made prior to the CTV's compelled production of Dr. Crawford's workpapers in the companion satellite proceeding). However, in response to an SDC Motion to Strike Dr. Crawford's testimony, which the Judges denied given the absence of evidence of specification searching, they did reserve the right to reduce the weight they accord to the regression Dr.] Crawford presented. *Id.* n.64. Ultimately though, the Judges declined to reduce the weight they accorded to Dr. Crawford's regression analysis based on the claim of specification searching. *Id.*

Of course, between the two cable proceedings then and now, the satellite proceeding intervened. In Order 24 in the present proceeding, the Judges granted SDC's Motion to Compel another party, *PTV,* to produce document that might reflect specification searching by its expert Dr. Johnson (discussed *infra*). The Judges' discussion of specification searching in Order 24 also bears on the Judges' present consideration of how Dr. Crawford's modeling procedures impacted the models proffered by Drs. George, Johnson and Marx in this proceeding, all of which were based on the Crawford Model. In summary fashion,[40] below is what the Judges stated regarding specification searching in Order 24:

—the particular importance of discovery relating to econometric evidence is underscored by the potential for models to be manufactured in the service of a particular result, where findings are presented with ''*notoriously misleading accounts of how the research itself was conducted.*''
—it is important that econometricians *explain fully their specification search* in order to judge how the results may have been affected.
—econometricians should disclose ''*all the regressions* that were run, not just the good ones . . . basically an 'honesty is the best policy approach.''
—these criticisms of special import here, where the applied econometric work can affect the allocation of significant royalty sums.
—specification searching is a concern here because the ''hired gun'' role of the expert creates an environment in which specification searching can cause ''far-reaching harm.''
—but what can be construed as improper ''specification searching'' can ''in fact constitute good econometric practice'' by using the empirical evidence to rank models and let the data speak for itself;
—adding specifications to the modeling can assist in solving the econometric problem at hand
—suppressing failed specifications and arbitrarily presenting one successful specification is a ''spurious success,'' but it is not *necessarily* dishonest.
—it would be fallacious to prefer not to search but simply to write down a model and to conduct a one-shot test. . . .
—there are search methodologies that support, rather than distort statistical hypothesis tests.
—specification searches are necessary, provided there is a ''full accounting'' of all alternative models, specifications and datasets

Order 24 at 48–51 & n.65. (citations omitted).

In sum, as one authority cited by the Judges concluded: ''*[T]here are good and bad search procedures.*'' Order 24 at 51 (emphasis added).

The foregoing summary makes clear that, on the surface, the methods and practice of an econometrician may look either like improper specification searching or like a proper searching for the appropriate model specifications. In order to determine which characterization is more accurate, further expert analysis is needed.

However, as to this, the parties that relied on the Crawford Model punted. Most startingly, Dr. Johnson testified that he never received the satellite case documents that SDC's counsel produced to PTV's counsel (and to all counsel) or the testimony by Dr. Erdem in the satellite proceeding that was designated as evidence (Ex. 7054) in this proceeding by the SDC. 3/21/23 Tr. 340–41; 611, 616–17 (Johnson).[41]

For her part, Dr. Marx in essence simply restates the difficult nature of the process, testifying that she was unable to distinguish Dr. Crawford's process as either an improper specification search or a useful sensitivity search. But Dr. Marx did not indicate that she examined the documents produced by SDC in any detail approximating the analysis engaged in by Dr. Erdem on behalf of SDC, before figuratively throwing up her hands and declaring the characterization of Dr. Crawford's position as unknowable. Moreover, although Dr. Marx was troubled by Dr. Crawford's apparently false statements under oath, she remained incurious as to whether his troubling testimony was indicative of a covering-up of specification searching.[42]

Moreover, when the specification process has been shrouded, as here, the position taken by Drs. Johnson and George becomes untenable. Their analysis and replication of the Crawford Model is materially incomplete, given that it has credibly been described as allegedly constructed by a specification search that may have generated the ''phantom degrees of freedom'' discussed *supra,* or through a process which is analogous to the equivalent of the spurious coin flip experiment also discussed *supra.* The problem for the regression experts who ignore the evidence of potential specification searching is that they simply cannot appreciate the problems that may have been generated, unless and until they have engaged in a reasonable forensic

[39] As the Judges noted in that prior proceeding:

'Degrees of freedom' are defined ''[i]n multiple regression analysis, [as] the number of observations minus the number of estimated parameters.'' [citation omitted] Accordingly, statisticians understand ''degrees of freedom' to be measures of how much can be learned from a regression, with the quality of knowledge improved by increasing the number of observations, reducing the number of estimated parameters, or by some combination of both that serves to widen the difference between the number of observations and parameters. [citation omitted] . . . [A] 'phantom degree of freedom' can be generated when the modeler reduces the number of parameters by his or her rejection of other models that would have added a greater number of parameters—nothing more has really been learned but the explicit number of degrees of freedom appears larger, as an artifact (a '''phantom') arising from the econometrician's rejection of models containing additional parameters. [citation omitted].

2010–13 Determination at 3566 n.63.

[40] Although the following is a summary, with citations omitted, the Judges adopt in full herein their reasoning in Order 24.

[41] The record does not reflect whether PTV's counsel ever provided copies of these materials to Dr. Johnson.

[42] The SDC also convincingly explained that whatever it was that Dr. Crawford was doing, it did not qualify as a ''sensitivity'' test. Settling Devotional Claimants' Proposed Reply Findings of Fact and Conclusions of Law ¶ 2. The Judges agree. A sensitivity test is ''[t]he process of checking whether the estimated effects and statistical significance of key explanatory variables are sensitive to inclusion of other explanatory variables, functional form, dropping of potential out-lying observations, or different modes of estimating.'' 2010–13 Determination at 3562 n.48 (citation omitted). But the same authority quoted in note 34 situates the ''sensitivity analysis'' as occurring *after* the econometrician has estimated his or her original model, *not during the specification process.* Wooldridge, *Introductory Economics* 687 (3d ed. 2006). To engage in what would otherwise be a sensitivity analysis in order to search a model places the cart before the horse, and may be a telltale sign of ''data mining,'' *i.e.,* specification searching. *See* Wooldridge, *supra,* at 688 (The ''inclination . . . to try different models, different estimation techniques, or perhaps different subsets of data until the results correspond more closely to what was expected [is] data mining[which] violates the assumptions we have made in our econometric analysis.'').

analysis of the work (and workpapers) of the expert who constructed the model at issue.

The failure of Drs. George, Johnson and Marx to thoroughly re-examine the Crawford Model in light of the discovery obtained by SDC in the 2010–13 satellite proceeding has consequences. Although, as noted *supra,* the Judges are not in a position to engage in a ''trial within a trial'' and render findings regarding the Crawford Model in this proceeding (where Dr. Crawford is absent), these three expert witnesses were not similarly constrained. They had a duty to review all materials relevant to their assignments, in a sufficient manner, and the satellite discovery pertaining to Dr. Crawford's work clearly falls within that category of materials. For Dr. Johnson to have not even received that material is inexplicable. For Dr. Marx to acknowledge the problematic nature of Dr. Crawford's apparent dissembling under oath without further analysis of his work is troubling. And for Dr. George to dismiss the assertions of improper specification searching by claiming that she could independently evaluate the Crawford Model is to dismiss the very idea that specification searching may generate hidden problems.

Indeed, among the witnesses proffering regressions, only Dr. Tyler appeared to respond reasonably, relying (in part) on the troubling facts uncovered in the satellite proceeding regarding Dr. Crawford's processes to generate his own model that deviated in important ways from the Crawford Model.

The impact of Dr. Crawford's troubling conduct is that it raises an issue familiar to judges and lawyers in another context—how to handle testimony and evidence that may be characterized as the ''fruit of the poisonous tree.'' Although this evidentiary concept is typically pertinent to the criminal law, it is instructive in other areas, including intellectual property matters:

> The animating principle of the fruit of the poisonous tree doctrine is causation: If you had not violated the law, you wouldn't have found the evidence, and you wouldn't have followed whatever investigative path that was triggered by finding that evidence. The newly discovered evidence-the fruit-is tainted by the poison of the illegal search. Civil law also concerns itself with chains of causation . . . [b]ut it does not typically apply the logic of the fruit of the poisonous tree to chase down every consequence of a wrong.

M. Lemley, *The Fruit of the Poisonous Tree in IP Law,* 103 Iowa L. Rev. 245, 246 (2017). As to the present issue, the ''fruit of the poisonous tree'' logic—if the source of the evidence or evidence itself is tainted, then anything gained from it is tainted as well—has application because it would be inequitable for the Judges to adopt regression evidence built on the Crawford Model, when the witnesses who proffered that evidence inadequately addressed reasonable questions regarding the appropriateness of the methods used to generate the Crawford Model.

If the Crawford Model had been the *first* regression model utilized in these allocation proceedings, the Judges might consider rejecting the models proffered by Drs. George, Johnson and Marx for their failure to address in more and sufficient detail how the factual bases for the allegations of Dr. Crawford's specification searching impacted their models. But, as described *supra,* the Crawford Model itself was built upon, but differentiated from, the prior regressions produced by Drs. Rosston and Waldfogel and relied upon by the Judges. Thus, the regression models of Drs. George, Johnson and Marx are not the product merely of the Crawford Model, but also of those models that preceded it. Moreover, Drs. George and Johnson take pains to explain how their models are different from Dr. Crawford's, particularly in the reduction or elimination, respectively, of fixed effects, in order to generate more observations (as discussed elsewhere in this determination).[43] So, it is clear that these two experts engaged in independent economic analysis separate and apart from what was undertaken by Dr. Crawford.

The consideration of Dr. Marx's full adoption of the Crawford Model, as it pertained to the year 2013, in order for her to generate her Bayesian model for 2014, must be considered separately. Dr. Marx explicitly relies on the Crawford Model, despite her inability to explain or address his apparent prevarications and despite her unwillingness to determine whether his methods constituted specification searching, sensitivity analysis or something else. However, Dr. Marx's qualitative and directional economic (not econometric) testimony regarding the years 2015–2017 are not compromised in this regard.

Accordingly, among the regression approaches proffered in this proceeding, the experts' responses and non-responses to Dr. Crawford's conduct lead the Judges, *ceteris paribus,* to give diminished weight to the Johnson and George Models, and the least weight to the Marx Model for 2014. The Judges do not diminish the weight they shall give to the Tyler Model on this basis, given his deviation from the Crawford Model.

I. The Allegation That Dr. Johnson Engaged in Improper Specification Searching

Unlike the specification searching issue regarding the Crawford Model, there is no valid allegation that Dr. Johnson made any material misrepresentations in his testimony. Although SDC correctly notes that PTV did not provide full discovery of the work by Dr. Johnson and other professionals at Edgeworth until compelled to do so pursuant to SDC's motion and the Judges' Order 24, PTV appears to have withheld production of documents regarding this regression work based on its understanding that the *Federal Rules of Civil Procedure* do not require production of documents which related to regressions that an expert had rejected or had not otherwise seen or upon which he did not rely.[44]

However, the Judges remain troubled, as they so expressed in Order 24, that PTV appeared to allow for the creation of two different ''teams'' within Dr. Johnson's firm—one identified as the ''consulting team,'' and the other as the ''testifying'' team. As noted *supra,* the regression-related documents generated by the ''consulting team'' were not provided to Dr. Johnson. The Judges noted in Order 24 that a ''consulting team'' of experts can be utilized by a party's law firm, to allow for work product confidentiality in connection with the law firm's evaluation of the facts. However, as Order 24 further explained, when the ''consulting team'' is created withing the same firm of economists who are also preparing testimony and actually testifying, there is the risk that work by the ''consulting'' team will be utilized as a screening device for work that should have been undertaken by the ''testifying'' team. Thus, the use of a ''consulting'' team can allow a party to also cloak from discovery expert work by claiming the protection of the work-product rule.

This is essentially what SDC alleges, when it points to evidence, as noted *supra,* that Edgeworth had shielded Dr.

[43] Whether those particular differentiations from the Crawford Model were appropriate is likewise discussed elsewhere in this determination.

[44] In Order 24, the Judges noted that, although they look to the *Federal Rules of Civil Procedure* for guidance, they are bound on this issue by 37 CFR 351.10 (e), regarding the production of documents relating to an expert witness's methodology, and that this rule also applies to the production of documents in discovery pertaining to expert methodology.

Johnson from certain documents. Moreover, the soundness of the ''wall'' between the ''consulting'' team and the ''testifying'' team was questionable, given that the ''consulting'' team was led by Drs. Michael Kheyfets and David Colino, but they also were the senior members of the ''testifying'' team that reported to Dr. Johnson, along with dual team members Dr. Stephanie Cheng and Esther Yan. 3/21/23 Tr. 664–65 (Johnson). Additionally, when PTV first produced documents to SDC, it did not also provide a privilege log describing the Edgeworth documents otherwise withheld because of an assertion of a privilege relating to a consulting team. (After SDC's motion to compel, PTV provided a privilege log, but, after Order 24 issued, PTV produced virtually all of the previously withheld material.) Thus, the Judges find some evidence that PTV attempted to avoid discovery of the work undertaken by the firm it engaged for expert work in this proceeding—the work that has been characterized by SDC as evidence of specification searching.[45] This evidence serves to diminish the Judges' reliance on the Johnson Model that was generated out of this scenario, although the Judges stop well short of any finding that Edgeworth, or any of its professionals, engaged in any misconduct.[46]

Turning to the substance of the documents produced in response to Order 24, the Judges are struck, as was SDC, with the sheer number of regression runs undertaken by Edgeworth. In particular, the Judges agree with SDC that the experimentation with 44 dependent variables is specifically troubling, as it suggests that the model-building was not well-grounded in economic theory.

Also troubling was the fact that, over a prolonged period, successive testing by Dr. Johnson and other Edgeworth Economics professionals was highly correlated with a steady rise in PTV's allocation shares. Although the Judges disagree with SDC's distortion of Dr. Johnson's testimony as to the ''coincidental'' nature of this correlation, as noted *supra,* the Judges do not find any sufficient basis in the record to explain this correlation between sequential regression runs and the growth of PTV's allocation share. Although PTV argues that this correlation subsided as data corrections were completed, PTV presented no sufficient basis to rebut SDC's charge that data changes should not consistently be correlated with the growth of PTV's share allocation, as opposed to a randomized effect on share percentages.[47]

On balance, the Judges find that the regression analyses undertaken on behalf of PTV at least demonstrate an appearance—in the words of SDC's expert, Dr. Rubinfeld—of practices that ran ''counter to sound empirical research practice,'' and that this work may well have been undertaken with an overzealous attempt ''to obtain . . . results that . . . generated relatively high shares for PTV Claimants.'' Rubinfeld SWRT ¶ 28. For this reason—and for other reasons set forth elsewhere in this determination—the Judges give reduced weight to the Johnson Model.

VII. Issues Specific to PTV

A. How should ''must-carry'' PTV stations be analyzed in the regression analyses?

1. PTV's Position on the ''Must-Carry'' Issue

PTV first emphasizes its *legal* argument. They begin by acknowledging that under the Cable Television Consumer Protection and Competition Act of 1992 (the ''Cable Act'') and the regulations of the Federal Communications Commission (''FCC'') (the ''must-carry'' rules), CSOs are *required* to retransmit certain broadcast signals. PTV PFF ¶ 70 (citing 47 U.S.C. 534–35). Nonetheless, PTV maintain that ''the Judges and their predecessors . . . have never found that must-carry requirements *materially* affect the *value* of distant retransmissions of Public Television programming.'' PTV PFF ¶ 71 (emphasis added).

PTV follows this legal point with a *factual* issue, challenging the testimony of JSC's witness, Mr. Harvey, who identifies 15.5 percent of PTV distant signals as having been retransmitted in compliance with these must-carry rules, using criteria that Mr. Harvey believed were ''generally indicative'' of must-carry carriage. PTV PFF ¶ 72. Specifically, Mr. Harvey categorized distantly retransmitted signals as ''must-carry'' if they were:

(1) carried to all subscriber groups within the system,

(2) local to at least one subscriber group within the system, and

(3) were licensed to a community whose reference point was within 50 miles of the location where the CSO received signals for cable distribution (the ''headend'').

PTV PFF ¶ 72 (and record citations therein). A primary assertion by PTV is that, because of the third criterion above, these stations, designated as ''must-carry'' while technically ''distant'' within the meaning of section 111, ''were more likely to reflect the demands and preferences of regional viewers'' and thus contained ''valuable programming.'' PTV PFF ¶ 72 (and record citations therein).

But PTV takes issue with the entirety of Mr. Harvey's approach to designating ''must-carry'' stations. First, PTV points out that ''even . . . expert witnesses whose opinions rely on Mr. Harvey's must-carry analysis'' acknowledge that his analysis ''did not *definitively* identify must-carry signals.'' PTV PFF ¶ 73 (and record citations therein) (emphasis added).

Second, PTV argues that ''Mr. Harvey failed to provide a reason for adopting his first criterion that the must-carry rules should apply to signals carried ''to all subscriber groups within the system.'' PTV PFF ¶ 74 (and record citations therein). PTV maintains that there presumably would be no reason to use that as a criterion unless he thought that the must-carry law *required* carriage ''to all subscriber groups within the system.'' PTV PFF ¶ 74 (and record citations therein). More particularly, PTV understands that a ''cable system,'' as defined in the must-carry rules, ''is a smaller unit than the 'cable system' as defined in section 111.'' PTV PFF ¶ 75 (and record citations therein). Thus, PTV argues that ''carriage of such a signal to all of the subscriber groups in a system *may* be evidence of that cable system's choice to carry that signal more broadly than the must-carry rules require.'' PTV PFF ¶ 75 (and record citations therein). PTV concludes that Mr. Harvey's must-carry analysis ''*likely* results in overstating the [number] of [PTV] signals subject to mandatory carriage, *perhaps* dramatically so.'' PTV PFF ¶ 75 (emphasis added).

PTV further makes what can be characterized as a ''no changed circumstance'' argument. Specifically,

[45] The Judges take particular note of the fact that an email that was withheld from Dr. Johnson as ''consulting'' team material contained ''a link to CDC distant signals [with] the caveat: '. . . these data files are being shared for consulting purposes only and should not be shared with John'.''. Rubinfeld SWRT at 6. It is difficult to fathom why raw data regarding distant signals would be withheld from the testifying expert.

[46] Rather, the Judges perceive from the facts that PTV and its experts took a very aggressive litigation posture, one that SDC successfully challenged, leading to the issuance of Order 24.

[47] The Judges are less concerned with SDC's assertion that proof of PTV's specification searching is supported by evidence that PTV's *goal* was to maximize PTV's share. The Judges are not naïve, and they recognize that experts will work to produce the best results for the party on whose behalf they provide testimony. Rather, the Judges are concerned with whether the evidence suggests that experts may have engaged in any inappropriate or questionable acts in the course of attempting to maximize the return to the party on whose behalf they give testimony.

PTV points out that Mr. Harvey fails to address the fact that mandatory carriage of PTV distant signals has become more expansive since the 2010–2013 proceeding, and that no party argued in that proceeding that the must-carry rules had any material impact on relative market value. Further, PTV avers that ''the fraction of PTV signals that Mr. Harvey identified as . . . must-carry declined substantially over the period from 2014 to 2017,'' suggesting that, even under his analysis, ''the share of PTV distant retransmissions that were subject to must-carry is *less* than in prior proceedings.'' PTV PFF ¶ 76 (and record citations therein).

Additionally, PTV asserts that Mr. Harvey incorrectly implied that PTV's multicast streams [48] are subject to the must-carry rules. PTV PFF ¶ 77 (and record citations therein). To the contrary, PTV avers that ''it is undisputed that the must-carry rules do not *require* CSOs to retransmit those non-primary signals of a PTV broadcast station, and all carriage of Public Television multicast streams was due to the voluntary choice of the cable operators.'' PTV PFF ¶ 77 (and record citations therein).

Beyond its legal and factual arguments, PTV adds an argument based on economic analysis. Taking on a point made by another JSC witness, Dr. Majure, PTV opines that ''there is no basis to *assume* that any distant signal carried pursuant to the must-carry rules provide '$0' of value to the CSO, as Dr. Majure argues.'' PTV PFF ¶ 78 (and record citations therein). More particularly, PTV explains that ''[p]eople are routinely required to purchase things, such as health insurance and seat belts, which they may value highly.'' PTV PFF ¶ 78 (and record citations therein). *See also* PTV PFF ¶ 81 (''Dr. Majure's theory of '$0' value fails [to pass through a] 'reality filter' [by] suggest[ing] that *all local* [PTV] programming has [*zero*] value.'')

Changing tacks, PTV points out that, without dispute, ''many CSOs chose to retransmit [PTV] distant signals when they could have carried another distant signal instead.'' PTV PFF ¶ 79 (and record citations therein) Additionally, PTV compares this CSO decision-making to the CSOs' responses to the Bortz Survey, in which ''[s]everal CSOs that carried the purportedly must-carry [PTV] distant signals attributed significant value to *those* Public Television distant signals in their [survey] responses . . . .'' PTV PFF ¶ 79 (and record citations therein).

PTV further points to various ''sensitivity tests'' undertaken by Drs. Johnson, Bennett and George, all of which ''found that those purportedly must-carry Public Television distant signals do not have relative marketplace value that is statistically significantly different from the relative marketplace value of other Public Television distant signals.'' PTV PFF ¶ 82 (and record citations therein). Thus, PTV takes issue with any implicit assumption ''that any distant signal carried pursuant to the must-carry rules are, on average, less valuable to the CSOs.'' PTV PFF ¶ 82.

But PTV also acknowledges the presence of an indemnification provision in the must-carry statute, whereby Congress exempted from mandatory carriage any noncommercial educational signals that qualify as distant signals, ''unless [the noncommercial educational broadcast station] indemnifies the cable operator for any increased copyright costs resulting from carriage of such signal.'' PTV PFF ¶ 84 (quoting 47 U.S.C. 535(i)(2)). Thus, a CSO ''was eligible for indemnification only if and to the extent that its section 111 royalty fee increased due to the carriage of a distant signal that was subject to must-carry; and the station then had the choice of declining indemnification, in which case the [CSO] was released from any must-carry obligation.'' PTV PFF ¶ 84. Nonetheless, PTV criticizes any party seeking to exclude must-carry stations from the regressions based on this statutory provision, *which cancels out any royalty payment,* because PTV argues (echoing its criticism of Mr. Harvey's analysis), that no party has ''reliably identified any distant signals that are subject to mandatory carriage . . . for which the retransmitting cable operator received indemnification.'' PTV PFF ¶ 85 (and record citations therein).

PTV also makes a more general argument that would apply to PTV ''must-carry'' stations, even assuming they had no value. Specifically, PTV maintains that ''[a] fee-based regression model is designed to estimate the *average* relative value of programming in a bundle, such that bundling of programming of different values does not bias the regression estimates of relative marketplace value.'' PTV PFF ¶ 91.

2. The Other Parties' Positions Regarding PTV ''Must-Carry'' Signals

As a matter of *legal* interpretation, JSC argues that it would not be reasonable to remove from the hypothetical market any statutory provisions that apply to the distant signal market, other than the section 111 license. JSC PFF ¶ 2 (and record citations therein). Applying this approach, JSC notes that, as a matter of statutory law, the Must Carry statutory and regulatory provisions are not found within the section 111 license provisions, but rather are statutorily set forth at 47 U.S.C. 535, and therefore should remain in effect in the hypothetical market the Judges must construct in this proceeding. And, because the Must-Carry provisions preclude any finding of Willingness-to-Pay and fail to reveal CSO's preferences, it is also *economically* reasonable to maintain the impact of the Must Carry provisions on the regression approach by excluding such stations from that valuation methodology. JSC PFF ¶ 3 (and record citations therein).

JSC also points to the following 1992 legislative history of the must-carry provisions as supporting, from both the legal and economic perspectives, a finding that must-carry PTV stations do not generate additional value that can be incorporated into the fee-based regressions:

> The [House Committee on Energy and Commerce] Committee believes that absent statutory carriage requirements, there is a substantial likelihood that local public television stations will be deleted, will not be carried, or will be switched to undesirable channels on cable systems. Because cable operators are for-profit enterprises, they necessarily seek to provide customers with the package of programming and services that will maximize the operators' profits. As commercial enterprises, cable operators ordinarily lack strong incentive to carry programming that does not attract sufficient dollars or audiences. Traditionally, public television has provided precisely the type of programming commercial broadcasters and cable operators find economically unattractive. For this reason, the Committee believes that, without 'must carry' provisions, public television service increasingly will become unavailable to cable subscribers.

JSC PFF ¶ 475 (citing Trial Ex. 1003 (House of Representatives Report 102–628) at 62).

JSC points out that this was not only the Congressional viewpoint at the time of enactment of the must-carry law, but also that PTV has continued to agree with Congress's assessment of the economic circumstances described in the above legislative history, insisting that public television stations need must-carry status to guarantee carriage. JSC PFF ¶¶ 476–478, 488–489 (and record citations therein).

Last, but certainly not least, in apparent response to PTV's criticism of Mr. Harvey's estimate of the number of must-carry stations, JSC suggests that PTV *knew or should have known* how many of the stations it represents in this

[48] The Judges define and discuss ''multicast streams'' *infra.*

proceeding in fact were must-carry stations. JSC PCOL ¶ 13 (''When a party is in a position to proffer testimony or evidence that would elucidate a point, or rebut an adverse point, but declines to do so, a finder of fact may determine that the testimony would not have been supportive of that party's position.'') (citing Final Rule and Order, *Determination of Rates and Terms for Digital Performance of Sound Recordings and Making of Ephemeral Copies to Facilitate Those Performances (Web V),* 86 FR 59452, 59476 (Oct. 27, 2021) (Web V Final Determination), (citing in turn *Huthnance* v. *District of Columbia,* 722 F.3d 371 (D.C. Cir. 2013)), *aff'd NRBNMLC* v. *CRB,* 77 F.4th 949, 2023 WL 4831376 (July 28, 2023).

a. The SDC Position on the ''Must-Carry'' Issue

The SDC apply their broad criticism of minimum-fee-only CSOs to the question of how to address the must-carry PTV stations: ''[N]o inference can be drawn regarding 'willingness to pay' or any other potential theory on the basis of cable system decision-making in the presence of mandatory carriage of certain PTV signals.'' Asker WRT ¶ 17 n.11; 4/11/23 Tr. 4319–21 (Marx); *see al*so SDC PFF ¶ 64.

Like the JSC, the SDC maintain that, as a legal issue, the Judges' consideration of economic market forces to determine relative market value does not mean that the statutory must-carry rules should be ignored:

> The task in these royalty distribution proceedings is to determine the relative value of the relevant program categories in a hypothetical market that exists in the absence of the section 111 compulsory license. There is no basis for assuming away the existence of other aspects of the regulated market, nor has any party in this proceeding presented a rational framework by which one could pick and choose which other aspects of the regulated market would survive. At a minimum, the Retransmission Consent and Must-Carry Requirements set forth in the Communications Act and Federal Communications Commission's (''FCC'') rules would continue to regulate the relationship between broadcast stations and CSOs. *See* 47 U.S.C. 325(b); 47 CFR 76.55, 76.64.

SDC PFF ¶ 218.

The SDC also emphasize a point central to their general criticism of the fee-based regressions—the impact of geography on retransmission decisions:

> Unlike commercial stations, the must-carry zone for noncommercial stations is determined by distance from the cable system rather than by DMA [Designated Market Area]: a noncommercial station is entitled to cable carriage under the FCC's must-carry rules if its city of license is within 50 miles of the cable system's principal headend. 47 CFR 76.55.

SDC PFF ¶ 222. Further, the SDC note the indemnification provision, discussed *supra,* also compromises the attempt to derive marketplace evidence of the value of must-carry stations:

> [Although] [u]nder section 111, a noncommercial station is only considered ''local'' within 35 miles of the cable system's headend . . . [a] cable operator is not required to carry a noncommercial station that would be considered distant for copyright purposes unless the noncommercial station agrees to indemnify the CSO for any increased copyright liability resulting from such carriage.
>
> Presumably, this indemnification requirement would be moot in the absence of section 111, because there would be no cost at all to cable systems carrying noncommercial signals within the FCC's 50-mile must-carry zone in the absence of section 111. There is no basis to believe the inapplicability of the indemnification requirement would affect the relative marketplace value of noncommercial stations, as carriage of noncommercial stations would still result from the federal must-carry mandate rather than any CSO choice.

SDC PFF ¶ 222 (citing 17 U.S.C. 111(f)(4)).

b. The CTV Position on the ''Must-Carry'' Issue

CTV emphasizes the substantial importance of the must-carry issue, noting first that ''[d]uring 2014–2017, no less than 33.9% PTV signals were carried pursuant to must-carry rules.'' CTV PFF ¶ 249 (citing Harvey CWDT ¶ 87; 3/28/23 Tr. 1836–37 (Harvey)). *See also* CTV PFF ¶¶ 256–57 (42.6% of all PTV distant reported base fee royalties are from PTV signals subject to the must-carry rule.)

CTV also expands upon the *evidentiary* point made by JSC, noted *supra,* regarding PTV's failure to produce evidence as to the number of must-carry stations:

> PTV, the claimant with the most accurate information regarding PTV distant stations carried by CSOs pursuant to the must-carry rules, has provided no evidence or statistics to refute the foregoing. At most, PTV economics witness Dr. Johnson contends that Mr. Harvey's findings are speculative, but he neither contested nor provided any alternative calculations to Mr. Harvey's conclusions.

CTV PFF ¶ 258. Echoing the criticism noted *supra,* CTV maintains that carriage of a PTV signal under the must-carry rules does not reflect a CSO's revealed preference through a weighing of incremental costs versus incremental benefits, and thus does not reflect relative marketplace value. CTV PFF ¶ 272 (and record citations therein).

Moreover, CTV also points out that even when CSOs retransmitting must-carry stations pay *more* than the minimum fee, they nonetheless cannot reveal a willingness to pay for that programming because of the indemnification obligation, discussed *supra,* of PTV stations to pay back CSOs for any additional royalty costs associated with the required (*i.e.,* must-carry) retransmission of its programming. CTV PFF ¶ 259.

CTV further notes the ''material'' effect of the must-carry issue on PTV's regression and allocation shares, both individually and jointly. CTV PFF ¶ 264. Pointing to a sensitivity analysis by one of its expert witnesses, Dr. Bennett, CTV notes that eliminating the royalty payments the Johnson Model has attributed to must-carry stations substantially reduces the PTV values on either attribute, and in combination. Bennett WRT ¶ 95. These adjustments are shown in the figure below:

Figure 38: Effect of removing must-carry PTV stations on Dr. Johnson's estimated PTV shares

Year	Johnson's PTV shares	Percentage point change in PTV shares		
		1. Excluding must-carry in allocation only	2. Excluding must-carry in regressing only	3. Excluding must-carry in both regression and allocation
2014	35.88%	-0.28%	-9.19%	-9.43%
2015	46.20%	-8.03%	-3.55%	--1.36%
2016	53.43%	-10.75%	-3.40%	-14.05%
2017	58.87%	-9.43%	-3.44%	-12.94%

Bennett WRT fig.38.

Similarly, Dr. Bennett undertakes the same adjustment to Dr. George's regression coefficient and allocation share regression results for PTV:

Figure 21: Impact of removing must-carry PTV stations from Professor George's implied shares for PTV

Year	George's PTV shares	Percentage point change in PTV shares		
		1. Excluding must-carry in allocation only	2. Excluding must-carry in regression only	3. Excluding must-carry in both regression and allocation
2014	30.2%	-0.2%	-10.3%	-10.5%
2015	36.6%	-5.6%	-6.0%	-11.1%
2016	41.6%	-8.2%	-6.3%	-13.7%
2017	47.0%	-7.7%	-6.9%	-14.1%

And in like fashion, Dr. Bennett makes the same must-carry adjustment for PTV to Dr. Tyler's analysis:

Figure 52: Impact of Tyler's implied shares for PTV after removing must-carry PTV stations in allocation

Year	Tyler's PTV shares	Percentage point change in PTV shares		
		1. Excluding must-carry in allocation only	2. Excluding must-carry in regression only	3. Excluding must-carry in both regression and allocation
2014	14.02%	-0.45%	-0.20%	-0.64%
2015	27.87%	-5.85%	0.27%	-5.62%
2016	37.38%	-8.38%	0.54%	-7.90%
2017	40.39%	-7.72%	0.81%	-6.98%

In conclusion, CTV underscores the existence of a consensus on this must-carry issue, noting that Drs. Marx, Bennett, and Majure all agree that including PTV must-carry stations in the regressions results in an overestimation of the value of PTV content for all four years. CTV PFF ¶ 534 (and record citations therein).

c. The Program Suppliers Position on the ''Must-Carry'' Issue

Program Suppliers join with the other parties that maintain the FCC's must-carry rules should still be deemed by the Judges to apply in their modeling of the economic and marketplace environment necessary to allocate the royalties at issue. That is, in the hypothetical environment, even though the section 111 conditions are relaxed, Program Suppliers argue that the parties must ''still continue to be subject to the same must-carry rule and agreement obligations . . . .'' PS PFF ¶ 101 (and record citations therein).

However, Program Suppliers take issue with any assertion that accounting for PTV's must-carry stations would have a significant effect. Their expert, Dr. Tyler, noted that Dr. Bennett's calculations—reproduced *supra*—showed that removing the must-carry stations (that were identified by Mr. Harvey) *from the Tyler Model* barely changed the PTV share allocation. 4/19/23 Tr. 5456 (Tyler). Moreover, Dr. Tyler opines, consistent with the testimony by PTV's expert Dr. Johnson that, ''even with must-carry, CSOs may still have some value related to that carriage.'' 4/19/23 Tr. 5456 (Tyler).[49] *See also* PS PFF ¶ 337.

d. The CCG Position on the ''Must-Carry'' Issue

CCG is part of the chorus asserting that the Judges should include the impact of the must-carry provisions in their economic analysis of relative marketplace value. CCG PFF ¶ 62. However, CCG parts company with those parties arguing that the compelled nature of such retransmission decisively compromises the informational worth of that carriage in estimating such value.

Specifically, Dr. George, CCG's expert, like Dr. Johnson, analogizes public television programming to other ''real-world examples'' of goods that have value, notwithstanding the fact they are mandated by the government. In this regard, as examples, she points to health insurance, which she says generates value, and to automobile airbags and seatbelts which, although mandated, increase the value of an automobile. Similarly, she points to the federal government requirement that individuals carry health insurance to argue that the mandate does not mean that the product does not have value to them. 4/18/23 Tr. 5346. (George). Based on these analogies, CCG maintains that the must-carry rules have a *positive* effect on the value of PTV programming. CCG PFF at 81. *See also* CCG PFF ¶ 224.

Nonetheless, Dr. George recognizes the possibility of an alternative finding—that any assertion of value in must-carry stations would be rejected. Accordingly, she turns to Dr. Bennett's analysis cited *supra*—at Bennett WRT fig. 21—which she recognizes as showing the ''downward adjustments'' to her ''regression'' to account for a finding of the absence of value in PTV's must-carry signals. CCG PFF ¶ 225 (and record citations therein).

3. The Judges' Analysis and Conclusions Regarding the ''Must-Carry'' Issue

The Judges agree with JSC and CTV, based on the caselaw cited by JSC, that PTV, whose clients include the public television stations that are *in fact* subject to must-carry requirements, bore the twin burdens of proof—the burden of *producing evidence* and the burden of *persuasion*—regarding which stations were subject to the must-carry provisions and which were not. Further, because PTV is seeking a determination including must-carry station data in the regression, those burdens are apportioned to PTV as a matter of statute. *See* 5 U.S.C. 556(d).

But rather than produce such evidence or prove its significance, PTV elected to attack Mr. Harvey's attempt to estimate the number of must-carry stations. Those attacks are insufficient. The Judges first take note that PTV argues only that Mr. Harvey ''perhaps'' or ''likely'' overstated the number of must-carry stations. But Mr. Harvey engaged in a reasonable attempt to estimate this number, which PTV could have set forth in its submissions, but did not.

Further, the Judges do not credit PTV's argument that the must-carry status of some PTV stations can be deemed irrelevant because the issue of must-carry stations was not raised in previous section 111 allocation proceedings. Each of these proceedings is *de novo* in nature, and the determination is based on the evidentiary record in that proceeding, as well as on the pertinent findings and conclusions in prior proceedings. Although regurgitated factual argument from prior findings may be summarily rejected by reference back to the findings in prior determinations, and although renewed legal arguments are cabined by the precedential effect of prior determinations, new arguments are not similarly restricted. Moreover, the absence of an issue in a prior proceeding, such as the impact of the must-carry status of PTV stations, certainly does not preclude consideration of that issue in *this* proceeding.

The Judges also reject the argument made by PTV and CCG that the must-carry stations have value, notwithstanding that indemnification provisions would offset any royalty payments. There are two reasons why this argument is incorrect. First, the point is not that the programs on must-carry stations, including those subject to royalty indemnification payment back to the CSOs, lack value; rather, the point is that they lack *objective and measurable* value. On the issue of *objective* value, the experts for PTV and CCG mistakenly seek to analogize must-carry PTV stations to two ''must-buy'' automobile attributes, seat belts and air bags, and to ''must-carry'' health insurance, which come at a cost. There are two problems with this argument. First, although one can quite reasonably argue that these coerced purchases are beneficial, from an economic point of view the purchase does not reveal a buyer's preference because seatbelts, air bags, and health insurance are coerced, not voluntary.[50] Second, a price proxy could likely be generated for seat belts and air bags by comparing the retail price of cars immediately before and after their inclusion was mandated for new cars, or by comparing the spread in price between new cars (with such a safety device) and used cars (lacking such safety devices). Regressions seeking to use such data would be true, full-fledged hedonic regressions. But here, the task is markedly different and more difficult, because no such historical or comparative comparisons were possible. Thus, as noted elsewhere in this determination, the regressions are ''inspired'' by, and in the nature of, hedonic regressions, using the context of section 111 to identify the market-related revealed preferences of CSOs, just as fee-based regressions have been utilized in previous allocation proceedings. But the attempted analogy to market-generated attributes included in market-priced products misses the mark and continues the unfortunate strained attempts by the experts supporting and criticizing fee-based

[49] But note Dr. Marx's point that must-carry stations that were distantly retransmitted by CSOs paying only the minimum fee would not generate a CSO royalty obligation, mooting the need for a royalty indemnification payment. Marx WRT ¶ 79.

[50] It might be reasonable to assume that a consumer would prefer an automobile with these safety features over an automobile lacking them, or the protection of health insurance rather than the risk associated with its absence, but without a structure for monetizing such preferences, the measure is only ordinal in nature, rather than cardinal. PTV alludes to this problem when, as noted *supra,* it notes that these are items that purchasers ''may'' value. But that implies that they may *not* value them in a context where there is an associated out-of-pocket or opportunity cost.

regressions to compare the fee-based regressions to hedonic regressions.

As to the issue of *measurable* value, PTV and CCG fail to address the fact that, if these stations do not generate net royalties, then the regressions should not be attributing (correlating) their minutes with royalties. The regressions will not ''see'' the indemnification payments made by the PTV stations back to the CSOs who made royalty payments. Thus, to the extent these royalty payments are recorded as base fee payments on the SOA forms relating to subscriber groups, they will falsely be ''seen'' by the regressions as indicating that the minutes were associated (correlated) with additional royalties, when that was not the case. As several witnesses have noted, the regressions are ''dumb,'' and will calculate whatever it is they are programmed to calculate. It is up to the econometrician who constructs and evaluates the regression to ''think,'' and decide whether the regression has reflected reality (legal, institutional, and economic) in a proper manner. The Judges find that Mr. Harvey made a *prima facie* case regarding the number of PTV stations that were must-carry.

The Judges also do not credit PTV's point that many CSOs chose to retransmit PTV signals when they could have carried another distant signal instead. Not only does that point ignore the problem of whether a station was subject to indemnification, it also indicates merely an ordinal preference.

The Judges also reject the argument that the regressions can include the must-carry station data because CSOs responded to the Bortz Survey by attributing value to such signals. This ''whataboutism'' argument holds no purchase—either the data belongs in the regressions, or it does not. The Bortz Survey is a form of model seeking to address relative marketplace value from a different perspective, and the requisites or output of one model do not necessarily map onto another model. *Cf. NRBNLMC* v. *CRB, supra,* slip op. at 41 (affirming the Judges' *Web V* rate determination that a finding applicable to one economic model (the issue of opportunity cost) did not automatically apply to the same issue when addressed in a different type of model).

PTV's assertions regarding the *value* of any adjustment regarding presence of must-carry stations with their attendant indemnification requirements is merely an argument regarding the extent of the adjustment, not regarding the need for one. As noted, the extent of the adjustment varies, depending upon how it is applied and to which regression model it is applied. The Judges consider that point in making their adjustments, *infra.*

Finally, the Judges agree with the argument that the legislative history relating to the must-carry provisions, and PTV's own prior positions, reflect an understanding that public television stations need must-carry status in order to obtain carriage. Such real-world facts serve as ''reality filters'' that can and should override the ''dumb'' manner in which a regression ''sees'' the royalty and carriage data.

For these reasons, the Judges find that PTV failed to discharge its evidentiary burdens, failed to demonstrate that Mr. Harvey's estimation should be rejected by the Judges, and failed to adequately demonstrate the existence of value in must-carry stations sufficient to include them as part of the relative marketplace value generated by the regression approach.

In terms of the necessary adjustments, the Judges agree with Dr. Bennett's approach, in which he eliminates the value attributed to the must-carry stations in both the regressions and the allocations, as there is no evidence or testimony sufficient to warrant only an adjustment in one of these regards. Thus, the Judges agree with the adjustments in column number 3 in Dr. Bennett's adjustment made in figures 38, 21 and 52, respectively, set forth *supra.*

B. Are PTV's Multicast Stations Exempt From Royalty Payments? [51]

The parties dispute whether multicast stations should be included in the fee-based regressions. Before setting forth the parties' respective positions, it is helpful to set forth a brief history of the relevant statutory provisions and the industry reaction. In this regard, the SDC's overview of the context is accurate and succinct:

> Prior to the analog-to-digital television transition, a broadcast station could transmit only a single stream of programming. The transition to digital broadcasting, completed for all full-power stations in 2009, enabled stations to broadcast multiple streams of programming, *i.e.,* a ''primary stream'' and one or more ''multicast streams.''
>
> Accordingly, the Satellite Television Extension and Localism Act (''STELA'') of 2010 added a DSE for distant transmissions of multicast streams. STELA, Public Law 111–175, 124 Stat. 1218, 1239 (2010).
>
> Certain multicast streams were temporarily exempted from having a DSE value assigned, including those that (a) had been carried by a CSO prior to February 27, 2010, or (b) had an agreement in place prior to June 30, 2009, for free carriage on a CSO. See STELA, 124 Stat. 1218, 1239; *see also* Marx ACWDT ¶ 70.
>
> The Association of Public Television Stations (''APTS'') entered into such an agreement with the National Cable and Telecommunications Association (''NCTA'') in 2005, which was renewed in 2016 . . . . [REDACTED]. . . .
>
> The PBS–NCTA agreement governed carriage of PTV stations during the 2014–2017 time period and required participating CSOs to carry up to four programming streams per PTV station (*i.e.,* the primary stream and three multicast streams). The agreement thus served to ''exempt'' up to three multicast streams per station from generating copyright liability until its expiration and renewal in 2016, at which time the exempted multicast streams were reclassified for royalty purposes as ''non-exempt'' streams with a DSE value of 0.25.
>
> SDC PFF ¶¶ 223–224 (and record citations therein). *Accord* PTV PFF ¶ 67 (and record citations therein).

The record in this proceeding also reflects the parties' and the industry's awareness of the terms of the 2016 renewal of the 2005 PBS–NCTA agreement referenced above. Accordingly, although the Judges denied the post-hearing admission of the PBS–NCTA agreement into the record,[52] the Judges have relied upon the record evidence of the parties' understanding of that agreement.

1. PTV's Position on Multicast Stations

PTV maintains that, for the years 2016 and 2017, multicast stations should be treated like all other distantly retransmitted broadcast stations for the purposes of establishing relative marketplace value through the fee-based regression analysis, noting that, under section 111, they ''are assigned the same DSE value as that station's primary stream.'' PTV PFF ¶ 66 (citing 17 U.S.C. 111(f)(5); PTV PFF ¶ 67 (and record citations therein).

PTV distinguishes the multicast stations from the must-carry rules, asserting ''it is undisputed that the must-carry rules do not require CSOs to retransmit those non-primary signals of a [PTV] broadcast station, and all carriage of PTV multicast streams was due to the voluntary choice of the cable operators.'' PTV PFF ¶ 77 (and record

[51] The definition of multicasting is not in dispute. Basically, it refers to ''a type of national television service designed to be broadcast terrestrially . . . on their digital subchannels . . . by the conversion from analog to digital television broadcasting, which le[aves] room for additional services to be broadcast from an individual transmitter . . . .'' *Digital multicast television network,* Wikipedia, *https://en.wikipedia.org/wiki/Digital_multicast_television_network* (last visited Aug. 9, 2023). The exempt/non-exempt nomenclature is somewhat confusing; ''exempt'' means CSOs *do not* pay section 111 royalties, and ''non-exempt'' means CSOs *shall* pay section 111 royalties (unless, by agreement with the copyright owners, section 111 royalty payments are waived).

[52] *See* Order 41 Denying as Moot Public Television's Motion for Reconsideration of Order 33.

citations therein). PTV acknowledges that PTV primary and multicast stations are functionally retransmitted distantly as a ''bundle,'' but that fact is neither unique to distant carriage of PTV stations nor consequential with regard to the inclusion of the multicast stations in a fee-based regression model. As to the latter point, PTV asserts that, because ''[a] fee-based regression model is designed to estimate the *average* relative value of programming in a bundle, such . . . bundling of programming of different values does not bias the regression estimates of relative marketplace value.'' PTV PFF ¶ 91. More particularly, PTV explains that the Waldfogel-style regressions of Drs. Johnson and George rely on ''average relative valuations,'' and that programming which does not correlate with higher royalties ''will be factored into the regression.'' PTV PFF ¶ 91 n.140 (citing George WDT at 51; 4/18/23 Tr. 5170–74 (George); 3/21/23 Tr. 350, 456–58:15, 595 (Johnson); Johnson WRT ¶ 65.

Because he understood that programming of multicast streams on distantly retransmitted broadcast signals to be compensable under section 111, Dr. Johnson applied his regression model to estimate the average relative value of distantly retransmitted programming inclusive of multicast streaming. And, as indicated *supra,* he understood that, to the extent CSOs might value PBS primary and multicast streams differently, these different values for ''multicast streams would be averaged out by the subscriber-weighted distant minutes.'' PTV PFF ¶¶ 133–34 (and record citations therein).

PTV also notes how relative values, as between JSC and PTV programming, moved in opposite directions during the 2014–2017 period. That is, in 2015, when WGNA converted from a broadcast station to a national cable network, JSC could not claim section 111 royalties for sports programming that was televised on WGNA. But for PTV, the converse was the case: Compensable programming arguably increased when in 2016 multicast stations transformed from being statutorily exempt (no right to section 111 royalties) to non-exempt (royalty-generating). PTV PFF ¶ 135.

2. CCG's Position on Multicast Stations

CCG argues that the minutes of programming on the PTV multicast stations that were reclassified from exempt to non-exempt should be included in the fee-based regressions because their continued retransmission as royalty-generating stations is the consequence of deliberate strategies by CSOs. CCG PFF at 25. Specifically, CCG relies on the fact that the substantial portion of stations that had been distantly retransmitted by Bright House (an MSO) while exempt (from royalties) continued to be retransmitted in 2016 as non-exempt (royalty-bearing) contemporaneously with the acquisition of Bright House by a larger MSO, Charter Communications (formerly Time Warner Cable). CCG PFF ¶ 79 (citing Marx ACWDT ¶ 78).

According to Dr. George, Charter Communications could have chosen to cease distantly retransmitting these PTV multicast stations after they became non-exempt (royalty-bearing), but for commercial purposes they elected to maintain carriage, indicating that Charter Communications perceived value in these multicast stations. George WRT at 20. In this regard, Dr. George concluded that the fact that Charter decided to include the PTV signals in its cable lineup and treat those PTV signals as paid while deciding not to carry other distant signals ''reveals the *relative* value of the programming to the cable system.'' George WRT at 20. *See also* CCG PFF ¶ 547.[53]

3. CTV's Position on Multicast Stations

Like, CCG, CTV states that the reclassification of PTV multicast signals from exempt to ''paid'' (*i.e.,* non-exempt, or royalty-bearing) had a ''significant impact in the industry.'' CTV PFF at 17. But quite *unlike* CCG, CTV disagrees with the inclusion of the ''paid'' multicast signal minutes in the fee-based regressions. After reciting the same industry merger history recounted *supra,* CTV PFF ¶ 75, CTV notes that the reclassification of these multicast PTV stations increased both (1) PTV subscriber-weighted minutes and (2) the data inputted into the regression (seeking to measure the correlation between category minutes and royalties). CTV PFF ¶ 76.

More particularly, 231 PTV signals were reclassified from exempt to paid from 2014 to 2017, ''with over 90% of the reclassification of PTV minutes taking place in 2016 and 81% of those reclassifications associated with Charter Communications' acquisitions of Time Warner and Bright House.'' CTV PFF ¶ 77 (and record citations therein). CTV further notes the combined industry concentration of Charter Communications, Time Warner, and Bright House prior to the 2016 merger, together accounting for 26.2% of total cable industry subscribers. CTV PFF ¶ 78.

But CTV argues that the reclassification had no impact on whether those PTV multicast minutes should have been inputted into the fee-based regressions. Specifically, CTV asserts, ''The increase in PTV paid minutes did not create any changes subscribers would notice; there was no change in channel line-ups, viewer access to programming, or content broadcast. Rather, PTV signals that had previously existed on channel lineups became 'nonexempt.' '' CTV PFF ¶ 79 (and record citations therein). Thus, CTV concludes that the reclassification merely ''created an illusion'' of an increase in the number of distantly retransmitted PTV minutes.'' CTV PFF ¶ 237 (and record citations therein).

4. SDC's Position on Multicast Stations

The SDC echoes Dr. Marx's position on behalf of CTV, that, although reclassification from exempt to non-exempt ''changes the *reporting* of PTV minutes in the data, [it] does not change the *content or value* that CSOs offer to their subscribers.'' SDC PFF ¶ 241 (citing Marx ACWDT ¶ 71).

Further, Dr. Marx takes note, in her consideration of the Charter acquisitions discussed *supra,* of the existence of the PBS–NCTA agreement in place that maintained the exempt (no royalty) status of a number of public television stations. 4/11/23 Tr. 4272 (Marx).

5. JSC's Position on Multicast Stations

JSC takes note that, although the number of *primary* PTV signals did not increase significantly, ''CSOs . . . began carrying significantly more PTV *multicast* channels, with the share of PTV volume comprised of multicast channels nearly doubling between the beginning of 2014 and the end of 2017.'' JSC PFF ¶ 74 (and record citations therein) (emphasis added). More particularly, JSC acknowledges that *some* of this increase in reported PTV multicast carriage is attributable to the change in status of certain PTV multicasts from ''exempt'' to ''non-exempt,'' as a result of Charter Communications' acquisitions of Time Warner Cable and Bright House Networks in 2016. JSC PFF ¶ 75 (and record citations therein).

But JSC rejects the notion that the increase in non-exempt (royalty-bearing) multicast carriage reflects an increase in value for which the PTV allocation should increase. In support of this argument, one of JSC's economic experts, Dr. Majure opines that (1) mere reclassification from exempt to non-exempt itself does not reflect an

[53] Program Suppliers are essentially in agreement with CCG in this regard. *See* PS PFF ¶ 387 (citing Tyler WRT ¶ 71 for the assertion that ''non-exempt signals are part of the question studied and properly included in the analysis.'').

increase in value and (2) CSOs chose to carry additional PTV multicasts during 2015–2017 when doing so was typically cost-free, even if they were non-exempt) because their carriage addition did not cause the CSO to exceed the minimum fee. JSC PFF ¶¶ 76–77 (and record citations therein).

Moreover, JSC relies on the testimony of PTV's own witness, Dr. Johnson, who acknowledged that the PBS–NCTA agreement provides for CSOs who were NCTA members to carry up to three PTV *multicasts* in addition to the carriage of the primary PTV signal, that *PTV would not require payment for the carriage of these multicasts,* and that, should the CSO incur financial liability under section 111 for such multicast carriage, PTV would be obligated to either indemnify the CSO for the royalty costs (as with *must-carry primary signals*), or waive the PTV station's right to compel carriage. JSC PFF ¶ 7 (citing 3/22/23 Tr. 985–88 (Johnson)).

Based on the foregoing, JSC claims that, without the multicast provisions in the PBS–NCTA agreement, which JSC characterizes as ''marketplace'' facts, CSOs would pay ''little or nothing'' for the programming on the multicast stations. JSC PFF ¶ 9 (and record citations therein). *See also* JSC PFF ¶¶ 25, 395; Harvey CWDT tbls.37–39.

6. The Judges' Analysis and Conclusions Regarding Multicast Stations

The Judges have the same type of problem with PTV's claim for royalties for the multicast programming as they do for the must-carry station programming discussed *supra.* That is, there was evidence available to be produced by PTV, namely the PBS–NCTA agreement as well as the number of entities it represents that would provide significant *marketplace evidence* of how PTV stations and the licensor CSOs valued multicast station programming. But, as noted *supra,* PTV did not produce either this agreement or the number of entities bound by it as evidence, although its own expert witness testified as to some of the agreement's contents.

Thus, the Judges were deprived of full knowledge of the terms of the agreement, the parties' fulsome testimony as to the meaning of its provisions and the number of entities signing on to the agreement. Moreover, PTV opposed the admission of that agreement into evidence. *See* Order 41 Denying as Moot Public Television's Motion for Reconsideration of Order 33. Accordingly, the Judges here, too, find that PTV bore, but failed to discharge, the burdens of production and persuasion with regard to the details of the agreement and the extent of its coverage. *See* Web V Final Determination at 59452; *Huthnance* v. *District of Columbia,* 722 F.3d 371 (D.C. Cir. 2013); *see also* 5 U.S.C. 556(d) (placing the burden of proof regarding facts on the party seeking an order based on those facts).

Nonetheless, relevant terms of the PBS–NCTA agreement were well-understood by the parties, without dispute. As noted *supra,* PTV's own expert, Dr. Johnson, understood what the agreement provided with regard to multicast stations and the absence of a royalty obligation attendant to their carriage. This constitutes a market-based fact, which has two implications. First, as a direct agreement among parties in the *sector at interest in this proceeding,* it is an agreement that reflects actual value, not hypothetical value. As such, it is more credible than attempts to tease out market value via regression-derived price proxies or a constant sum survey such as the Bortz Survey. Second, within the context of a fee-based regression, the existence of such zero valuations would certainly affect the regression as well as the number of minutes by which the impacted PTV regression coefficient would be multiplied. But without any information regarding the number of PTV stations covered by the PBS–NCTA agreement, the Judges cannot simply assume that no multicast stations that generated zero net royalties were covered by this agreement.[54]

If the Judges had full information regarding the PBS–NCTA agreement from PTV, whose clients are signatories thereto, as well as information from PTV regarding the number of its station clients and base fee royalties impacted by the agreement, the Judges' analysis could have been different. For example, the Judges are not convinced that the fact that these signals had been exempt (not royalty-bearing) previously is a dispositive point. The argument in favor of that position is that the mere change in legal obligation has no impact on economic value. But a simple thought experiment demonstrates the paucity of that reasoning: What if these multicast signals had started off as non-exempt (royalty-bearing) and then were changed to exempt (non-royalty-bearing)? It would have been the same change, only in reverse. Would the original classification remain in place in this juxtaposed scenario, such that royalties would continue to be included in the regression?

Also, there was a contentious dispute regarding whether the multicast PTV stations' programming was ''duplicative'' of the PTV primary signal programming or of each other. Questions arose regarding whether duplication should be narrowly tailored to mean the retransmitting of the identical program at the identical time, at the same proximate time or within a certain period of time, and whether different episodes from the same series retransmitted at the same or some proximate time or day were likewise duplicative. But without information as to whether any multicast station that had retransmitted such potentially duplicative programming was contractually unable to generate royalties under the PBS–NCTA agreement in any event, these issues of potential duplication appear to be indeterminate.[55]

VIII. Parties' Positions Regarding Regression Models

A. Introduction

Four parties, CCG, CTV (for 2014 only), Program Suppliers and PTV, through their expert witnesses, proffer regressions that they assert are useful methodologies to determine relative market value. An overview of each regression model and the criticisms thereof are set forth below.

B. CTV's Regression Approach: The Marx Model

On behalf of CTV, Dr. Leslie Marx[56] adopted a fee-based regression model (the ''Marx Model'') applicable to 2014,

[54] The fact that Charter changed some PTV multicast stations from exempt (non-royalty-bearing) to non-exempt (royalty-bearing) after acquiring certain CSOs is anecdotal evidence that suggests these PTV multicast stations were generating royalties, but anecdotes are not substitutes in this context for more comprehensive data. (And some of these royalty-bearing PTV stations may also have been retransmitted by CSOs with excess capacity, thereby not actually generating any revealed preference information for the retransmitting CSOs.)

[55] As explained *infra,* among the regression approaches, the Judges rely on the Tyler Model's allocation of shares based upon CSOs that actually paid the base fee (not the minimum fee). But although Dr. Bennett's testimony (Bennett WRT fig.52) provides evidence for a downward adjustment of PTV's share to reflect the Must Carry issue discussed *supra,* the Judges see no clear evidence in the record to identify how much of a downward adjustment should be made to the PTV share to reflect the Multicast and Duplicative Programming issues. However, because the PBS–NCTA agreement indicates that CSOs would carry up to three Multicast stations as Must Carry stations, *i.e.,* without a net royalty obligation, the Judges find that their application of Dr. Bennett's downward adjustment for Must Carry stations essentially embodies any Multicast adjustment, including any duplicative programming within those Multicast channels.

[56] Dr, Marx was received by the Judges as an ''expert economist and econometrician with experience in statistical methods and measurements.'' 4/11/23 Tr. 4109 (Marx).

but not for the 2015–2017 period, because she found that data issues rendered the use of such a regression approach ''substantially less reliable and informative'' for the 2015–2017 timeframe. 4/11/23 Tr. 4117 (Marx). More particularly, for 2014, she adopted a ''Bayesian'' approach in her fee-based regression model, using that methodological technique to mitigate concerns regarding the reduction in the quantity and quality of 2015–17 data.

At a high level, she described the Bayesian approach as ''a technique that allows [an econometrician] to use results from one period and add additional data to it to then update . . . inferences based on . . . that earlier period.'' 4/11/23 Tr. 4209:3–6 (Marx).[57] According to Dr. Marx, three basic reasons supported her use of a Bayesian regression:

1. In the prior proceeding, the Judges found Dr. Crawford's approach to be appropriate for allocating, *inter alia,* 2013 royalties.

2. The 2014 data largely patterns the 2013 data analyzed by Dr. Crawford because (unlike the 2015–2017 data) the 2014 data had not been affected by the growing predominance of excess capacity CSOs, reductions the number of SGs, or the reclassification of PTV stations.

3. Although the 2014 data alone would not be robust enough to adequately or reliably model a regression, the Bayesian approach incorporates a methodological technique that helps to resolve concerns regarding the quantity of data.

4/11/23 Tr. 4207–08 (Marx).

Accordingly, Dr. Marx ran her Bayesian fee-based regression only for 2014. The estimates she generated from her regression generated 2014 shares aligned with the shares calculated from Dr. Crawford's fee-based regression in the 2010–13 Determination. 4/11/23 Tr. 4126:16–4127:4. (Marx).[58]

As noted *supra,* Dr. Marx found that the data generated for the 2015–17 period was insufficient to allow her to use a fee-based regression for those years. To be clear, the paucity of data she identified was not a *data collection problem,* but rather what she considered to be an insufficient quantity of data borne from significant ''changed circumstances,'' namely the 2015 conversion of WGNA to a cable *station* from a local station that had previously been the most distantly transmitted. These changed circumstances led Dr. Marx to highlight as a key finding from her analysis that ''a regression similar to [Dr.] Crawford's would [be] *less* informative and *less* reliable.'' Marx ACWDT ¶ 9(c) (emphasis added); *see also* Marx ACWDT ¶ 67 (reiterating after her full analysis that in her opinion a Crawford-style regression would be ''*less* informative and *less* reliable for estimating relative marketplace value after 2014.'') (emphasis added).

In granular detail, Dr. Marx identified the following dramatic modeling ramifications arising from the WGNA conversion:

1. The fulsome data set utilized by Dr. Crawford in the 2010–13 proceeding did not exist for the 2015–2017 period.

2. The number of CSOs carrying at least one distant signal declined substantially after 2014. More particularly, more than 800 CSOs carried distant signals in 2014, but only approximately 500 CSOs carried distant signals by 2017.

3. Total royalties declined by approximately 32% from 2014 to 2017.

4. There was a dramatic reduction in the number of subscriber-weighted minutes.

5. The number of ''excess capacity'' CSOs increased dramatically.[59]

6. More than 90% of royalties in 2016 and 2017 were paid by these ''excess capacity'' CSOs, *i.e.,* systems that could have carried more DSEs but declined, notwithstanding the zero marginal royalty cost associated with additional carriage.

7. Alternately stated, less than 10% of the SG-level calculated royalties reported by CSOs reflect royalties *actually* paid for retransmission of signals by CSOs in 2016 and 2017.

8. Consequently, all the royalties calculated for each subscriber group in a cable system do not represent actual or incremental costs paid by the CSO because of the minimum fee requirement.[60]

9. Underscoring the impact of the WGNA conversion, 92% of CSOs that had previously carried WGNA (with or without an additional distant signal) in 2014, were paying only the minimum fee.

10. Finally, whereas the percentage of all CSOs that carried *no distant* signals had increased from only 13% in 2014, 30% in 2015, 44.6% in 2016, and then to 44.8% in 2017.

CTV PFF ¶¶ 93–94; 156–163; 167; 170; 195–199 (and record citations therein).

With regard to the *effect* of these changed circumstances on a fee-based regression, Dr. Marx testified that Dr. Crawford's regression model relies on variation between the distant retransmission decisions at the SG level—*but only within a given CSO.* Marx ACWDT ¶ 57. Thus, the Crawford Model included a CSO *only* if the CSO had at least two SGs. But with the dramatically changed circumstances caused principally by the WGNA conversion and the resulting increase in the number of excess-capacity CSOs, there were far fewer CSOs in the 2015–2017 period who created the necessary multiplicity of SGs. *Id.* More particularly, Dr. Marx relied on the following facts:

1. In 2015, 62% of CSOs—accounting for almost 35% of total royalties—did not meet the Crawford regression threshold that a CSO have at least two subscriber groups.

2. The proportion of CSOs with fewer than two SGs increased from 54.9% to 68.8%.

3. The percent of CSOs with zero SGs increased from 13% to 44.8% from 2014 to 2017.

4. The number of CSOs qualified to be included in a Crawford fee-based regression continued to decline throughout the relevant time period, with only 31.2% of CSOs included in 2017.

Marx ACWDT ¶¶ 58–59 & fig.12; 4/11/23 Tr. 4178 (Marx).

These are the detailed changed circumstances, referred to *supra,* which Dr. Marx found to render a Crawford fee-based regression *less* informative and reliable in the present proceeding than in the 2010–13 proceeding. Marx ACWDT ¶¶ 64, 67. More particularly, she noted that, in her opinion, the relatively small percent of CSOs that otherwise satisfied the requisites for inclusion in a Crawford-style regression could not be considered a representative sample or a representation of the Willingness to Pay of the larger CSO market. 4/11/23 Tr. 4161, 4173 (Marx).[61]

[57] *See also* Marx ACWDT ¶ 101 (''Bayesian regression is a well-accepted tool in economic and scientific research that is well-suited to situations in which the researcher has a 'prior belief' about the distribution (*e.g.,* mean and variance) of parameters of interest and wishes to use additional data in order to update conclusions about the parameters.'').

[58] In her Bayesian model, Dr. Marx adopted Dr. Crawford's model that had removed simultaneous ''duplicated minutes'' (*i.e.,* minutes of distantly retransmitted programming that were also transmitted on local stations), opining that CSOs would not realize incremental value from offerings of duplicative programming. 4/11/23 Tr. 4213 (Marx). In this regard, Dr. Marx's approach deviated from the Judges' prior determination in which they found a problem with Dr. Crawford's duplicated minutes analysis and elected instead to rely upon his nonduplicated minutes analysis. *See* 2010–13 Determination at 3562. Dr. Marx's specific change in this regard does not materially affect the Judges' consideration of her Bayesian approach in this proceeding.

[59] In her rebuttal testimony, Dr. Marx coined the apt phrase ''excess capacity CSO'' as an identifier of a CSO that distantly retransmitted less than one Distant Signal Equivalent (DSE), had the capacity to distantly retransmit one or more additional distant signals without increasing its royalty obligation above the minimum fee, and yet chose not to make any such additional retransmissions. Marx WRT ¶¶ 6, 13. The Judges adopt this phrase throughout this Determination.

[60] The minimum fee issue is separately discussed elsewhere in this determination. It is referenced in this section discussing the experts' models to provide a more complete context.

[61] Dr. Marx testified that the other regression experts essentially agreed with her opinion that the Crawford-style fee- based regression would suffer from an absence of sufficient data on SG variations within a CSO. She identified such agreement in the testimonies of Drs. George, Johnson and Tyler by their relaxation of the number and types of ''fixed effects'' used by Dr. Crawford to isolate the correlation of category minutes and royalties which his regression seeks to identify. However, as

Continued

For the foregoing reasons, Dr. Marx utilized a fee-based regression only to estimate the regression coefficients and share allocations for 2014. Her results—are set forth in the figures below:

Figure 6. Regression coefficients on minutes of claimant group programming: Crawford (2010-2013) and Bayesian updates (2014), *including* duplicative minutes

Year	Program Suppliers	Sports	Commercial TV	Public TV	Devotional	Canadian
2010-2013	2.31	32.55	4.88	1.84	1.08	4.08
2014	**2.39**	**35.16**	**4.44**	**1.41**	**1.11**	**3.95**

Source: Crawford CWDT, Figure 15; CDC data and Red Bee Media data.

Note: All estimates are statistically significant; for coefficients with standard errors, *see* Appendix C.

Figure 7. Regression coefficients on minutes of claimant group programming: Crawford (2010-2013) and Bayesian updates (2014), *excluding* duplicative minutes

Year	Program Suppliers	Sports	Commercial TV	Public TV	Devotional	Canadian
2010-2013	2.49	34.96	5.77	1.98	1.17	4.26
2014	**2.73**	**43.01**	**5.64**	**1.62**	**1.31**	**4.11**

Source: Crawford CWDT, Figure 18; CDC data and Red Bee Media data.

Note: All estimates are statistically significant; for coefficients with standard errors, *see* Appendix C.

Source: Marx ACWDT ¶¶ 37, 39, figs.6-7.[62]

Dr. Marx then multiplied the subscriber-weighted minutes for each program category, as calculated by another CTV expert, Dr. Christopher Bennett,[63] by her Bayesian coefficients (as adjusted pursuant to her PTV analysis) and she estimated the following allocation shares for 2014:

(A) Applying Dr. Marx's 's preferred analysis *excluding* duplicated minutes:[64]

Estimated 2014 Shares

PS—19.73%
JSC—43.89%
CTV—15.56%
PTV—16.41%
SDC—0.48%
CCG—3.93%.

(B) Applying the *inclusion* of duplicated minutes as in the 2010–13 Determination:

Estimated 2014 Shares

PS—20.69%
JSC—41.73%
CTV—13.94%
PTV—18.85%
SDC—0.47%
CCG—4.31%.

Marx ACWDT ¶ 39.

discussed in more detail *infra,* Dr. Marx criticizes the removal of some or all of these ''fixed effects'' by these other experts as introducing ''omitted variable bias'' into their regressions, thus compromising their usefulness in this proceeding. *See* Marx WRT ¶¶ 14, 20 & 37; 4/11/23 Tr. 4179, 4181, 4255 (Marx) (removing ''fixed effects'' in order to introduce into the model different variations *across* CSOs and across *time* to address the problem of fewer subscriber groups is improper because it generates a new problem—the introduction of ''omitted variable bias,'' which metaphorically was adding ''garbage'' into their regressions). The Judges consider the alteration of ''fixed effects'' by these other experts, and the criticisms of that decision *infra,* in their consideration of those proffered regression models.

[62] In her Bayesian regression for 2014, Dr. Marx adjusted the valuation analysis for PTV by addressing certain alleged anomalies in the PTV minutes, including those arising from the presence of PTV ''must carry'' stations, the transition of PTV stations from exempt (no royalty paid) to non-exempt (royalty paid) and the indemnification of CSOs for royalties paid to transmit PTV signals. The figures reproduced in the text, *supra,* from Dr. Marx's WRT embody Dr. Marx's conclusions in these regards. The Judges consider these PTV-specific issues elsewhere in this Determination.

[63] *See* Bennett ACWDT figs.1 & 2.

[64] In the 2010–13 Determination, the Judges adopted Dr. Crawford's model that included duplicate minutes because the duplicated minutes calculation was more accurate than the unduplicated minutes calculation. *See* 2010–13 Determination at 3565. Dr. Marx calculates coefficients (and thus shares) under both scenarios, noting that there is minimal difference between the two approaches. Marx ACWDT ¶ 38.

1. Dr. Marx's ''Directional'' Analysis for 2015–2017

Having rejected the use of a fee-based regression to estimate relative marketplace value for the 2015–2017 period, Dr. Marx switches gears in two contexts. First, she shifts the demand-side focus, by analyzing how choices of downstream consumers of cable television programming have purportedly changed—and how those changes impact the ''derived demand'' [65] for categories of programming delineated in this proceeding. Second, Dr. Marx uses this analysis to provide what she describes as a ''directional'' approach, which she opines should guide the Judges regarding the relative increases or decreases in category royalty shares. This ''directional'' approach is in contrast to both the regression and the survey methods for ascertaining relative marketplace value, which seek to provide specific estimates of the category values. *See* Marx ACWDT ¶ 83 (''This is a 'directional' analysis in that I do not quantitatively measure the effect of streaming on relative market values.'').[66]

More particularly, Dr. Marx evaluates the changes in how consumers viewed cable television programming content in the 2014–2017 period, compared to viewing in prior years. Specifically, Dr. Marx examined how the introduction and growth of *streaming of programming through over-the-top (OTT) platforms* during the 2014–2017 period affected not only *how* consumers chose to access content but also, derivatively, the ''differential effects'' of this change in distribution ''across the claimant groups.'' Marx ACWDT ¶ 82.

Dr. Marx's directional ''derived demand'' evaluation proceeds as follows:

1. She summarizes the expansion of streaming prior to and during the 2014–2017 period.

2. Dr. Marx then uses viewership data [67] to identify evidence indicating how the growth of streaming was likely to have increased or decreased the relative value of the claimants' respective program categories groups to a CSO. More particularly, Dr. Marx opines that a program category with ''content [that] had a *larger shift to streaming* would, all else equal, be likely to have a *decrease* in relative importance when it comes to delivery as a distant signal by CSOs [and] [c]onversely, claimant groups whose content had smaller shifts to streaming likely would, all else equal, have an increase in relative importance.''

3. She next reviews data on household viewership over the relevant period, focusing on the ''directional relative effects of streaming growth on CTV, PTV, and Program Suppliers categories . . . .'' [68]

Marx ACWDT ¶¶ 83–84.

Through this analysis, Dr. Marx reaches the following conclusions:

1. From as far back as 2010, ''streaming and smart device penetration have increased while CSOs have lost subscribers.''

2. Viewership data reveals a reduction in TV viewership over the 2014–2017 period.

3. Because of increased streaming and lower cable subscribership the ''importance of ''PTV and Program Suppliers content appear[s] to have diminished . . . relative to CTV content.''

4. Although the data reveal a decline in the *absolute* number of households watching content within the CTV, PTV, and Program Suppliers categories, the *relative* declines were greater for PTV's and Program Suppliers' content than for CTVs' content.

5. The absolute and relative decline in the share of viewership on cable of Program Suppliers content is consistent with the contemporaneous improvement in the ''quality of streaming video content provided on platforms such as Netflix, Amazon Prime Video, and Hulu.''

6. In addition to licensed TV shows, these streaming platforms also transmit original content which they have produced, with quality levels generating Emmy Award nominations, indicating the growing and high quality of content carried by streaming platforms.

Marx ACWDT ¶¶ 85–98 & figs.21–24.

Applying the foregoing to the Judges' present task of estimating relative marketplace value across the claimant categories, Dr. Marx concludes as follows:

In sum, streaming grew rapidly during 2014–2017 [and] Nielsen data show concomitant declines in viewership of the PTV and Program Suppliers claimant groups' content. CTV content viewership also declined, but that decline was smaller than for PTV and Program Suppliers. This implies that the growth of streaming likely had a greater adverse impact on Program Suppliers and PTV claimants than on CTV claimants. All else equal, this is consistent with a higher relative market value for CTV claimants over the 2014–2017 period as compared with Program Suppliers and PTV claimants.

Marx ACWDT ¶ 99.

2. Rebuttals to Dr. Marx's Analyses

a. Rebuttals to Dr. Marx's WDT by SDC Witness Dr. Erdem

One of the SDC's expert economic witnesses, Dr. Erkan Erdem,[69] characterizes Dr. Marx's rejection of the applicability of the fee-based regression approach in a broader context than Dr. Marx. Instead, Dr. Erdem avers that the inconsistency between the 2010–2013 data and the data over the entirety of the 2014–2017 period reveals something more profound: that the ''Crawford model was made specifically only for the 2010–2013 data . . . [and] is not robust enough to measure the market value of distant minutes per claimant to fit data from other proceedings.'' Erdem WRT ¶ 126. By this criticism, Dr. Erdem tacitly criticizes Dr. Marx's Bayesian approach for not applying her criticism with appropriate breadth, maintaining that ''[e]ven if there is a shift in the trend of this proceeding's data, [her modeling] should still theoretically be useful for this proceeding, if one were to believe it was useful in the first place, since they are dealing with the same variables.'' Erdem WRT ¶ 126. *See also* Erdem WRT ¶ 130 (opining that Dr. Marx was wrong to maintain that after the WGNA conversion *all that was needed* was ''an adjustment . . . in the Crawford model'' because, although ''[t]he underlying trends in the data . . . shifted, . . . the variables used are still the same, as well as the computation of distant minutes and distant signals.'').

Whereas Dr. Erdem finds the forgoing criticism of the use of a Crawford fee-based regression as incomplete, he finds a second criticism by Dr. Marx to be exaggerated. Specifically, he takes issue with her concern that the number of CSOs with two or more subscriber groups had decreased after 2014, thereby reducing the presence of the

[65] In the 2010–13 Determination, the Judges explained that the concept of ''derived demand'' was applicable to ''[t]he demand for programming at each step in the [distribution] chain . . . all the way to the television viewer,'' although, with regard to distant retransmissions of local stations, this derived demand is impacted by ''the role of bundling and 'niche' programming'' that can affect ''the premium that certain categories of programming fetch in an open market'' that would impact ''value among disparate program categories'' in these allocation proceedings. 2010–13 Determination at 3600.

[66] Dr. Marx's ''directional'' analysis is akin to the testimony of television industry witnesses discussed *infra.* In fact, Dr. Marx opines that her ''directional'' analysis is consistent with the testimonies of five industry witnesses—Mr. Singer, Mr. Warren, Ms. Witmer, Mr. Hartman and Ms. Alany. 4/11/23 Tr. 4234 (Marx).

[67] Dr. Marx relies on *local* viewing data generated by the Nielsen audience research firm. The probative value, *vel non,* of viewership data, and local viewership in particular, as a proxy for changes in the relative marketplace value of distantly retransmitted local stations, is discussed *infra.*

[68] Dr. Marx focuses on these three categories because her data source only contains one Canadian station, and because the small size of the SDC category renders it less reliable and impactful. She also testifies that ''sports content is more challenging to evaluate with this [Nielsen] data due to geographic and temporal variation in ratings driven by factors unrelated to the growth of streaming,'' and that she understood ''streaming of [JSC] content was limited during the 2014–2017 period.'' Marx ACWDT ¶ 84 n.66.

[69] Dr. Erdem was received as an expert in the fields of economics, econometrics, and data analysis. 4/5/23 Tr. 3395 (Erdem).

sufficient observations of programming decisions arising from the different stations retransmitted by such subscriber groups. Erdem WRT ¶ 131. Dr. Erdem finds this criticism overblown because the percentage of CSOs with fewer than two subscriber groups only increased from 54.9% to 68.8% from 2014 to 2017, and the CSOs thus excluded from the fee-based regressions would ''only account for 38% of the total royalties.'' Erdem WRT ¶ 131. Thus, he finds Dr. Marx's reliance on this changed circumstance as obscuring his essential point, to wit, that if the Crawford Model had been ''correctly specified in the first place'' it would not need ''to be adjusted for changes in the data,'' but rather ''should be able to withstand [data changes] to remain accurate.'' Erdem WRT ¶ 131.

Finally, but in the same vein, Dr. Erdem disagrees with Dr. Marx's conclusions that the reduction in the percentage of CSOs paying only the minimum fee limits *only the applicabilit*y of the fee-based regression approach, as opposed to (as Dr. Erdem maintains) demonstrating the overall incorrectness of the model's specifications. Erdem WRT ¶ 132. More specifically, Dr. Erdem characterizes the 39% of CSOs paying only the minimum fee in 2014 as itself a ''large proportion,'' which would have required the Crawford Model, or a model fashioned in the manner of the Crawford Model, to have been ''specified'' for this effect. Instead, Dr. Marx treats the increase in the shift in CSOs paying minimum fees after 2014 only as grounds to find the fee-based regression model inapplicable for 2015–2017, rather than misspecified, and she wrongly deemed the 39% figure in 2014 sufficient to incorporate into her Bayesian regression. Erdem WRT ¶ 132.[70]

b. Rebuttals to Dr. Marx's WDT by Program Suppliers Witness Dr. Tyler

Dr. Tyler[71] levies three criticisms at Dr. Marx's direct testimony. First, he criticizes Dr. Marx's regression-based approach for estimating 2014 values for the same reason he criticizes all the other fee-based regression proffered in this proceeding (and Dr. Crawford's model as well).[72] That is, Dr. Tyler criticizes Dr. Marx's 2014 modeling because her dependent variable, as in the models of Drs. Crawford, George and Johnson, is ''a royalty amount.'' Written Rebuttal Testimony of Cleve B. Tyler, Ph.D., Trial Ex. 7601, ¶ 30 (Tyler WRT). Dr. Tyler's criticism of this form of dependent variable is that it ''contain[s] a substantial amount of variability due to factors other than categories of distantly retransmitted minutes for a subscriber group.'' Tyler WRT ¶ 31. According to Dr. Tyler, these models then need to include fixed effects to limit this unrelated variability, but Dr. Crawford's model—subsumed in Dr. Marx's 2014 model—suffers from a loss of information arising from these fixed effects.

Moreover, Dr. Tyler notes that, for the 2015–2017 period, Professor Marx's inability to apply a fee-based regression arises from data limitations generated by the WGNA conversion, but such data limitations are obviated by the change in the dependent variable to *his* Subscriber Group Royalty Percentage (''SGRP''), which he avers does not require fixed effects, and thus his model does not discard information from the substantial number of CSOs that have just one Subscriber Group. Tyler WRT ¶ 70.

Dr. Tyler also maintains that because Dr. Marx relies on Dr. Crawford's 2010–2013 model, she began her regression analysis from an ''imprecise starting point'' and a potentially biased ''prior belief.'' Tyler WRT ¶ 57. That is, because Dr. Tyler is of the opinion that Dr. Crawford's process in generating his model generates ''serious questions,'' [73] she has implicitly ported those problems into her model, which ''cast[s] a substantial shadow of doubt on any of her conclusions.'' Tyler WRT ¶ 57.

Finally, Dr. Tyler takes aim at Dr. Marx's default to a directional analysis in which she opined that expanded streaming services likely ''reduc[ed] the value of Program Suppliers and PTV claimants' retransmitted programming *relative* to the programming offered by CTV claimants.'' While not disputing the relative value shift posited by Dr. Marx, Dr. Tyler maintains that an appropriate regression analysis, such as his approach, would capture this effect and in a manner superior to the inappropriate speculation embodied in Dr. Marx's ''directional'' analysis. Tyler WRT ¶ 72.

c. Rebuttals to Dr. Marx's WDT by Program Supplier Expert Dr. Gray

Dr. Gray[74] raises the following criticisms of Dr. Marx's approach:

1. In support of her ''directional'' analysis, Dr. Marx claims only that *local* viewership declined for each of the Program Suppliers, Commercial Television, and Public Television claimant categories, but she fails to provide information on the level or trend of *distant* viewing of these locally produced programs. Written Rebuttal Testimony of Jeffrey S. Gray, Trial Ex. 7606, ¶¶ 47–48 (Gray WRT).

2. Relatedly, although the Judges have previously ruled that local viewing patterns are not probative of distant viewing patterns, absent contemporaneous local and distant measures demonstrating that local viewing patterns are sufficiently informative as to subscribers' distant viewing patterns, Dr. Marx offers only local viewing data, which the Judges have previously found not probative of distant viewing pattern rather than evidence of distant viewing patterns. Gray WRT ¶ 48 n.40 (citing Order Reopening Record and Scheduling Further Proceedings, Consolidated Docket Nos. 2012–6 CRB CD 2004–2009 (Phase II) and 2012–7 CRB SD 1999–2009 (Phase II) at 3–4 (May 4, 2016)).

3. Dr. Marx fails to account for the substantially diminished number of households which even had distant-retransmitted *access* to CTV programming in the years 2015–2017. Thus, she fails to address the fact that ''the relative number of subscribers receiving [CTV] programming on a distant basis declined precipitously over the 2014–2017 royalty years,'' as shown even in ''[s]tatistics presented in Dr. Marx's direct testimony show[ing][CTV's] share of claimant category minutes weighted by the number of distant subscribers reached [had] declined 72% between 2014 and 2017.'' Gray WRT ¶ 49.

d. Rebuttals to Dr. Marx's WDT by PTV's Expert Dr. Johnson

Dr. Johnson[75] recognizes that he and Dr. Marx essentially agree as to the use of fee-based regressions and allocation methodologies for 2014, but that they disagree with regard to the usefulness of a fee-based regression to determine allocation shares for the 2015–2017 period. Johnson WRT ¶ 88. With regard to the latter three years, Dr. Johnson takes issue with Dr. Marx's opinion that the WGNA conversion would

[70] The SDC's other econometric expert, Dr. Rubinfeld, criticizes Dr. Marx's use of a fee-based regression in her Bayesian approach for the same reasons he criticizes fee-based regressions writ large, and those criticisms are addressed elsewhere in this determination. But the Judges note here that Dr. Rubinfeld found Dr. Marx's ''directional'' analysis for 2015–2017, relating to the growth of streaming as impacting relative share values, as proof that ''the regression specification put forth by Dr. Crawford was not robust or informative [because] the model does not adequately characterize the changing U.S. video distribution marketplace.'' Rubinfeld WRT ¶ 95.

[71] Dr. Tyler was received as an expert in the fields of economics, data analysis, and econometrics. 4/19/23 Tr. 5428 (Tyler).

[72] To be clear, Dr. Tyler does not criticize Dr. Marx's application of a Bayesian approach to the 2014 allocation issue.

[73] Dr. Tyler's criticisms of Dr. Crawford's work are set forth at Tyler ACWDT ¶¶ 106–127 tech. app. A. The Judges discuss elsewhere in this determination the impact of the criticism of Dr. Crawford's work on the fee-based regressions proffered in this proceeding.

[74] The Judges received Dr. Gray as an expert in the fields of economics, statistics, and econometrics. 4/13/23 Tr. 4850 (Gray).

[75] The Judges received Dr. Johnson as an expert in the fields of economics and econometrics. 3/21/23 Tr. 362 (Johnson).

necessarily '' 'exclude a large proportion of CSOs and royalties from the analysis,' '' rendering a fee-based regression approach '' 'less informative and reliable.' '' Johnson WRT ¶ 89. More particularly, Dr. Johnson criticizes Dr. Marx for not presenting in her WDT ''any regression analysis or testing that would support this claim,'' and, moreover, that although she produced what appeared to be ''computer code . . . appl[ying] Dr. Crawford's model to the entire 2014–2017 period,'' she did not provide any explanation how that code might have supported her otherwise conclusory opinion that a fee-based regression for the 2015–2017 period would be '' 'less informative and less reliable.' '' Johnson WRT ¶ 89 n.163.

Regarding Dr. Marx's substitution of her ''directional'' analysis for a regression approach to analyze the 2015–2017 period, Dr. Johnson raises two criticisms. First, he finds her decision to not apply *any* modeling approach for that period to be too severe. Johnson WRT ¶ 91. Second, Dr. Johnson criticizes Dr. Marx's ''directional analysis'' as lacking any specificity, information or guidance as to what any particular claimant groups' royalty shares should be in the 2015–2017 period. Rather, her analysis is nothing more than a recitation of purported ''qualitative changes Dr. Marx believes were 'likely' to have happened.'' Johnson WRT ¶ 92.

e. Rebuttals to Dr. Marx's WDT by CCG's Expert Dr. George

Dr. George [76] first addresses Dr. Marx's critique of Dr. Crawford's model somewhat obliquely—not by disputing the critique that his model reduces the available number of meaningful variations (among subscriber groups within CSOs) but by purportedly failing to recognize (as Dr. George opines) that relaxing fixed effects in Dr. Crawford's model would increase the number of subscriber group variations, thus salvaging the use of a fee-based regression. That is, an adjustment allowing for ''estimating coefficients from variations within systems over time rather than within each system each accounting period,'' allows for a regression to analyze ''all systems carrying distant signals in two or more accounting periods [to be] included, regardless of the number of subscriber groups.'' George WRT at 18.[77]

Further, Dr. George ''agrees with Dr. Marx that programming on streaming services is likely a closer substitute for [PTV] and Program Supplier programming than other claimant types,'' Dr. George finds that Dr. Marx's analysis ''likely overstates the relative decline of Program Supplier and Public Television programming relative to Commercial Television content.'' George WDT at 21. She reaches this finding by noting that Dr. Marx's reliance on local (rather than distant) viewing neglects the likely fact that local CTV news programming would be less popular in distant markets, whereas Program Suppliers' content is not geographically distinct and would not be less valued for this reason. George WRT at 21.

Finally, Dr. George takes issue with Dr. Marx's use of a Bayesian regression incorporating 2013 data into the methodology used to calculate 2014 share estimates.

Dr. George emphasizes that pooled data from 2010–2013 reflects the choices made by CSOs in that earlier period with different market conditions. In this regard, Dr. George notes that decisions in 2010–2013 reflect neither the WGNA conversion nor later cable industry acquisitions and entry. George WDT at 22.[78]

3. The Judges' Analysis and Findings Regarding the Marx Model and Directional Approach

Having considered all aspects of the CTV Marx Model and directional analysis presented by Dr. Marx, as well as all the criticisms of those approaches contained in the submissions by the other parties, the Judges find as follows:

1. Dr. Marx's Bayesian modeling, *ceteris paribus,* is an appropriate econometric tool to use in the process of estimating relative marketplace value across the program categories for 2014. The Judges do not credit Dr. George's criticism that Dr. Marx's Bayesian approach is deficient because it pools 2014 data with data from the 2010–2013 period. Dr. Marx opined, and the Judges agree, that 2014 was sufficiently similar to this prior period to justify the Bayesian approach.[79]

2. Dr. Marx's directional analysis for the 2015–2017 period can be useful, despite the absence of any allocation share estimates, in that it suggests to the Judges which of the quantitative estimates on which the Judges do rely could be more probative, in that they are consonant with Dr. Marx's directional analysis. However, in the present proceeding, as discussed *infra,* the Judges adopt the Tyler Model as a regression model that is probative of relative marketplace values over the entire 2014–2017 period. Accordingly, the Judges find Dr. Marx's 'directional'' analysis, although useful, not as probative or definitive as the Tyler Model. Nonetheless, the Judges will utilize the Marx Model, as appropriate, to reconcile differences between the Tyler Model and the adjusted Bortz approach undertaken *infra.*

3. Nonetheless, the Judges emphasize the appropriateness of Dr. Marx's 'directional'' analysis, because they do not want to leave the implication that such qualitative analyses are inappropriate. Dr. Marx's 2015–2017 directional analysis was an appropriate alternative to a fee-based regression—because (as discussed elsewhere in this determination) the WGNA conversion substantially increased the number of minimum-fee-only CSOs and the number of CSOs with less than two subscriber groups—reducing significantly the number of CSOs and subscriber groups that was accepted by the Judges in the 2010–13 Determination. In this regard, the Judges do not credit Dr. Erdem's reliance on *separate* arguments, seeking to discredit Dr. Marx's use of the regression approach have evidentiary weight commensurate *for 2014,* regarding the impact of (a) the reduction in the number of CSOs with two or more subscriber groups; and (b) the increase in the number of minimum-fee-only CSOs. Rather, Dr. Marx has considered the *combined* effect of these factors.

4. Although Dr. Marx's ''directional'' approach is probative and useful, she overstated the point that the reduction in above-minimum-fee-paying CSOs rendered their revealed preferences without benefit. Rather, their channel selections/programming preferences are also probative and useful, even if less so than in the 2010–13 Determination because of the reduction in the number of such CSOs and in the percentage of royalties they represent.

5. Dr. Marx's allocation shares related to ''duplicated'' minutes is superior to her share allocation excluding ''duplicated'' minutes, because the Judges adopted the former in the 2010–13 proceeding, because of problems relating to the latter as described in the prior determination. *See* 2010–13 Determination at 3565, 3569, 3591, and 3610–11.

6. The evidentiary weight of Dr. Marx's ''directional'' analysis for the 2015–2017 period is not diminished due to her reliance on local viewership data, because the evidence in this proceeding indicates that a substantial percentage of distant viewing is retransmitted to areas in close proximity to the origin of the local signal. *See, e.g.,* Erdem WRT 59 (''91% of systems are retransmitting the same signal on a local basis to some

[76] The Judges received Dr. George as an expert in the fields of economics, with experience in econometrics, media markets, and industrial organization. 4/18/23 Tr. 5111 (George).

[77] Dr. George acknowledges that relaxing Dr. Crawford's ''fixed effects'' in this manner risks the introduction of bias from omitted variables created by industry and system changes over time left unobserved by the regression, but she believes this trade-off is acceptable. George WRT at 18. By contrast, Dr. Marx maintains that allowing for the introduction of potential ''omitted variable bias'' would invite application of the metaphor ''garbage in, garbage out.''

[78] None of the JSC witnesses levied substantive criticisms of Dr. Marx's 2014 Bayesian regression or her 2015–2017 ''directional'' analysis. This is perhaps unsurprising, because a JSC expert witness, Dr. Majure, does not take issue with the results of Dr. Marx's 2014 Bayesian regression or with her ''directional'' analysis.

[79] The Judges also note that Dr. George herself pooled data from 2014 with the 2015–2017 data, where the data distinction was dramatic, having arisen from the WGNA conversion.

subscriber groups and on a distant basis to other subscriber groups [and] [of]f these systems, on average, 76% of the channels that are distant to a subscriber group are retransmitted as local to another subscriber group . . . .'').

7. Dr. Marx's ''directional'' analysis provides evidence suggesting that PTV and Program Suppliers content declined in viewership relative to CTV, implying, *ceteris paribus,* a higher relative share value for CTV. The Judges note that Dr. George agrees with this point (but see point (8) below).

8. However, the Judges' prior reluctance to use viewership as a direct proxy for value in the allocation (Phase I) proceedings cautions against applying too much probative weight to this ''directional'' analysis. Accordingly, the Judges adopt Dr. Gray's criticism regarding Dr. Marx's reliance on local viewership data, but only as a caution regarding its evidentiary weight. In this regard, Dr. George agrees that the weight placed on Dr. Marx's viewership-based approach be limited.

9. The Judges further limit the evidentiary weight of Dr. Marx's ''directional ''analysis, because, as Dr. Gray further notes, Dr. Marx's own data shows that CTV's share of claimant category minutes declined significantly between 2014 and 2017.

C. Program Suppliers' Regression Approach: The Tyler Model

On behalf of Program Suppliers, its expert witness, Dr. Tyler, proffered a regression analysis that, while within the broad category of fee-based regressions, is differentiated in ways that Dr. Tyler opines to be important in this proceeding. The Judges' review of his testimony, *infra,* highlights these broad similarities and the assertedly important differences.

At a high level, Dr. Tyler agrees with the finding in the 2010–13 Determination that regression analysis is very informative for estimating relative marketplace value in this case. But by way of differentiating his approach, Dr. Tyler notes that a regression seeking to establish relative marketplace value should estimate incremental value, which he posits here to be the marginal value of an *additional minute* of different types of programming content relative value—rather than a value r*elative to a reference or base category,* as in the other proffered regressions. Tyler ACWDT ¶ 65; 4/19/23 Tr. 5439–40 (Tyler).

Next, Dr. Tyler notes that—although the statutory royalty formula in section 111 prevents the setting of market prices for distantly retransmitted stations—a regression can observe how CSOs reveal their preferences for different types of stations bundling various types of programming content, *given the pre-existing section 111 royalty rate provisions.* In turn, the observations of the decision-making by CSOs provides insight into their willingness-to-pay (WTP) for different programming categories on their distantly retransmitted local stations. The final link in this analytic chain, according to Dr. Tyler, is that the regression can measure this WTP and thus estimate the ''relative values of market outcomes'' that cannot be directly observed. Tyler ACWDT ¶ 65.

More particularly, Dr. Tyler explains that regression analysis as applied to determine relative marketplace value in these proceedings ''exploits the fact that CSOs make choices as to which bundles of content they retransmit.'' Tyler ACWDT ¶ 66. He adds that the regression will estimate the incremental royalty amount that CSOs paid (or, more accurately appeared willing to pay) [80] to acquire different types of content, which, he opines, ''is akin to finding the relative value of programming content, based on actual choices made by marketplace participants.'' *Id.* Finally, Dr. Tyler explains that the ''marginal values'' calculated via his regression must be multiplied by the quantities of minutes ''to compute relative marketplace value.'' Tyler ACWDT ¶ 68.

Notwithstanding his broad agreement with other experts in this and prior proceedings that fee-based regressions are useful, he parts company with them in an important way. Rather than start from the assumption that Dr. Crawford's 2010–13 model is useful or correct, Dr. Tyler constructed a regression model that differed from the approach taken by Dr. Crawford and from Drs. Johnson George and Marx (for 2014), whose approaches were modified versions of Dr. Crawford's model. More specifically, he avers that the Tyler Model diverges importantly and beneficially from prior fee-based regressions and from the fee-based regressions proffered by the other experts here, because of his model's use of a *Rate* as the dependent variable.

In this regard, Dr. Tyler explains that Crawford-style regressions use actual dollar royalty amounts as the dependent (left-hand side) variable, which is problematic because ''substantial variability exists across the royalty amounts calculated for each subscriber group . . . . '' More particularly, because ''copyright royalties are determined on the basis of gross receipt percentages . . . greater [dollar] royalty amounts . . . for a subscriber group [may occur] for no other reason than that one CSO has more subscribers or higher prices, or both, than another CSO.'' Tyler ACWDT ¶ 83.

Accordingly, a regression model using royalty amounts calculated (such as the Crawford Model) ''must control for these sources of variability to attempt to isolate the incremental value of minutes by category type.'' Tyler ACWDT ¶ 83. This control is made in the Crawford-style regression by the use of ''fixed effects,'' which ''discard information from the substantial number of CSOs that have just one subscriber group,'' a loss of data that is unnecessary in the Tyler model. Tyler WRT ¶ 70.

Dr. Tyler's use of royalties as a percentage of gross receipts, at the subscriber group level, allows him to calculate what he coins (as noted *supra*) the ''Subscriber Group Royalty Percentage'' (''SGRP''). When the SGRP is regressed against the number of transmitted minutes for each category, Dr, Tyler obtains coefficients for his regression equation that he describes as ''represent[ing] a type of price.'' Tyler ACWDT ¶ 84.

This attempt by Dr. Tyler to characterize the SGRP dependent variable as a ''type of price'' is no mere academic detail. By making this characterization, Dr. Tyler claims that his model sits within a well-accepted class of econometric regressions known as ''hedonic regressions,'' which he defines as follows:

> Hedonic regression . . . model[s] . . . estimate the influence that various factors have on the price of a good, or sometimes the demand for a good. In a hedonic regression model, the dependent variable is the price (or demand) of the good, and the independent variables are the attributes of the good believed to influence utility for the buyer or consumer of the good. The resulting estimated coefficients on the independent variables can be interpreted as the weights that buyers place on the various qualities of the good.

Tyler ACWDT ¶ 85.

Dr. Tyler then constructs his purported hedonic regression by using what he describes as the calculated ''actual'' [81] royalty rate per subscriber—

[80] The Judges understand that Dr. Tyler found it necessary to include this qualifier because in a majority of instances in the 2015–2017 period, CSOs paid the minimum fee rather than the ''base fee'' calculated on a subscriber group basis. *See* Tyler ACWDT ¶ 67 (tacitly acknowledging that where the minimum fee is binding, a fee-based regression does not provide the CSOs' actualized revealed preferences, but rather only ''*insight* into how the CSOs would actually value these program categories in an unregulated market.'').

In this regard, the Judges discuss elsewhere in this determination the distinction in evidentiary value between instances where the CSO actually pays the calculated subscriber group base fee, and instances where the CSO actually pays the minimum fee (not the calculated subscriber group base fee).

[81] The word ''actual'' in this context is rather Orwellian. For the 2015–2017 period, a substantial majority of the CSOs in which the subscriber groups are situated ''actually'' paid the minimum fee. A Base Fee was ''actually'' calculated, as required by

determined by the base fee royalty as a percent of each subscriber group's gross receipts. Tyler ACWDT ¶ 87. He proceeds to weight the regression model by the gross receipts of the CSOs, which he opines is ''consistent with assessing relative marketplace value [because] [s]ubscriber groups with larger gross receipts would tend to contain more information [and] CSOs would be expected to scrutinize decisions regarding distantly retransmitted signals more carefully when there are more dollars at stake.'' Tyler ACWDT ¶ 88.[82]

Dr. Tyler's regression model ''includes interaction terms for each year . . . which allows for estimated valuations that vary'' for each year in the 2014–17 period. This annualizing of the valuations is distinguishable from the ''pooled'' approach of other regression experts in this proceeding, who (in the models proffered in their direct testimonies) ''pool'' their data across all four years. Dr. Tyler rejects this approach and utilizes an annualized approach instead, because, he opines, utilizing the same coefficient across the four years is both (1) *legally* inappropriate because calculating share allocations for specific years is statutorily required and (2) inconsistent with ''best practices'' for hedonic regressions (data permitting), which allow the underlying relationships between types of minutes and SGRP to vary over time. Tyler ACWDT ¶ 91.

Summing up, Dr. Tyler identifies what he understands to be the many advantages of his model:

1. SGRP—as a type of price—reflects a ''minimum willingness to pay'' and thus has a ''clear economic interpretation.'' PS PFF ¶ 285 (and record citations therein).

2. The focus of the regression is on ''nearly 20,000 observations/data points, and more than 2,000 distinct pricing relationships, providing the variation needed for a meaningful regression. PS PFF ¶ 286 (and record citations therein).

3. By using SGRP as the dependent variable instead of royalties (in any functional form), the Tyler Model is not influenced by variability in gross receipts caused by the number of subscribers in a subscriber group or higher CSO subscription prices arising from for example, the number and type of cable networks carried, the quality of (or deficiency in) customer service, and the bundled pricing of cable, internet and/or phone. Unlike the regressions that use royalties as the dependent variable, the Tyler Model does not need to control for these statutorily unrelated effects, thus avoiding the potential for bias when fixed effects are introduced. PS PFF ¶¶ 290–292 (and record citations therein).

4. Because the SGRP is a ''type of price'' the Tyler Model is ''closer'' to the definition of a traditional hedonic regression and ''closer to the definition of a traditional hedonic model.'' PS PFF ¶ 293 (and record citations therein).

5. By establishing values and shares for each year, rather than pooling the results over the four-year period, the Tyler Model: (a) is in line with the Judges' statutory task; (b) captures annual industry changes; and (c) is consistent with ''best practices for hedonic regressions.'' PS PFF ¶¶ 294–296 (and record citations therein).

6. The Tyler Model looks at the more economically logical hypothetical marginal expansion per minute of a program type to determine value rather than the hypothetical shift of minutes among program categories. PS PFF ¶ 298 (and record citations therein).

7. The Tyler Model avoids the problem inherent in the other regressions that must rely on incorrect subscriber number estimates. PS PFF ¶¶ 299–300, 358, 360–3623 (and record citations therein). Unlike the models proffered by Drs. George, Johnson and Marx, the Tyler Model is not based on the Crawford Model. Therefore, unlike those models, the Tyler Model is not tainted by the potential ''specification searching'' suggested by the high number of models and specifications tested by Dr. Crawford. Moreover, Dr. Tyler only considered the results of fewer than two dozen models (all linear in functional form) many of which were robustness/sensitivity checks and not generated as potential alternative base models. PS PFF ¶¶ 305, 307, 311–313, 315–316, 376–379 (and record citations therein).

8. Despite its differentiation from the Crawford Model, particularly with regard to the SGRP as the dependent variable in the Tyler Model and in the absence of a need for fixed effects, the Tyler Model is an improvement of the fee-based regression approach, not a departure. PS PFF ¶ 317 (and record citations therein).

9. The Tyler Model does not cherry-pick or otherwise overstate an allocation share for Program Suppliers, for whom Dr. Tyler presented testimony. PS PFF ¶ 308–309 (and record citations therein).

Applying his model in the foregoing manner, Tyler estimates royalty shares (and standard errors) for each year as follows:

FIGURE 3.2
Royalty Allocations Based on Regression Analysis for Basic Fund, 2014-2017

Year	Program Suppliers	JSC	CTV	PTV	SDC	CCG
2014	26.6% (3.8%)	37.2% (7.5%)	11.3% (2.6%)	14.0% (1.7%)	4.3% (0.9%)	6.5% (0.9%)
2015	39.7% (1.5%)	2.8% (1.0%)	10.2% (1.5%)	27.9% (0.6%)	6.2% (0.6%)	13.3% (0.5%)
2016	34.0% (1.5%)	2.5% (0.9%)	8.2% (1.8%)	37.4% (0.7%)	4.4% (0.6%)	13.6% (0.5%)
2017	31.8% (1.1%)	1.8% (1.0%)	6.9% (0.9%)	40.4% (0.6%)	4.0% (0.4%)	15.2% (0.9%)
	Adjusted R2:	83.3%				

the regulations, but *not* ''*actually*'' *paid,* because the Minimum Fee bound. Dr. Tyler's misleading semantic use of the adjective ''actual'' does not assist the Judges in deciding whether any or all of the Base Fee calculations have objective evidentiary weight.

[82] The use of weights in hedonic regressions has support in the economic literature. *See* Tyler ACWDT ¶ 88 n.72 (citing sources). (Dr. Tyler also includes a sensitivity analysis in which he shows the results of his model without weights Tyler ACWDT § VI.G. (tech. app. C)).

1. Criticisms of the Tyler Model

a. Criticisms of the Tyler Model by SDC Expert Witness Dr. Erdem

Dr. Erdem opines that, notwithstanding Dr. Tyler's claim that his model is differentiated to address defects in the approach used by Dr. Crawford, the Tyler Model ''essentially carries the same flaws.'' Erdem WRT ¶ 43. But before examining alleged flaws in the Tyler Model, Dr. Erdem acknowledges that, in his opinion, the other regression experts' modeling is more ''egregious'' than Tyler's model. Erdem WRT ¶ 121. More particularly, Dr. Erdem recognizes that Dr. Tyler has made what Dr. Erdem understands to be the following salutary changes from the approach used by Dr. Crawford:

1. A change in the dependent variable from the log of royalties into a fees/revenue ratio.
2. The removal of fixed effects.[83]
3. Division of each claimant category into ''Canada'' and ''non-Canada'' zone minutes.[84]
4. Removal of the effect of ''the number of subscribers'' by ''divid[ing] the . . . fees paid by a metric [gross receipts] that scales with the number of subscribers.''

Erdem WRT ¶¶ 43, 61.

However, according to Dr. Erdem, despite the positive significance in these model changes, the core principle of the Tyler Model remains unchanged from other regressions, because ''the dependent variable Dr. Tyler uses is still driven by fees [and] attempt[s] to estimate the relationship between fees and programming minutes.'' Erdem WRT ¶ 43.[85] More granularly, Dr. Erdem criticizes Dr. Tyler's use of the SGRP as the dependent variable because it ''basically boils down to the number of DSEs.'' In this regard, Dr. Erdem further opines:

> This is because a system's royalty fees are calculated by multiplying their revenues by a specified amount that increases as the system adds more DSEs, so dividing the fees by revenue will produce a number that correlates strongly with the number of DSEs the system carried. As a result, Dr. Tyler is essentially saying that DSEs equate to market value.

Erdem WRT ¶ 122. Dr. Erdem asserts that this change in the dependent variable from the log of royalties to the SGRP does not cure the fundamental problem in *all* fee-based regressions, to wit: fee-based regressions are ''trying to calculate market value when no market exists, using variables determined by regulation.'' Erdem WRT ¶ 122.

b. Criticisms of the Tyler Model by SDC Expert Witness Dr. Rubinfeld

Dr. Rubinfeld testifies about the deficiencies in all the fee-based regressions, but he pointedly criticizes Dr. Tyler for characterizing his regression as a *hedonic* regression. Rubinfeld WRT ¶ 71. Dr. Rubinfeld levies this objection because he is of the opinion that Dr. Tyler's dependent variable, the SGRP, does not equate or analogize to a ''market price''—a necessary element for a regression to qualify as hedonic. Rubinfeld WRT ¶ 71. Thus, according to Dr. Rubinfeld, Dr. Tyler's dependent variable, the SGRP, falls victim to the same deficiency as the other regressions, in that there is ''no reason to believe that a regression based on statutory royalty fees—whether in dollar terms or expressed as a percentage of gross receipts—will identify the marginal value of programming that would prevail if the royalty fees were determined in a free market.'' Rubinfeld WRT ¶ 75.

However, Dr. Rubinfeld *approvingly cites Dr. Tyler's testimony* (in the same vein as Dr. Erdem) for its critique of the modeling undertaken by Dr. Crawford. In this regard, Dr. Rubinfeld notes:

1. Dr. Tyler examines Dr. Crawford's regression model to the 2014–2017 data available in the current proceeding and finds a ''serious'' underlying modeling problem in the fact that ''the Crawford Model estimates zero shares for JSC in 2014 (as well as the other years) . . . .''
2. Dr. Tyler analyzes the troubling pattern of the regression's ''residuals'' in Dr. Crawford's model—again using 2014–2017 data—and finds that the latter's regression model is ''not well specified for the 2014–2017 data.'' [86]

Rubinfeld WRT ¶ 93.

In sum, Dr. Rubinfeld does not find economic support for Dr. Tyler's regression model, but does find common cause with Dr. Tyler' broad criticism of other fee-based regressions.[87]

c. Criticisms of the Tyler Model by CTV Expert Witness Dr. Bennett

As an initial criticism, Dr. Bennett avers that Dr. Tyler's use of his SGRP as the dependent variable, instead of royalties, may potentially and illogically fail to link ''variation in the composition of minutes [to] value unless that variation is also accompanied with a change in . . . the SGRP.'' Bennett WRT ¶ 124. To make this point, Dr. Bennett hypothesizes a scenario in which two minimum-fee-paying CSOs make subscriber-increasing changes in distantly retransmitted stations, thus increasing royalties, but each maintains the same SGRP because royalties have not increased (remaining at the minimum fee level). Bennett WRT ¶ 125.

Moving to another critique, Dr. Bennett opines that Dr. Tyler's regression sample ''is based on a relatively small and non-representative sample of the CSOs whose royalty payments comprise the aggregate of the royalty pool.'' Bennett WRT ¶ 135. Dr. Bennett does not suggest that this small sample is unique to Dr. Tyler among the regression experts, acknowledging that this applies to ''the other witnesses relying on regressions for 2014–2017.'' Bennett WRT ¶ 136.[88]

d. Criticisms of the Tyler Model WDT by JSC Expert Witness Dr. Majure

In addition to his general criticisms of all fee-based regressions, Dr. Majure levies criticisms that he aims most particularly against Dr. Tyler's regression approach. Dr. Majure acknowledges that ''[p]rior to WGNA's conversion, there was some variation in the royalty rate a CSO would pay for incremental content,'' such that only ''[t]he regressions that rely on data for 2015–2017 have little to no connection with how much CSOs value the content.'' Majure WRT ¶¶ 75, 77. Thus, he opines that ''only after the WGNA conversion [the regressions] do not—and cannot—estimate the value of a minute of content to CSOs.'' Majure WRT ¶ 75.

Dr. Majure maintains that the Tyler Model well-demonstrates the foregoing

[83] Dr. Erdem opined that the inclusion of fixed effects obscured the more impactful predictive effects of other independent variables on the royalty-based related dependent variable.

[84] The experts' treatment of issues relating specifically to the Canada Zone is set forth *infra* in this determination.

[85] This is a reprise of the overarching criticism that Dr. Erdem made in the 2010–13 Determination, which was rejected by the Judges.

[86] More technically, Dr. Rubinfeld (like Dr. Erdem) finds the ''hammer-shaped pattern of residuals violates the classical zero conditional mean of the disturbance assumption for the OLS estimator to be unbiased.'' Erdem WRT ¶ 93. This means that the residuals exhibit non-random data points, whereas a well-specified regression would contain have random error terms. In (perhaps) somewhat less technical terms, Dr. Rubinfeld is agreeing with Dr. Tyler that the unexplained portions of the Crawford Model are actually correlated with one or more omitted independent variables.

[87] Another SDC expert witness, Mr. John Sanders, likewise does not ''endorse'' Dr. Tyler's modeling, but relies on Dr. Tyler's critiques to discredit the fee-based regressions proffered by other experts. *See, e.g.,* Sanders WRT ¶ 3 nn.4, 9, & 20. Mr. Sanders also notes the divergence of Dr. Tyler's estimated share for PTV and, respectively, SDC content, from the results of other fee-based regressions as, in his opinion, indicative of the unreliability of such regressions in these proceedings. Sanders WRT ¶¶ 11, 18.

[88] Although Dr. Bennett does not state here why the sample is so truncated, the Judges understand this point to be based on the growing number of CSOs, without any distant retransmissions and thus no subscriber groups, which Dr. Bennett indicates increased over the 2015–17 period.

point, and that the Tyler Model essentially estimates only ''the equation given by the statutory formula . . . .'' Majure WRT ¶ 78. Thus, he opines that the SGRP in the Tyler Model does not establish a ''price'' that can be explained and applied as in a bona fide hedonic regression. Majure WRT ¶¶ 78–79 (''For example, [in the Tyler Model] the 'price' calculated for the subscriber groups of a CSO carrying a full DSE or less than a full DSE across all subscriber groups would be 1.064 percent of the subscriber group's revenues multiplied by its total number of DSEs.'').

However, Dr. Majure is careful to acknowledge that ''the statutory formula could lead to variation in Dr. Tyler's 'price' beyond what comes from the DSE value'' in 2014 but ''this is not the case after 2014 [because] after 2014, the vast majority of subscriber groups belong to CSOs that paid the minimum fee, leaving little variation in the percentage of royalties they would owe.'' Majure WRT ¶ 80. Thus, Dr. Majure appears to recognize that for 2014 the Tyler Model presented an acceptable proxy for ''price'' as its the dependent variable.

e. Criticisms of the Tyler Model WDT by JSC Expert Witness Mr. Harvey

Although Mr. Harvey opines that the Tyler Model, like the other regression models, is unable to correctly value JSC programming for the 2015–17 period, he acknowledges that the Tyler Model is superior to the others in one respect: it calculates annual coefficients rather than ''pooled'' coefficients for all four years (2014–2017). Harvey WRT ¶¶ 28, 35.

But Mr. Harvey is otherwise decidedly critical of the Tyler Model—maintaining first that it does not ''reliably estimate[e] [JSC] value[ ] in 2015–2017,'' because ''[s]ixty-six percent (4 of 6) of the compensable sports coefficients are not statistically significantly different than zero.'' Harvey WRT ¶ 45 & tbl.9.

Next, Mr. Harvey separates out minimum fee systems from the Tyler Model, in order to isolate those CSOs making retransmission decisions that Mr. Harvey asserts had economic consequence in terms of royalty payments. Harvey WRT ¶ 46 & tbl.10. He then turns to various ''sensitivity tests'' undertaken by Dr. Tyler, that were not contained in the Tyler Written Direct Testimony but which were produced in discovery by Program Suppliers. Harvey WRT ¶ 68. Looking at these tests, Mr. Harvey notes that Dr. Tyler ''selected a specification that, among his many sensitivity analyses, resulted in one of the lowest shares for JSC and one of the highest for Program Suppliers.'' Harvey WRT ¶ 70. See also Harvey WRT fig.6.[89]

f. Criticisms of the Tyler Model by CCG Expert Witness Dr. George

At the outset, Dr. George, avers that Dr. Tyler's model ''diverges from economic theory'' through his consideration of the SGRP, rather than a measure of royalties, as the dependent variable affected by claimant programming minutes. George WRT at 11–12. More particularly, Dr. George maintains that this change in the dependent variable:

> removes the link between the value of distant signal programming to [CSO] and royalty cost that lies at the heart of the theoretical framework [and] effectively replicates the regulatory formula [rather than] reflect value.

George WRT at 12. Further to this point, Dr. George asserts that the inclusion of the SGRP as the dependent variable ''attenuate[s]'' the differentiated marginal value of assorted types of programs. She explains that by looking at royalties from all retransmitted programming as a proportion of gross receipts, the Tyler Model ''understates the value of high-quality, differentiated program and overstates the value of undifferentiated, low-quality programming.'' George WRT at 12.

Another criticism levied against the Tyler Model by Dr. George is that (as with the Johnson Model, discussed *infra*) it suffers from the consequential defect of:

> includ[ing] no fixed effects at all [and the] coefficients [thus] are estimated using variation across different cable systems . . . the variation most likely to be contaminated by the effect of unobserved factors, also known as bias from omitted variables . . . *[the coefficients therefore] cannot be relied on to reflect underlying value.*

George WRT at 13 (emphasis added).

g. Criticisms of the Tyler Model by PTV Expert Witness Dr. Johnson

Although Dr. Johnson finds that he and Dr. Tyler agree on a number of points, *see* Johnson WRT ¶ 26, Dr. Johnson takes issue with the following aspects of Dr. Tyler's WDT.

At the outset, Dr. Johnson criticizes Dr. Tyler's use of the SGRP as the dependent variable in the Tyler Model because, according to Dr. Johnson, ''the SGRP does not capture the CSO decision-making process and identify their valuation of such programming,'' because the SGRP essentially replicates the statutory formula without regard to ''the type of programming . . . on the signals the CSO retransmits.'' Johnson WRT ¶ 34. Thus, according to Dr. Johnson, the SGRP dependent variable in the Tyler Model fails to capture the ''chain of logic'' of the correlation in the fee-based regressions, *i.e.,* that ''[t]o the extent . . . a CSO's bundle of programming includes more valuable programming, the price of that bundle will be higher, the CSO's gross receipts will be higher, and thus the amount of royalties that the CSO pays will be higher.'' Johnson WRT ¶ 35.

Next, Dr. Johnson looks at the ''sensitivity tests'' Dr. Tyler applied to his own model and notes ''the extreme variability in Dr. Tyler's regression results'' uncovered by these tests relative to Dr. Johnson's more stable results, which, according to Dr. Johnson ''suggests that modeling royalty amounts rather than the statutory royalty rate is more appropriate.'' Johnson WRT ¶ 40.

2. The Judges' Analysis and Findings Regarding the Tyler Model [90]

The Judges make the following findings with regard to the Tyler Model:

1. Dr. Tyler's measurement of ''an additional minute'' of programming content, as contrasted with a ''value relative to a reference or base category'' in other regressions, is appropriate, but neither approach is superior *inter se.*

2. The base fee calculations of minimum-fee-only CSOs do provide some ''insight'' into how those CSOs might actually value different program categories, but that ''insight'' is limited, because it is predominantly informative as to ordinal rankings of relative value, rather than cardinal measures, as required in these proceedings. *See* 2010–13 Determination at 3578 (''the Judges do not place much weight on the relative rankings of the program categories''); *cf. Phonorecords III,* Initial Ruling and Order after Remand at 38 (July 1, 2022) (distinguishing the benefit of an economic model's ''insight'' from a useful ''real-world relationship'').

3. A CSO whose base fee calculations are more proximate to the minimum fee it eventually paid would be more probative of CSOs' willingness-to-pay than when there is a large gap between the calculated base fee and the paid minimum fee, because the CSO could have understood that the base fee might bind. However, the record provides

[89] To be clear, figure 6 generated by Mr. Harvey shows that the share allocations arising from the proffered Tyler Model were neither higher than all the Program Supplier shares nor lower than all the JSC shares generated by the sensitivity tests. Moreover, Mr. Harvey does not state why the sensitivity test results should have led Dr. Tyler to alter his share allocations, nor does Mr. Harvey state why Dr. Tyler should have abandoned the Tyler Model merely because the shares differed in the sensitivity test, albeit not in a manner that even Mr. Harvey avers had called into question the model's robustness.

[90] The Judges' analysis and findings in this section are separate and apart from their analysis and findings on the specific issues considered in separate sections of this determination.

insufficient evidentiary basis to apply this point in the present proceeding.

4. On the present factual record, the Tyler Model's SGRP is preferable to the log of royalties, or royalties themselves, as the dependent variable in a fee-based regression, because it does not require the use of questionable controls and fixed effects, and remains appropriate even in the absence of such controls and fixed effects. However, the log of royalties, or royalties themselves, are appropriate dependent variables, provided the factual record and the specifications of the regression are appropriate.

5. The Tyler Model is not a hedonic regression as generally understood by economists, because it is not based on actual market prices. Dr. Tyler at times acknowledges this point, by describing his SGRP as a ''type'' of price, rather than an actual price and by also describing the SGRP as ''closer'' to the definition of a traditional hedonic model. However, the approach taken by the Tyler Model is in the nature of a hedonic regression, in that it utilizes a similar approach by creating a useful proxy for price proxy in the form of a budget constraint, *i.e.,* the SGRP. (*See also* the discussion regarding ''relative marketplace value'' supra and the section, *infra,* comparing the Tyler Model to a ''fee generation'' approach).

6. The Tyler Model's use of weighting of each CSO's gross receipts is appropriate of the CSOs because the decisions by CSOs with larger gross receipts will have a greater impact on the royalty pool making the programming category information they provide more important.

7. The Tyler Model, calculating coefficients for each year, is superior to the other regression models in this proceeding to the extent those models were originally proffered as ''pooled'' models, using one coefficient for the entire 2014–2017 period. (However, this advantage is mitigated where there is evidence or testimony that such ''pooled'' models were themselves subsequently recalculated on an ''unpooled'' basis either by the proffering regression expert or by other expert witnesses in their rebuttal testimonies.)

8. The Tyler Model provides sufficient variation among the CSOs' decisions because it contains approximately 20,000 data points for observation, and more than 2,000 distinct pricing relationships. 4/19/23 Tr. 5436 (Tyler).

9. The Tyler Model is superior to the other fee-based regressions by not requiring as a control variable an estimate of the number of subscribers in a subscriber group, which cannot be estimated without measurement error. PS PFF ¶¶ 300, 360–362 (and record citations therein). This issue is a critical reason why the Judges give greater weight to the Tyler Model vis-à-vis the other regression models, and thus necessitates getting ''into the weeds'' for a more detailed explanation.

The control for the number of subscribers is very important in the other fee-based regressions where the dependent variable is a functional form of royalties, because the number of subscribers clearly would have a substantial effect on the level of royalties (*i.e.,* more subscribers = more royalties). Moreover, the number of subscribers must be controlled because the number of subscribers could also be positively correlated with the number of minutes. Thus, it must be controlled in order to isolate the ''effect'' of interest, which is the impact of different program category minutes on the royalties. *However, there is no data available regarding the number of subscribers in a subscriber group, and the other fee-based regression experts are forced to make an estimate by ''proportionally assigning the number of overall CSO subscribers to each subscriber group based on the gross receipts for each subscriber group.*'' Tyler WRT ¶ 41 (emphasis added).

The problem with this estimate is two-fold, inaccuracy and impact on the regression. As Dr. Tyler explains:

The estimate is ''inaccurate because allocating the number of subscribers based on the distribution of gross receipts is akin to assuming that customers in each subscriber group are paying the same monthly rates on average. [T]his assumption is flawed because, as Dr. Johnson acknowledges, CSOs may broadcast one set of stations to one set of subscribers and a different set of stations to another set of subscribers [and] cable prices vary across customer type, geography, and over time. . . . The only way that subscriber groups would have the same average prices is if they all bought the same products at the same prices in the same proportions across groups. Thus, one would expect the average prices *to be different* across subscriber groups, *not the same* as assumed by Dr. Johnson and Dr. George.'' Tyler WRT ¶¶ 42–43; 45–46.[91]

This inaccurate estimate of the number of subscribers is also *impactful* on the other fee-based regressions that must use the number of subscribers as a control variable. Dr. Tyler explains:

For example, assume that customers in suburbs have a higher average price than downtown customers, such that Dr. George and Dr. Johnson undercount subscribers in the suburbs and overcount subscribers in urban areas. The types of distantly retransmitted signals that are broadcast to these two types of customers are likely to vary. Thus, the use of inaccurate subscriber group numbers would lead to a mismeasurement of the incremental value of the minute categories in the regression analysis.

In short, the use of inaccurate subscriber group numbers is potentially a serious problem for Dr. George and Dr. Johnson. The use of ''filled-in'' data when actual numbers are not available may have introduced bias into their results and this could have important consequences for their estimates. Tyler WRT ¶¶ 49, 52.

10. Because the Tyler Model is not based on the Crawford Model, it is not tainted by the potential ''specification searching'' that haunts the Crawford Model through its consumption of ''phantom degrees of freedom,'' as discussed in the 2010–13 Determination. Moreover, there is no persuasive evidence that Dr. Tyler engaged in anything that could be construed as specification searching.

11. The Tyler Model is also not the subject of the criticisms levied against the other fee regressions. For example. Dr. Erdem applauds the Tyler Model for its abandonment of the royalty-based dependent variable, the unnecessity and removal of fixed effects and the use of a dubious measure of the number of subscribers as a control variable.

12. The overarching criticism that Dr. Erdem does levy against the Tyler Model are insufficient to damage its usefulness. Specifically, Dr. Erdem states the obvious as a criticism: ''[T]rying to calculate market value when no market exists . . . .'' Erdem WRT ¶ 122. But that is simply a restatement of the problem created by the structure of section 111. As the Judges explain in more detail elsewhere in this determination, as they explained in the 2010–13 Determination and as acknowledged by the D.C. Circuit, the regressions identify market-based behavior among CSOs, in the form of revealed preferences for different program categories, and such behavior is relevant evidence useful for estimating relative marketplace value. And, with specific reference to the Tyler Model, the SGRP is reflective of, first, the budget constraint that limits the CSOs' distant retransmittals and, second, the program categories they select when so constrained. (This point is discussed further *infra* in the discussion of the Tyler Model to a fee-generation approach.)

13. The other SDC expert, Dr. Rubinfeld, likewise applauds Dr. Tyler's approach to the problem, agreeing with him that there exist serious modeling problems in connection with the Crawford Model and those based on that model. However, Dr. Rubinfeld—like Dr. Erdem—restates the statutory problem—the absence of a ''market price,'' in order to argue that the Tyler Model is not a true ''hedonic'' regression. (Dr. Majure makes the same argument.) As noted *supra,* the Judges find that the Tyler Model is not a true ''hedonic'' regression, as Dr. Tyler (albeit sometimes grudgingly) seems to concede. However, as discussed in more detail elsewhere in this determination, the Judges find the Tyler regression to be a ''Hedonic-inspired'' regression, useful in this proceeding to identify an appropriate market-factor driven allocation of royalty shares.

14. Dr. Bennett's attacks on Dr. Tyler for originally engaging in an erroneous critique of the Crawford Model is inconsequential. Dr. Tyler acknowledged his error and withdrew the portion of his original WDT that contained his erroneous critique of the Crawford Model. There is no reason to consider this issue relevant, and, if anything, it indicates that Dr. Tyler is willing to acknowledge a mistake.

15. More broadly, the Judges do not find the criticisms by Dr. Bennett or by Dr. George that relate to Dr. Tyler's other criticisms of the Crawford Model to be relevant to the issues pertaining to the Tyler Model itself.

16. Dr. Bennett's Tyler Model-specific criticism—regarding the impact of channel lineup changes by two hypothetical CSOs paying the minimum fee—is of no

[91] Dr. Tyler provides an empirical example of the varying subscription rates among a CSO's subscribers. Tyler WRT ¶ 44.

consequence in the Judges' analysis, because the Judges—as discussed elsewhere in this determination—are focusing on the above-minimum-fee CSOs in their application of the Tyler Model. More specifically, the Judges credit the testimony of JSC's expert, Mr. Harvey, who separated out the minimum-fee-only systems from the Tyler Model, in order to isolate those CSOIs making transmission decisions that had economic consequences in terms of royalty payments. *See* Harvey WRT ¶ 46 & tbl.10.

17. The Judges do not question the Tyler Model for selection a specification that resulted in ''one of the lowest shares for JSC and one of the highest for Program Suppliers.'' Absent a showing of specification searching, which is not even alleged against Dr. Tyler, these results are not indicative of any wrongdoing.

18. Dr. Majure's criticism that the Tyler Model essentially estimates only ''the equation given by the statutory formula'' is incorrect. *See* the discussion of the Tyler Model as related to a ''fee generation'' approach, *infra*.

19. The absence of a ''reference category (a/k/a ''numeraire'' or index) in the Tyler Model is not a fault. As noted above, the Tyler Model measures the minimum willingness to pay for an additional minute of distant programming across each program category, not the value of a minute of one program replacing minutes from a reference category.

20. Any greater precision or stability in the Johnson Model compared with the Tyler Model is a consequence of Dr. Johnson's decision to remove ''fixed effects'' from his model where, unlike in the Tyler Model, the dependent variable was royalty-based, not the SGRP. That is, Dr. Johnson obtained more precision, but at the expense of generating ''omitted variable bias.'' Although this econometric jargon suggests an analysis ''deep in the weeds,'' it is of great importance: Precision and stability are not particularly helpful if the model is measuring the wrong thing—here, with the Johnson Model more in the nature of *predicting* the royalty level by omitting ''fixed effects'' rather than focusing on the *effect* of program category minute on royalties (subject to the cost constraint reflected in the SGRP).

D. CCG's Regression Approach: The George Model

Dr. Lisa George, a CCG expert witness,[92] explicitly relied on Dr. Crawford's approach from the 2010–13 proceeding, ''[b]ecause [Dr.] Crawford's approach was determined by the Copyright Royalty Board to be 'highly useful in estimating relative values' . . . . .'' George WDT at 26–27.[93] More particularly, Dr. George followed Dr. Crawford's approach by ''estimat[ing] a regression model at the subscriber group level with fixed effects and [royalties as] a logged dependent variable.'' George WDT at 27.

However, Dr. George adjusted the specifications in her model in a manner that differentiated her model from Dr. Crawford's model in two ways to reflect: (1) changes in the distant signal market; and (2) to address comments from the Judges in the 2010–13 Determination. George WDT at 27. The key differentiators are (1) Dr. George's inclusion of separate ''system accounting period fixed effects'' rather than Dr. Crawford's ''interacted system-accounting period fixed effects'' and (2) the elimination of an interacting of controls for the (a) top multi-system operators (MSOs) with (b) lagged subscribers (*i.e.,* subscribers from the preceding accounting period). George WDT at 27.

More particularly, Dr. George significantly reduced the number of fixed effects in her preferred regression model compared to Dr. Crawford's number of fixed effects. Specifically, Dr. George testifies that her preferred model ''includes one fixed effect for each system plus one for each accounting period (number of systems *plus* 8 [six-month accounting periods]),'' whereas Dr. Crawford's model included ''one fixed effect for every system every accounting period (number of systems *times* 8 [six-month accounting periods])''. George WDT at 27 (emphasis added). According to Dr. George, this deviation for Dr. Crawford's approach was measured and beneficial:

> Since fixed effects operate by narrowing the variation used to identify coefficients, my specification is less restrictive than [Dr.] Crawford's. In other words, I make use of variation *within cable systems over time* but not across cable systems. [Dr.] Crawford's specification did not make use of variation *within cable systems over time* or across cable systems, *identifying coefficients using only variation within systems each accounting period.*

George WDT at 27 (emphasis added).

As in the Crawford Model, Dr. George's dependent variable is the natural log[94] of royalty fees and, as in the Crawford Model, is related by the regression to the subscriber groups' respective distant programming minutes for each claimant's program category. George WDT at 51. The regression process produces an estimate of coefficients, one for each claimant program category, showing the effect of one additional programming minute on the natural log of royalty payments. George WDT at 51. She then uses these coefficients to calculate, in dollars, the ''average marginal value'' of an additional programming minute for each claimant category. George WDT at 51–52.

To calculate shares, Dr. George likewise adopts the method used by Dr. Crawford and, indeed, consistently across fee-based regression models. That is, she multiplies these average marginal values by compensable programming minutes for each subscriber group, thus producing a value of compensable programming for each claimant program category. For each category, she uses that category's values as a numerator in a fraction where the denominator is the sum of the totals over each claimant.

Dr. George reported the following claimant shares:

[92] Dr. George was received as expert witness in the ''field of economics, with experience in econometrics, media markets, and industrial organization.'' 4/18/23 Tr. 5111 (George).

[93] The Judges must emphasize here the fact that the SDC provided to CCG (and all of the other participants), in voluntary discovery in the *present* proceeding, promptly after the filing of written direct statements, copies of materials from the 2010–13 *satellite* allocation proceeding that at the least suggested Dr. Crawford may have engaged in inappropriate specification searching in the development of his regression framework. However, neither Dr. George nor any other CCG witness specifically addressed in written rebuttal testimony the discovery from the 2010–13 satellite proceeding suggesting Dr. Crawford's potential specification searching. (However, Dr. George more generally explained how she was able to evaluate Dr. Crawford's regression work, even though she did not address the discovery suggestive of Dr. Crawford's specification searching and of dissembling in his testimony before the Judges in the 2010–13 proceeding. *See* George WRT at 50–54.)

[94] Technically, the ''natural log'' (shorthand for logarithm) is ''[a] mathematical function defined for a positive argument; its slope is always positive but with a diminishing slope tending to zero,'' and it ''is the inverse of the exponential function X = ln(ex).'' James H. Stock & Mark W. Watson, *Introduction to Econometrics* 821 (3d ed. 2015). Practically, for purposes of applied econometrics, using the logarithmic functional form, which shows the *percentage* changes in the variables, may be more practical.

TABLE 22—IMPLIED CLAIMANT SHARES, 2014–2017

	Program suppliers (%)	Joint sports (%)	Commercial TV (%)	Public TV (%)	Devotional claimants (%)	Canadian claimants (%)
2014	20.86	25.64	14.88	30.21	1.91	6.49
	(1.99)	(5.16)	(2.13)	(2.74)	(0.49)	(0.95)
2015	31.71	3.61	12.04	36.56	2.41	13.67
	(1.75)	(0.94)	(1.72)	(1.89)	(0.55)	(1.91)
2016	29.53	3.45	11.43	41.59	1.70	12.30
	(1.61)	(0.90)	(1.65)	(1.99)	(0.39)	(1.75)
2017	26.11	3.23	10.19	47.03	1.40	12.03
	(1.43)	(0.85)	(1.49)	(2.08)	(0.32)	(1.73)

Note: The table reports the implied claimant shares of distant signal royalties each year derived from the regression model, which includes system and accounting period fixed effects. Standard errors in parentheses

Highlighting an important aspect of her analysis, Dr. George states that ''[a]s expected, estimated shares for 2014 are substantially different from those for 2015–2017 due to exit of WGNA.'' George WDT at 57.

Delving deeper into her regression equation, Dr. George explains that she includes a number of control variables. As she explains, ''[T]hese control variables are included in the econometric model based on the expected economic relationship with royalty payments [and] [e]ach of these terms has been included in prior regression models for these proceedings.'' George WDT at 54.

Specifically, Dr. George includes, explicitly or implicitly, the following controls:

CSOs paying minimum fees
CSOs paying into the 3.75 fund
CSOs paying into the Syndex fund
Canada Zone System in Canadian re-transmission zone
Number of permitted stations in the subscriber group
Number of distant stations in the subscriber group
Number of local stations in the subscriber group
Activated channels in the prior accounting period (lagged channels in subscriber group)
Subscribers in prior accounting period (lagged subscribers in subscriber group)
Median income in primary county served by the system
System operated by top MSO, *i.e.,* Comcast, Verizon, AT&T, Charter, Cox, Time Warner, Cablevision, Altice.

George WDT at 53 tbl.19. Dr. George explained her reasons for including these controls as follows:

> [I]indicators for systems paying minimum fees, syndicated exclusivity surcharges, or 3.75 fees as well as the number of permitted stations carried in the subscriber group [are] all variables expected to be correlated with royalty payments.
>
> An indicator for systems in the Canadian Zone is needed because re-transmission rules are different in this region and may affect subscribers and royalty payments.
>
> The (lagged) number of subscribers is an important control because royalties increase with gross receipts, which in turn increase with the number of subscribers. The number of subscribers is entered in lagged form to avoid the possibility of reverse causality biasing the coefficients on program minutes. (Channels activated enters as a lag for the same reason.)
>
> The number of distant stations is included to ensure that the coefficients on programming minutes are estimated all else equal. In other words, estimates of the . . . coefficients should measure how a change in claimant minutes affects royalty payments holding constant the total number of distant minutes broadcast, which is a function of the number of distant signals re-transmitted.
>
> Indicators for each of the top MSO's (Comcast, Verizon, AT&T, Charter, Cox, Time Warner, Cablevision and Altice) are included to account for potential differences in strategies that might affect the demand for system offerings not otherwise included in the econometric model. For example, changes in strategy by Time Warner Cable systems acquired by Charter Communications would be captured by the MSO indicators. While [Dr.] Crawford included indicators for only the top six MSO's, I add Cablevision and Altice because the largest transaction in the 2014–2017 period was the Altice acquisition of Cablevision, which was the 7th largest MSO at the time of acquisition.

George WDT at 53–54.

To determine whether her regression model was robust to certain specification changes, Dr. George conducted sensitivity checks whereby she made certain changes to her model. Specifically, she conducted the following three robustness/sensitivity checks:

> (1) Changing her regression model specifications to include ''interacted system-accounting period fixed effects (number of systems times 8).''
>
> (2) Changing her regression model specifications to include ''not only indicators for the top MSO's but also these indicators interacted with lagged subscribers.''
>
> (3) Changing her regression model to include ''both adjustments [*i.e.,* (1) and (2) above] . . . thus correspond[ing] to the model estimated by [Dr.] Crawford for his 2010–2013 analysis.''

George WDT at 58.

Dr. George found that the estimated shares in these three robustness/specification tests ''are close to those derived from the preferred model.'' George WDT at 59; *see also id.* at tbls.25–26. She also notes that the confidence intervals are tighter in the third alternative robustness/sensitivity checks, *see* George WDT tbl.27, reflecting the smaller standard errors contained in that check, which she attributes to the fact that the changed specifications in that checks are ''restricting the variation on which coefficients are estimated.'' George WDT at 61–62. Despite her acknowledgement that this greater precision is ''useful,'' [95] Dr. George is willing to tolerate ''the point estimates from [her preferred] baseline model because they make use of more variation in the data while still precisely estimated.'' George WDT at 62.

1. Criticisms of the George Model

a. Criticisms of the George Model by SDC Expert Witness Dr. Erdem

Beyond his criticisms of the Crawford Model that are derivatively applicable to Dr. George's model, Dr. Erdem levies further criticisms of the George Model. He asserts that although she has altered and reduced the number of fixed effects from the Crawford Model, her alterations do nothing to redeem her approach. Rather, he notes that Dr.

[95] The Judges understand that the usefulness of this greater precision is that the increased types of fixed effects limit the variation in the regression to variation caused by the difference in programming category minutes, whereas Dr. George prefers to obtain additional data points in order to observe more variation, notwithstanding that relaxing fixed effects in these manners opens the door for bias, in the form of variations caused by unobserved variables otherwise captured by the fixed effects. The Judges discuss this tradeoff in greater detail elsewhere in this determination.

George's specifications continue to remain very close to those in versions that Dr. Crawford ran in the previous proceeding.

But, Dr. Erdem acknowledges that, unlike in the Crawford Model, Dr. George applies two separate fixed effects for accounting period and system ID, and yet he finds this to be a difference that fails to rescue her model from the overfitting defects that he claims to pervade Dr. Crawford's regression approach. Dr. Erdem also opines that. Dr. George retains some variables from the Crawford Model which lack a ''clear basis for their helpfulness in the model, such as the lag of subscribers (subscribers in the previous accounting period).'' Erdem WRT ¶ 41. Finally, he opines that Dr. George aggravates an already-present overfitting problem by adding ''other variables such as median county income,'' without adequately supporting her decisions. Erdem WRT ¶ 41.

b. Criticisms of the George Model by SDC Expert Witness Dr. Rubinfeld

Dr. Rubinfeld likewise notes that although Dr. George essentially ''applied Dr. Crawford's specification to the 2014–2017 data,'' she ''replaced system-period fixed effects with separate system and period fixed effects [and dropped] [s]ome explanatory variables . . . . '' But, like Dr. Erdem, he did not find that these alterations salvaged her model from the defects that, in his opinion, pervade the Crawford Model and, indeed, all fee-based regressions. Rubinfeld WRT ¶ 94.[96]

c. Criticisms of the George Model by JSC Expert Witness Mr. Harvey [97]

Mr. Harvey opines that Dr. George introduced ''multicollinearity'' [98] into her regression by including ''a variable on the independent side of [her] regression equation[ ] that controls for the number of distant stations broadcast to the subscriber group.'' Harvey WRT ¶ 170. Mr. Harvey understands that this control variable was likely introduced ''to control for non-compensable broadcast minutes, such as Big-3 minutes,'' but he asserts that the regression should have been specified by ''simply includ[ing] the 'Big-3' variables . . . achiev[ing] the same stated goal more directly while avoiding problems of multicollinearity.'' Harvey WRT ¶ 174.

There is a formal statistical test to identify multicollinearity called the variance inflation factor (VIF). Harvey WRT ¶ 176. When he ran the VIF test on the George Model, Mr. Harvey found meaningful multicollinearity between these variables. Harvey WRT ¶ 182. Accordingly, Mr. Harvey performed a sensitivity test on the George Model in which he removed the distant stations and permitted stations variables. Harvey WRT ¶ 183. The resultant change in the coefficients for the program categories translated into revised share allocations that included substantially higher JSC shares, as set forth in the table below: [99]

TABLE 31—GEORGE REGRESSION MODEL SHARE ESTIMATES EXCLUDE DISTANT AND PERMITTED STATION VARIABLES

	Educational %	Joint Sports %	Devotional %	Canadian %	Commercial TV %	Program suppliers %
2014	7.0	71.8	1.1	10.5	3.3	6.4
2015	15.5	18.6	2.5	40.6	4.9	17.9
2016	18.6	18.7	1.8	38.4	4.9	17.5
2017	21.5	18.0	1.5	38.5	4.5	15.9
2014–2017	12.0	48.9	1.4	22.8	3.9	11.0
% Change in Total vs Base Model	−67.8	290.7	−22.5	124.9	−69.0	−57.2

Sources:
- Electronic file ''programs/208_george_regressions.do''.

d. Criticisms of the George Model by CTV's Expert Witnesses Dr. Marx and Dr. Bennett

CTV's experts criticize the George Model for the following reasons:

1. Because of the dramatic increase in the number of minimum-fee-only CSOs, the George Model relies too heavily on royalty payments that do not reflect the revealed preferences of CSOs. CTV PFF ¶¶ 289, 302 (and record citations therein).

2. The ''pooling'' of data to generate common coefficients within each claimant category skews the share allocations because of the sharp distinction between 2014 and 2015–2017 due to the WGNA conversion. Moreover, the ''precision'' generated by lumping all the data points together across these four years is overhyped, because it is a statistical precision unreflective of reality, and Dr. George did not perform any statistical tests to confirm that pooling was appropriate. CTV PFF ¶¶ 331, 334 (and record citations therein); Bennett WRT, figs.12–13; see also 4/18/23 Tr. 5309, 5366–68 (George).

3. Dr. Bennett unpooled Dr. George's calculations, revealing the lack of actual precision compared with her pooled approach. CTV PFF ¶¶ 335–36, 342 (and record citations therein).

e. Criticisms of the George Model by Program Suppliers' Expert Witness Dr. Tyler

Dr. Tyler levied the following criticisms at the George Model:

1. Royalties in any functional form are inferior as the dependent variable compared with the SGRP in the Tyler Model. PS PFF ¶¶ 351–52 (and record citations therein).

2. Pooling of data across all four royalty years is distortionary and improper. PS PFF ¶ 363 (and record citations therein).

3. Dr. George's reliance on the Crawford Model, without regard to the potential specification searching that may have marred its genesis, calls into question the reliability of the George Model. By way of example, Dr. Tyler takes note of the ''hammer-shaped'' graphical plotting of residuals in the George Model, which would typically be random rather than concentrated (in ''hammer-shaped'' form), as indicative of one or more model specification errors, such as the omission of important independent variables or improper or mismatched functional forms (*e.g.,* the misapplication of the linear form or

[96] Another SDC Expert, Mr. Sanders, essentially echoes and refers to the critiques by Drs. Erdem and Rubinfeld. But Mr. Sanders also notes that Dr. George's approach is remarkable when compared with other fee-based regressions proffered in this proceeding, in that ''the various regressions yield significantly divergent results which raise[] the questions not just of which ones are wrong but whether any of them could be right,'' and he particularly notes the divergence among the SDC share across the fee-based regressions. Sanders WRT ¶ 18.

[97] The criticism of the George WDT by the two other JSC expert witnesses, Drs. Majure and Asker, relate to broader themes common to the fee-based regression, discussed separately in this determination. Mr. Harvey also raises the broad-based criticisms that are discussed separately herein.

[98] For a definition of ''multicollinearity,'' *see* 2010–13 Determination at 3562 n.47.

[99] Mr. Harvey also administered two other sensitivities to address this multicollinearity: (1) adding a control variable for non-compensable minutes to the model and (2) including compensable claimant minutes in the regression and dropping the number of permitted and distant stations. In both tests, he reports that the multicollinearity fades, and the share allocations also change, with JSC shares again increasing compared to the JSC shares in the George Model. Harvey WRT ¶¶ 185–187.

an improper log transformation of data). PS PFF ¶ 365.

2. The Judges' Analysis and Findings Regarding the George Model [100]

The Judges make the following findings with regard to the George Model:

1. The George Model reasonably altered the Crawford Model by estimating a model with fewer fixed effects, in an attempt to increase the number of observations lost after the WGNA conversion, by attempting to balance precision with an acceptable increase in omitted variable bias.

2. The George Model reasonably included control variables in order to isolate the effect of interest, the correlation between program category minutes and royalties.

3. Dr. George utilized appropriate sensitivity tests that modified her fixed effects, which showed a level of robustness in the George Model.

4. But Dr. George's tolerance for greater bias, in the form of omitted variable bias, eliminated the benefit created by the Crawford Model that gave the Crawford Model a level of primary weight vis-à-vis other methodologies for estimating relative marketplace value.

5. There is no sufficient evidence that the George Model suffers from overfitting, and her decision to include certain control variables, such as a control for ''median county income,'' was a reasonable exercise of discretion that an econometrician could make in specifying her model.

6. The George Model reasonably utilized the Big 3 network minutes as a reference category (a/k/a numeraire or index). Contrary to Mr. Harvey's critique, this which was unrelated to the separate control in the George Model for the number of distant stations, which was included in order to avoid a cause of changes in the number of minutes that would bias the relationship between program category minutes and royalties which was the ''effect'' the regression was seeking to evaluate.

7. The pooling of all four years over the 2014–2017 period in the George Model was inappropriate, given the substantial break in market conduct created by the WGNA conversion commencing in 2015.

8. Dr. Bennett's recalculation of an unpooled version of the George Model is a more probative model.

9. Dr. Bennett's further revision of the George Model, correcting for an admitted error in her JSC programming mis-categorization, is more accurate than the George Model originally proffered by Dr. George.

10. The non-random (hammer-shaped) residuals in the George Model are suggestive of omitted variables or misspecification of functional form, as in the Crawford Model upon which the George Model is predicated, and appear to be examples of the problems that may have arisen because of Dr. Crawford's alleged specification search.

[100] The Judges' analysis and findings in this section are separate and apart from their analysis and findings on the specific issues considered in separate sections of this determination.

E. PTV'S Regression Approach: The Johnson Model

Dr. Johnson, PTV's expert witness,[101] constructed a fee-based regression model based on the framework of a ''Waldfogel-type'' regression. Johnson WDT ¶ 55. He also acknowledges that he reviewed Dr. Crawford's testimony from the 2010–13 proceeding, and that his model ''generally follows the framework used by [Dr.] Crawford'' and, parenthetically, he notes a general consistency with the model proffered by Dr. Joel Waldfogel in a prior proceeding. Johnson WDT ¶ 57. *See also* 3/21/23 Tr. 367–68 (''[T]he starting point . . . was to look at the prior work, particularly [Dr.] Crawford's Waldfogel-type regression model that was adopted in the prior proceeding. . . . However, I did not, and my assignment was not to just simply blindly accept Dr. Crawford's work, but to put it to the test, understand what it did, understand how it worked, and then build that model and determine whether it could apply here.'').[102]

Dr. Johnson also ''assessed the Judges' deliberation from the previous proceeding,'' and ''address[ed] econometric modeling concerns . . . raised by the Judges in the previous proceeding [and] changes in the industry from the 2010–2013 to the 2014–2017 period.'' Johnson WDT ¶ 57.

Dr. Johnson identifies the following aspects of his regression model:

1. The regression analyzes each subscriber group in each six-month accounting period.

2. The dependent variable is the ''natural log'' of the base royalties accrued by a CSO for each subscriber group in an accounting period.

3. The explanatory variables include—as the variable of interest—the number of minutes of each claimant group's programming content distantly retransmitted to that subscriber group in that accounting period.

4. The coefficients for this explanatory variable for each claimant group's content, which estimate the percentage change in base royalties (the dependent variable) associated with an additional minute of that type of content.

5. The control variables below:

a. A control for the number of subscribers in each subscriber group and accounting period, because, ''[in] addition to being driven by CSOs' distant retransmission decisions, royalties paid also increase with the number of subscribers (and associated gross receipts) in each subscriber group.'' By adding a control variable for the number of subscribers, the regression accounts for this relationship.

b. A control for the number of distant broadcast stations retransmitted by each CSO to its subscriber groups because it ''creates a 'control group' against which the *relative* marketplace valuations for each claimant group at issue are estimated[,]'' with this control group consisting of ''programming that is either 'off-air,' 'Big 3' network programming that is not compensable or associated to any relevant claimant group, or content for which program information was not specified in the data, including 'To Be Announced' programs.''

c. An indicator variable for CSOs that paid the minimum fee, in order to account for the possibility that decision-making is systematically different between CSOs that paid the minimum fee (*i.e.,* those that potentially could have retransmitted distant signals without experiencing an increase in their royalty payment) and CSOs that paid royalties above the minimum fee (and thus, would have faced an incremental cost to any additional distant signal). This indicator variable does not separate out the model's reported coefficients, but ''allows [the] model'' to generate information ''to account for these differences . . . . ''

d. An indicator variable distinguishing between subscriber groups that also generated 3.75 fees (in addition to the base fee payments included in the regression) and subscriber groups that did not generate 3.75 fees.

Johnson WDT ¶¶ 55–56.[103]

Dr. Johnson also emphasizes what he has *omitted* from his regression model that had been included in Dr. Crawford's model. First, Dr. Johnson omits a set of controls in the form of ''system-accounting period fixed effects.'' Although Dr. Johnson acknowledged that these fixed effects had attempted to establish a relative value unbiased by factors irrelevant to the correlation at interest (the effect of programming minutes on the log of royalties) by isolating and comparing variation only in ''a given CSO's retransmission decisions across its subscriber groups,'' Dr. Johnson wanted to address the Judges' statement that in the 2010–13 Determination that they were ''troubled'' by Dr. Crawford's inadequate response to the argument that these controls ''effectively

[101] Dr. Johnson was received as an expert in ''economics and econometrics.'' 3/21/23 Tr. 362 (Johnson).

[102] However, Dr. Johnson testified that he did not review—or even have access to—Dr. Crawford's underlying regression workpapers from the 2010–13 *satellite* allocation proceeding (regarding the same regression model as in the 2010–13 *cable* allocation proceeding), even though PTV's counsel had received those workpapers in voluntary disclosures made by the SDC. 3/21/23 Tr. 340–41 (Johnson). (The hearing record does not indicate whether or not PTV's counsel provided those workpapers to Dr. Johnson.). *See also* 3/21/23 Tr. 617 (Johnson) (Dr. Johnson acknowledging that he also never saw designated testimony filed in the present proceeding by the SDC comprising their experts' testimony in the satellite proceeding, with Dr. Crawford's documents attached).

[103] Note that the Johnson Model includes far fewer control variables than the George Model. *See* text following this footnote.

discarded'' approximately 15% of his observations [generated by] ''approximately half of all systems in his data set . . . . '' Johnson WDT ¶ 59. Dr. Johnson claimed that the same issue exists to a greater extent in the present proceeding, because ''49 percent of CSOs that retransmitted at least one distant signal reported only one subscriber group,'' thus excluding them from the regression through the inclusion of these ''system-accounting period fixed effects.'' Johnson WDT ¶ 59.[104]

Second, Dr. Johnson also omits from his regression several so-called ''lagged'' variables included by Dr. Crawford, because these ''lagged'' variables ''assume[ ] that outcomes from an earlier point in time affect outcomes in the present time.'' Johnson WDT ¶ 59 & n.84. Whatever merit lie in these lagged variables was a moot point for Dr. Johnson, because he found that the available data was insufficient to measure this ''lagged'' effect, and because the data did not allow for subscriber groups to be ''consistently tracked over time'' (due to, most noteworthily, the WGNA conversion and the cable system acquisitions by Charter Communication). More particularly, and by way of example, Dr. Johnson explained that there was insufficient data to construct a ''prior period'' for the first six-month period of 2014, which (if he had retained the lagged subscriber variable) would have ''effectively discard[ed] data on CSO distant retransmission decisions [for] about one-eighth of all data.'' Johnson WDT ¶ 59.[105]

Further, Dr. Johnson excluded from his model the following additional controls included by Dr. Crawford in his model, which Dr. Johnson found to be ''redundant or inappropriate . . . [and] also hind[rances] to the model's ability to perform the task at hand'':[106]

1. A control for county-level median income, which Dr. Crawford had included to account for variation in demand for cable services by impacting the number of subscribers, the total CSO revenue and, accordingly, ''the royalty paid by that CSO. Dr. Johnson omitted this control because he found it to be redundant and confounding, in that it seeks to control for the number of subscribers, which is already included in the model at the more informative subscriber group level. This subscriber count at the subscriber group level, according to Dr. Johnson, implicitly takes into account of variations in demand and the impact of relatively different values in high-demand areas.

2. Controls for the number of local stations and the (lagged) number of activated channels. Although Dr. Crawford opined that these controls would have the salutary effect of ''account[ing] for other features of the cable service on which distant signals may be offered which could influence the number of subscribers to that service,'' Dr. Johnson found these controls unnecessary and potentially problematic because (1) Dr. Crawford did not explain how the second of these controls, *i.e.,* the number of local and ''activated'' channels would impact CSOs' decision-making process with respect to distant channels and (2) as proffered proxies for factors that might ''influence the number of subscribers,'' they too are redundant and potentially confounding, given the presence in the regression model of a direct control for the number of subscribers.

3. Controls for the six largest MSOs, which Dr. Crawford included ''to capture potential differences in factors not included in the econometric model that could shift demand for bundles that include imported distant broadcast signals.'' Dr. Johnson notes that Dr. Crawford provided no explanation as to what ''factors'' these controls were intended to reflect, and Dr. Johnson asserts that these controls are redundant and potentially confounding. Dr. Johnson avers that potential differences between and among the six largest MSOs ''could shift demand,'' and thus ''[r]eflect[ ] valuable information for the model's estimation of relative value.''

Johnson WDT 60.

Dr. Johnson further explains that his regression (like the regressions of Dr. George and Dr. Crawford, and the 2014 Bayesian regression by Dr. Marx) calculated the relative coefficients for the six compensable program categories by relating them to a ''control group'' of program minutes that are ''non-compensable'' in section 111 proceedings. Specifically, Dr. Johnson testified:

> The number of distant broadcast stations [compensable and non-compensable] retransmitted by each CSO represents the universe of that CSO's distantly retransmitted content. . . . [T]he difference between the universe of content and that corresponding to the claimant groups at issue is content that *does not* correspond to any claimant group at issue. This non-claimant content ''control group'' is a mix of programming that is either ''off-air,'' ''Big 3'' network programming that is not compensable or associated to any relevant claimant group, or content for which program information was not specified in the data, including ''To Be Announced'' programs. [The] model is specified in a way that allows for the ''control group'' content to have *absolute* value to subscribers (and thus to cable operators), even if it is not compensable in this proceeding. However, using this content as a control group allows my model to estimate *relative* valuations for the compensable claimant groups.

Johnson WDT 55 n.76.[107]

Utilizing the foregoing inputs, Dr. Johnson calculates regression coefficients estimated by his model, as well as the associated standard errors. Johnson WDT fig.11. In words, Dr. Johnson helpfully describes these coefficients, which are the common output of fee-based regressions, as

> measur[ing] the percent change in royalties associated with an additional minute of each claimant's programming, after controlling for the other relevant factors present in the regression [and] represent[ing] the relative value of each claimant group's content on a per-minute basis.

Johnson WDT ¶ 61. Dr. Johnson, in the model he recommends (his ''baseline'' model), and like Dr. George and Dr. Crawford—but unlike Dr. Tyler—did not generate separate coefficients for each of the four years. Crawford WDT fig.14. (However, Dr. Johnson did an annualized break-out as well. *See* 3/21/23 Tr. 467–68 (Johnson).)

Dr. Johnson reports that the estimated regression coefficients in his preferred ''baseline'' model ''are all statistically significant, at the 99 percent level or higher.'' Johnson WDT ¶ 62. In lay terms, he again helpfully explains that this level of statistical significance means that ''given the data analyzed, [the] regression can reject with 99 percent (or higher) certainty the

[104] To be clear, in the 2010–13 proceeding, the Judges found that Dr. Crawford's use of these fixed effects and other controls did *not* ''diminish the Judges' reliance on Professor Crawford's regression analysis.'' More particularly, the Judges explained that Dr. Crawford's ''use of ''system-accounting period fixed effects'' was the ''result of a tradeoff,'' necessitated by Dr. Crawford's use of a ''subscriber group analysis [which] reduced the number of observations in [Dr.] Crawford's data set.'' Although this decision could result in an ''overfitting'' of the model (see 2010–13 Determination at 3565 defining ''overfitting''), his use of data from the entire population of Form 3 CSOs provided him with a wealth of data that mitigated a potential problem with regard to potential overfitting arising from sampling that provided too little data relative to the number of parameters.'' 2010–13 Determination at 3566–67 & n.65. The Judges discuss elsewhere in this determination the impact of the decision by Dr. Johnson (and Dr. George) to make a different trade-off in their regression models through their handling of this specific fixed effects issue, particularly in the context of the purpose of these fee-based regressions as ''explanatory'' of an isolated ''effect,'' rather than ''predictive'' of the total royalties paid.

[105] That is, if the lagged variable control was included despite the unavailability of data for the second accounting period of 2013, the model would not have generated results in a consistent manner for the first accounting period of 2014, and one accounting period reflects ⅛ of the eight six-month accounting periods in the four-year 2014–2017 period.

[106] Dr. Johnson also discarded controls from the Crawford Model ''for whether a CSO lies in the area where it is permissible to carry Canadian signals (''Canada zone'').'' The Judges consider the Canada zone issues separately, *infra.*

[107] This ''control group'' is alternatively denominated by the experts in this proceeding as a ''numeraire,'' a ''reference group,'' and a ''benchmark.'' The Judges discuss the use of this device to stablish coefficients in their Analysis, *infra.*

hypothesis that an additional minute of programming of each of the claimant groups has no effect on royalties.'' Johnson WDT ¶ 62. According to Dr. Johnson, his regression can estimate coefficient value with this high level of ''precision'' because the model is based on ''over 18,000 subscriber group-level observations . . . . '' Johnson WDT ¶ 62.

Next, Dr. Johnson uses these coefficient values to generate his estimated royalty shares, in dollars, undertaken in all fee-based regressions. Specifically, and as in regressions proffered in previous proceedings and in this case, he multiplies the coefficient by the total number of compensable minutes for the respective program category. This product generates the shares of base royalties associated with each claimant group in each year. Johnson WDT ¶ 63.

In the figure below, Dr. Johnson presents the implied shares of the Basic Fund royalty, but excluding the 3.75 Fund and the Syndex Fund royalties that can also accrue to one or more of the six claimant groups:

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FIGURE 13
IMPLIED BASIC FUND ROYALTY SHARES
BASELINE MODEL
2014-2017

Claimant	2014	2015	2016	2017	2014 - 2017
[a]	[b]	[c]	[d]	[e]	[f]
Public Television	35.9%	46.2%	53.4%	58.9%	**48.5%**
Joint Sports	17.1%	2.4%	1.8%	1.7%	**5.8%**
Devotional Programs	0.9%	0.8%	0.7%	0.6%	**0.7%**
Canadian Claimants	4.2%	7.8%	6.8%	6.3%	**6.3%**
Commercial Television	16.1%	9.1%	8.2%	7.2%	**10.2%**
Program Suppliers	25.8%	33.7%	29.0%	25.3%	**28.5%**

Sources: CDC Royalties Data; CRTC Program Logs; Red Bee Data.

Johnson WDT ¶ 67 fig.13.

Dr. Johnson explains why the implied relative share values are starkly different:

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[A]lthough the relative value of a minute of [JSC] content, on average, is typically larger than that of other content types, the quantity of compensable [JSC] content is relatively small (and decreased substantially after the WGN conversion). As a result, the implied royalty share for Sports claimants is smaller than . . . for . . . Program Suppliers, which had a lower per-minute value but much more distantly retransmitted content during the relevant period.

Johnson WDT ¶ 66.

In addition to his foregoing proffered regression model, Dr. Johnson performed what he described as a sensitivity analysis, to test the robustness of that model against alternative specifications and to assess the ''key drivers'' of the results of his model. Johnson WDT ¶ 68.[108] Specifically, Dr. Johnson conducted two such analytical tests.

First, he looked at the subset of CSOs from his proffered model that only ''paid above the minimum fee.'' Johnson WDT ¶ 68. His purpose in performing this test was to address the concern in the 2010–13 Determination that the ''carriage decisions of CSOs . . . pay[ing] minimum fees [were] 'potentially less informative than discretionary decisions by CSOs to incur an *additional* royalty expense in order to distantly retransmit particular stations.' '' Johnson WDT ¶ 68 (citing 2010–13 Determination at 3575). This first sensitivity test, according to Dr. Johnson, found ''positive relative valuations'' for the coefficients of all six claimant categories, although the valuations were ''not statistically significant'' for the JSC and SDC content. Johnson WDT ¶ 69 fig.14, cols. [a]–[c]; and app. K.[109] Apparently

[108] Dr. Johnson also asserted that he performed two ''other sensitivities,'' on missing CCG programming data and program descriptions that were ambiguous as to the claimant category to which they belonged, respectively. Johnson WDT ¶ 49 n.64 & ¶ 50 n.68. But although he tried to categorize these tests in this manner, by his own acknowledgement, the ''purpose of those tests [was to] assess[ ] the effects of different approaches to treating the imperfections in the available data.'' Johnson WDT ¶ 68 n.102.

[109] Dr. Johnson does not report share allocations for minimum-fee-only CSOs in his WDT. However, in response to criticism of his direct testimony, Dr. Johnson included in his WRT figures showing a close relationship between: (a) the allocation shares based on the subscriber group Base Fees calculated (but not paid) by these minimum-fee-only CSOs on an annualized (unpooled) basis for 2014–2017; and (b) the allocation shares in his proffered baseline model (presented on an unpooled basis) for all

focusing on the absence of statistical significance for the JSC and SDC content, Dr. Johnson concludes that this sensitivity test shows the appropriateness—indeed, the ''importance''—of his proffered model's inclusion of ''CSOs that paid minimum fees,'' because exclusion of such CSOs ''would cause the model to lose precision with respect to'' the JSC and SDC claimant content. Johnson WDT ¶ 69. In further support of his interpretation of this sensitivity test results, Dr. Johnson adds that CSOs paying only the minimum fee nonetheless ''still make affirmative distant retransmission decisions that can be informative about the relative value of content.'' Johnson WDT ¶ 69 & n.103.

In his second sensitivity/robustness analysis, referred to *supra,* Dr. Johnson ''allow[s] the coefficients to vary from year to year.'' Johnson WDT ¶ 68; *see also id.* at fig.14, cols. [a], [d]–[g]. He opines that this analysis ''indicates . . . there is a statistically significant difference'' in the coefficient values between 2014 and 2015–2017 for JSC program content. Johnson WRT ¶ 121 fig. K–3 (notes).

According to Dr. Johnson, this second sensitivity test shows the following:

1. Relative marketplace values for the PTV, SDC, CCG, CTV and Program Suppliers claimant categories were *not* statistically different across the 2014 to 2017 period.

2. However, the relative marketplace value of JSC content significantly declined from 2014, when WGNA was the most distantly retransmitted signal (broadcasting high volumes of MLB, NBA, and NFL game content), to the 2015–2017 period, after WGN converted to a cable network, and the volume of such games was concomitantly significantly reduced.[110]

3. This second sensitivity test demonstrates that Dr. Johnson's proffered baseline model has ''appropriately captur[ed]'' the declining value of JSC content in the average ''over the *entire 2014–2017 period.* . . .''

Johnson WDT ¶¶ 70–71; *see also id.,* fig.15.

1. Criticisms of the Johnson Model [111]

a. Criticisms of the Johnson Model by CCG Expert Witness Dr. George

Dr. George levies the following criticisms of the Johnson Model:

1. The Johnson Model produces biased results because it excludes 3.75% fees, failing therefore to reflect the full willingness-to-pay of all claimant categories, either in the base fee or the separate 3.75% calculations made by Dr. Johnson. George WRT at 23–24.

2. The Johnson Model is ''subject to bias from unobserved market characteristics and time trends'' because Dr. Johnson abandoned all system effects and accounting-period effects, whether separately considered (as in the George Model) or interacted (as in the Crawford Model), without appropriately considering how that abandonment would likely generate omitted variable bias. The omitted variables risk inclusion of bias regarding variations in programming. Moreover, Dr. Johnson misconstrued the 2010–13 Determination as justification for this error. George WRT at 24–25.

3. Dr. Johnson's substitution of ''contemporaneous'' for ''lagged'' subscribers ''undermines causal inference'' because ''[l]agged control variables . . . common in applied regression . . . minimize the potential for unobserved shocks [that can] bias coefficients . . . such as the acquisition of a cable system by a large MSO . . . . '' Further, the lagged subscriber input has been used in fee-based regressions since Dr. Waldfogel's regression in the 2004–05 proceeding and Dr. Johnson wrongly claims that ''lagged subscriber'' data was unavailable, because they are readily available from Cable Data Corporation. George WRT at 26–27.

4. The Johnson Model excludes controls—included in past proceedings—for unobservable factors that undermine causal interpretation, specifically excluding controls for market income, the number of local stations offered, and MSO ownership of CSOs. Dr. Johnson fails to recognize that ''these controls establish the 'all else equal' conditions that allow coefficient estimates to take a causal interpretation as value per minute.'' [112] Because ''it is not possible to express, let alone control for, all the factors that vary across cable systems,'' the econometrician must judiciously use control variables (and fixed effects, discussed *supra*), or otherwise bear ''the burden . . . to justify why coefficients are not absorbing the effects of omitted variables and warrant the desired causal interpretation.'' George WRT at 27–30.

b. Criticisms of the Johnson Model by PTV Expert Witness Dr. Bennett

Dr. Bennett lodges the following criticisms specific to the Johnson Model:

1. The base fees and the 3.75% Fees reported by CSOs are decoupled from each other and are often less than the CSOs' actual royalty payments. Bennett WRT ¶¶ 66–69, figs.24–26. This is problematic because CSO carriage decisions underlying the base fees and the 3.75% fees are ''inextricably linked,'' in that the cost factor in the decision whether to add a station is based on the total royalty cost, which includes both the (1) the base fee or minimum fee, as applicable, and (2) the 3.75% fee. But by treating the two royalty funds separately, the Johnson Model materially increases PTV's overall share, compared to what it would be if the two royalty funds were jointly considered. Bennett WRT ¶¶ 74–78, figs.27–28.

2. Dr. Johnson provides no basis for extrapolating from the subset of Subscriber Groups with positive Base Rate fees to the broader royalty pool. Bennett WRT ¶¶ 70–73.

3. The Johnson Model excludes fixed effects, which means that his regressions do not account for omitted variable bias. But Dr. Johnson introduces the risk of such bias based on a trumped-up concern that the Judges noted in the 2010–13 Determination but which had no impact. Moreover, the resulting bias in the regression coefficient is caused by eliminating fixed effects that would have impacted royalties but were unrelated to program category minutes, for example, where different CSOs charge different subscription prices because of differences in the number of specialty channels they provide in their basic service. Similar omitted variables arise when fixed effects are eliminated because of uncontrolled differences in subscription revenue (and thus section 111 royalties) between and within MSOs. Bennett WRT ¶¶ 79–89, figs.29–35.

4. Dr. Johnson's decision to eliminate fixed effects was particularly puzzling, because he had the endorsed Dr. Crawford's ''regression framework'' as ''appropriate'' for present purposes and acknowledges that he ''generally follows the framework used by [Dr.] Crawford.'' Nonetheless, he eliminated Dr. Crawford's fixed effects, inflating PTV's shares as reported in the Johnson WDT. *See* Bennett WRT ¶¶ 90–92, figs.36–37.

c. Criticisms of the Johnson Model by PTV Expert Witness Dr. Marx

Dr. Marx essentially echoes the criticisms of Dr. Bennett with regard to Dr. Johnson's allegedly improper removal of fixed effects from the regression. She emphasizes that Dr. Johnson did not appear to test or evaluate the size or direction of the bias created by eliminating fixed effects, even for 2014, which was ''a year that in most significant respects was similar to 2010–2013, which is the time period for which the Judges found the Crawford regression with fixed effects to be 'highly useful.''' Marx WRT ¶ 39.

d. Criticisms of the Johnson Model by Program Suppliers Expert Witness Dr. Tyler

Dr. Tyler does not raise any specific criticisms of the Johnson Model. Rather, he criticizes it in the same way he criticizes all the other regressions that use a form of royalties as the dependent

CSOs considered in his analysis. Johnson WRT app. D, figs.D–6 and D–7.

[110] The coefficient for JSC content in the 2015–2017 period remained high, but was not statistically significant. Johnson WDT ¶ 70 & fig.14.

[111] An overarching procedural critique of the manner in which Dr. Johnson generated his model—alleging that he engaged in improper econometric activities, in the form of what is known as ''specification searching'' and George WRT at its related questionable activities, ''data mining'' and ''p-hacking'', is separately discussed elsewhere in this determination.

[112] For example, Dr. George notes that FCC data indicates that cable subscription prices (and thus royalties) are lower in less wealthy markets. Likewise, Dr. Crawford showed in 2010–2013 that ''top MSO's earned higher revenues per subscriber than other systems, suggesting that large MSO's are able to charge higher prices for cable packages.'' George WRT at 28.

variable (as explained *supra,* in the Judges' summary of Dr. Tyler's advocacy for the model he has proffered in this proceeding). *See* Tyler WRT ¶ 29. To summarize, Dr. Tyler rebutted the Johnson Model by asserting the following:

1. The Johnson Model needed to avoid the substantial degree of variability, causing a loss of observations.
2. The Johnson Model, like the George Model, ''guesses'' at the number of subscribers in each Subscriber Group, introducing potential bias into the regression.
3. The Johnson Model, like the George Model, has ''hammer-shaped'' residuals, which indicate that a regression is misspecified.

See Tyler WRT ¶¶ 29–55.

e. Criticisms of the Johnson Model by SDC Expert Witnesses Dr. Asker, Dr. Majure, and Mr. Harvey

JSC's several expert economic witnesses levy the following criticisms at the Johnson Model:

1. The Johnson Model (like the George Model) improperly engages in the pooling of data across the 2014–2017 period to estimate a single coefficient for each program category. According to the JSC economic witnesses, such pooling generally results in ''unreliable'' coefficients and, specifically, led in this case to an underestimation of JSC's 2014 share. More particularly, three JSC experts testified as follows:

a. Dr. Asker testified that ''there was a significant change in behavior following the conversion of WGNA in 2015. . . . To adopt a specification that doesn't recognize that change and then allow the regression to adjust . . . is a considerable flaw.'' 3/30/23 Tr. 2431 (Asker); *see also* Asker WRT ¶ 103.

b. Dr. Majure testified that ''[t]he data are very different between these two periods, reflecting changes in distant signal carriage patterns from the exit of WGNA. Given the differences in the data, it is important to run separate regressions on the different time periods.'' Majure WRT ¶ 38.

c. According to Mr. Harvey, the Johnson Model estimates that JSC went from the highest per minute value in 2014 to the lowest in 2015–2017 and, moreover, CSOs would pay less for a minute of JSC content during 2015–2017 than for a minute of any of the other claimant categories. Harvey WRT ¶ 37 tbl.5; 3/28/23 Tr. 1883–87, 1889–90 (Harvey).

d. Mr. Harvey further testified that for the 2015–2017 period data alone, using the Johnson Model (and the George Model) generated JSC sports coefficients that were not statistically significant and, according to Mr. Harvey, were thus unreliable in that the data implied that JSC programming had no value in those years. Harvey WRT ¶¶ 37–38 & tbl.5.

e. Mr. Harvey calculated that when a 2015–17 coefficient is estimated only for systems paying more than the minimum fee, the Johnson Model then estimates a statistically significant negative coefficient for JSC content. Harvey WRT ¶ 38 & tbl.6; 3/28/23 Tr. 1895–96 (Harvey).

2. The Johnson Model lacks ''robustness'' and is ''unstable.'' According to Mr. Harvey, these defects are evidence that Dr. Johnson had engaged in a specification search (discussed elsewhere in this Determination). But Mr. Harvey asserts that even if Dr. Johnson had not engaged in an intentional specification search, his many specifications generated results that evidenced the lack of robustness and stability. 3/28/23 Tr. 2091 (Harvey); Harvey WRT ¶ 155 & tbl.26; see also JSC PFF ¶ 196.

3. Reiterating a criticism rejected in the 2010–13 Determination, the Johnson Model (like the George Model) wrongly utilizes a log-linear specification, with the dependent variable (royalties) expressed in log form and the subscriber count variable expressed in linear form. Harvey WRT ¶ 170; 3/28/23 Tr. 1965–66 (Harvey).

4. The Johnson Model wrongly omits fixed effects (as also noted by other witnesses, discussed *supra*). According to Mr. Harvey, applying the fixed effects contained in the George Model triples Dr. Johnson's estimate of the JSC share. Harvey WRT ¶ 111 & tbl.5.

f. Criticisms of the Johnson Model by SDC Expert Witness Dr. Erdem [113]

Dr. Erdem levies the following criticisms at the Johnson Model:

1. The specifications in the Johnson Model (*i.e.,* Dr. Johnson's preferred ''baseline'' model) is but ''a stripped-down version'' of the fatally flawed Crawford Model, shorn of ''numerous control variables such as MSO indicators and the lag of subscribers and . . . fixed effects . . . . '' Erdem WRT ¶ 42.

2. When the Johnson Model's regression was run ''using the CCG data that Dr. George used for her regressions . . . PTV shares decreased by eight points [and] [e]very other claimant . . . had their implied shares . . . with] JS[C] [gaining] a five-point increase in shares.'' This allegedly indicated that ''[t]he processed data that PTV used for their regression was clearly made to benefit their shares . . . . '' Erdem WRT ¶¶ 98–99.

3. All of Dr. Erdem's sensitivity tests showed a similar tendency, *i.e.,* compared to the Johnson Model, ''all the sensitivities . . . [gave] PTV lower implied shares.'' Erdem WRT ¶ 101.

2. The Judges' Analysis and Findings Regarding the Johnson Model [114]

The Judges make the following findings with regard to the Johnson Model:

1. Although Dr. Johnson used the Crawford Model as his ''starting point,'' he made changes to the Crawford Model.

2. A major change Dr. Johnson made to the Crawford Model was to eliminate all ''fixed effects'' in the Johnson Model.

3. By removing all ''fixed effects,'' Dr. Johnson altered the Crawford Model by eliminating the protection against ''omitted variable bias.'' That is, Dr. Johnson failed to capture the effects of differences among systems (CSOs) and across accounting -periods that impacted the dependent variable in the Johnson Model, *i.e.,* the log of royalties. The absence of these ''fixed effects'' therefore rendered significantly reduces the evidentiary usefulness of the Johnson Model.[115]

4. A purpose in Dr. Johnson's removal of ''fixed effects'' from his regression model was to generate what he understood to be a sufficient number of observations of CSO decisions regarding program category retransmittal decisions (through their retransmitted channel selections) to generate the variation needed for a useful regression. These additional observations were required because, after the WGNA conversion, there was a significant reduction in the number of CSOs with two or more subscriber groups, reducing the variation created by the ''fixed effects'' control in the Crawford Model. But, as Dr. Marx, for example, has explained, this attempt at greater ''precision'' came at the unacceptable expense of the generation of ''omitted variable bias'' discussed above.

5. Dr. Johnson's further claim—that he eliminated ''fixed effects'' in response to a statement in the 2010–13 Determination that the Judges were troubled by the resulting loss of 15% of the otherwise observable CSO decisions—is a red herring. The Judges in the 2010–13 Determination did *not* rely on the loss of such observations as a basis for diminishing the evidentiary weight of the Crawford Model. And regardless, if the lost number of observations increased in the present proceeding because of the aforementioned reduction in useful subscriber groups, the more appropriate response was not to inject ''omitted variable bias'' into the regression, but rather to utilize other approaches (as, for example, in the Tyler Model).

6. Dr. Johnson's inclusion in his regressions of data regarding the programming decisions of the vast majority of CSOs paying the minimum fee or less significantly reduces the evidentiary weight of the Johnson Model for the three-year 2015–2017 period. (This finding of course also applies to the George and Tyler Models.) These decisions did not *reveal their preferences* in a cardinal manner, that is, these CSOs did not reflect relative values because their choices did not affect the actual fees paid. At most, their decisions reflected ordinal values, in terms of which program categories they valued more than others, but

[113] In addition to the specific criticisms by Dr. Erdem of the particulars of the Johnson Model, Dr. Erdem criticizes Dr. Johnson for engaging in the improper process of specification searching (also described as ''data mining'' and ''p-hacking''). The Judges consider that issue separately in this Determination.

[114] The Judges' analysis and findings in this section are separate and apart from their analysis and findings on the specific issues considered in separate sections of this determination.

[115] The irony of this criticism is that Dr. Johnson relied on the Crawford Model as a ''starting point'' for his modeling, deemphasizing the need to develop an independent economic theory, and ignored the potential specification searching in Dr. Crawford's modeling, but removed the feature of the Crawford Model (''fixed effects'') that was the *positive* basis for the Judges' elevation of the regression approach to a position of evidentiary primacy in the 2010–13 Determination.

not how much more, which is necessary for the distribution of the royalty fund.[116]

7. But Dr. Johnson properly relied on the data relating to the subset of CSOs in his model that only paid *above* the minimum fee. The Judges credit that data as reflective of actual economic decision-making that is useful in determining the allocation shares in this proceeding. This cohort of CSOs can properly be viewed as essentially the only CSOs who provide revealed preference information as to the variation in relative values among the program categories (in contrast with CSOs who did not retransmit any distant local stations or those with ''excess capacity''), which in that sense is a cohort unto itself, rather than a sub-sample. On the other hand, this cohort can also reasonably be viewed as but a small sample of all the CSO, which reduces the evidentiary weight of their preferences. Both perspectives on the revealed preferences of these above-minimum-fee-paying CSOs are properly considered in weighting the various strands of useful evidence in order to allocate royalty shares in this proceeding.

8. The probative value of the Johnson Model is incomplete and thus weakened, because it excludes the 3.75% fees paid by most of the claimants, thus not reflecting the full willingness-to-pay of all claimant categories. Further, Dr. Johnson's separation of the basic royalty fund and the 3.75% royalty fund materially increased PTV's overall share.

9. The probative value of the Johnson Model is weakened because it wrongly substitutes ''contemporaneous'' for ''lagged'' subscribers. This substitution is incorrect because: (a) lagged controls minimize the subsequent impact of potential unobserved factors such as the acquisition of a CSO by a large MSO; (b)''lagged'' subscribers were used since the Waldfogel regression in the 2004–05 proceeding; and (c) contrary to Dr. Johnson's assertion, ''lagged subscriber'' data was available from Cable Data Corporation, the source of much of the data utilized in the regressions proffered in this and prior allocation proceedings.

10. The probative value of the Johnson Model is weakened because its omission of certain control variables lessens its ability to identify the causal interpretation of interest, *i.e.,* the correlation between program category minutes and the log of royalties. Specifically, the evidentiary weight of the Johnson Model is compromised by its exclusion of control variables for market income, the number of local stations offered and MSO ownership of CSOs. In this regard, Dr. Johnson has essentially ignored the 2010–13 Determination which explains at length why the inclusion of an MSO control variable is necessary. 2010–13 Determination at 3566–67 (describing ''differences . . . among the six largest MSOs in terms of their average receipts per subscriber . . . . suggest[ing] . . . important differences . . . regarding their signal carriage strategies, pricing, and other relevant dimensions,'' and contrasting ''a regression without the six MSO Interaction variables [where] unobserved differences in average revenue per subscriber could bias estimates of relative value of different programming.'').[117]

11. The Johnson Model improperly ''pools'' data across the 2014–2017 period to estimate a single coefficient for each program category. Although ''pooling'' in this manner is not inherently improper in these allocation proceedings, when there is a sharp demarcation in the relevant data, as existed here as of 2015 upon the WGNA conversion, ''pooling'' data to generate a single coefficient obscures reality. The most consequential impact of ''pooling'' was the underestimating of the JSC share for 2014 and its overestimation for the years 2015–2017.

IX. A General Criticism of the Regressions: Dr. Erdem's Eight-Model Argument In Rebuttal to the Use of the Proffered Regressions

Undaunted by the Judges' findings in the 2010–13 Determination discussed *supra,* Dr. Erdem endeavors to convince the Judges to reverse course by once more presenting an argument that all fee-based regressions should be rejected as probative evidence of relative market value, as that standard has been defined by the Judges and their predecessors.[118] To this end, Dr. Erdem presented in rebuttal eight models as pedagogical tools only (not as proposed models for use in allocating shares). He and the SDC aver that his are ''simple models,'' demonstrating that ''all fee-based regression models'' do not estimate ''any plausible measure of fair market value,'' [119] but rather are ''leveraged on correlations driven predominantly by geography (location of cable systems and the subscriber groups) and other features of the copyright royalty system . . . .'' SDC PFF ¶ 44 (quoting Erdem WRT ¶ 2).[120]

The Judges go through each of the eight models below. Also set forth below are the rejoinders to these models presented comprehensively through the submission by CCG and the testimony of CCG's economic expert, Dr. George.

A. Erdem's Rebuttal Model 1

Model 1 shows ''a negative correlation between the number of minutes retransmitted on a distant basis and the amount of subscriber group base fees.'' SDC PFF ¶ 45 (citing Erdem WRT ¶¶ 52–53). This means, according to Dr. Erdem, that subscriber groups retransmitting *fewer* distant minutes tend to pay *more* in royalty fees. Erdem WRT ¶ 53. Dr. Erdem interprets these negative coefficients as a ''hedonic'' regression, implying that CSOs place *negative* value on retransmission of distant signals.'' SDC PFF ¶ 45 (citing Erdem WRT ¶ 53) (emphasis added).[121] Given the perverse nature of this result, the SDC maintains that its negative value puts the lie to the claim that the number of minutes has something ''to do with value,'' but rather shows that the regression coefficients are artifacts ''of the regulatory structure.'' SDC PFF ¶ 45.[122]

[116] In the 2010–13 Determination by contrast, as Dr. Marx has explained, the Judges found there was a sufficiently high percentage of CSOs paying *above* the minimum fee and thus making decisions with an economic (royalty) impact that served as a strong evidentiary basis for allocating shares.

[117] One might fairly ask: Why rely on Dr. Crawford's specification decisions now, after raising the concerns about his potential specification searching? The answer is that Dr. Crawford's detailed and persuasive explanation for adding this additional control variable in the course of specifying his model was a reason why the Judges did not agree with the SDC in the 2010–13 proceeding that it was evidence of inappropriate specification searching. The troublesome facts were generated *subsequently,* in the discovery phase of the companion 2010–13 *satellite* proceeding.

[118] Nothing in the prior determinations precludes the Judges from considering what appear to be new arguments by Dr. Erdem, because the Judges' (and their predecessors') reliance on fee-based regressions constitutes a factual finding, not a legal conclusion, and thus there is no ''precedent'' that precludes a new line of factual expert argument. *See* 2010–13 Determination at 3557 & n.26 (distinguishing ''legal precedent'' from the oxymoronic concept of a ''factual precedent.'' *See also* 17 U.S.C. 803(a) (directing the Judges to act on the basis of both: (1) ''a written record'' which includes record evidence; and (2) prior ''determinations and interpretations'' of identified judicial and administrative entities.).

However, factual matters that the Judges decided in the 2010–13 Determination need not be fully revisited in this proceeding, in the absence of any new persuasive argument to the contrary. Such factual matters include: (1) the rejected sweeping claim that fee-based regressions do not embody economic principles such as profit maximization (*see* 2010–13 Determination at 3560), (2) the rejected characterization of fee-based regressions as merely ''volume analyses'' (*see id.* at 3560–61), (3) the rejected argument that it was wrong for fee-based regressions to ignore distant local signals that CSOs chose not to carry (*see id.* at 3563), and (4) the rejected argument that the fee-based regressions used the wrong form for the control variable for number of subscribers (*see id.* at 3563–64).

[119] It is not lost on the Judges that Dr. Erdem uses the phrase ''fair market value'' here, rather than the actual standard of ''relative marketplace value.'' In the 2010–13 Determination, the Judges explicitly distinguished the two concepts. 2010–13 Determination at 3555 n.17 (''Because the royalties at issue in this proceeding are regulated and not derived from any actual market transactions, they do not correspond with absolute dollar royalties that would be generated in a market and thus would not reflect absolute ''fair market value.'') *See also* the Judges' discussion of the ''relative marketplace value'' standard, *supra.*

[120] Elsewhere in his testimony, Dr. Erdem offers a more sinister conclusion from his ''eight-model'' analysis: ''[A]s I will show, it is precisely these modeling choices that allow the analyst to select a model based on expected or desired results.'' Erdem WRT ¶ 51. Thus, his argument is that the very structure of the fee-based regressions provides all the expert witnesses, not just the two he singled out, Drs. Crawford and Johnson, with the opportunity to engage in specification searches.

[121] The Judges discuss elsewhere in this determination the concept and label of a hedonic regression and their significance in this proceeding.

[122] Dr. Erdem states that to test the hypothesis of a positive correlation, on average, between royalties

Continued

Dr. Erdem advances what he argues is an alternative explanation for the inverse relationship between minutes and royalties that he claimed to identify: ''[This] result can be explained by distance between the signal and the subscriber group [because] I argue that the number of subscribers reduce with distance, implying that the signal is being re-transmitted to fewer subscribers over longer distances.'' Erdem WRT ¶ 53. *See also* Erdem WRT ¶ 59 (''91% of systems are retransmitting the same signal on a local basis to some subscriber groups and on a distant basis to other subscriber groups[,] . . . [and] on average 76% of the channels that are distant to a subscriber group are retransmitted as local to another subscriber group''); SDC PFF ¶¶ 46–47; *see also* Bennett ACWDT ¶ 33 (Across 2014–2017, nearly 95% of the distant signals imported were within 150 miles of the community served, and over 97% were within 200 miles.).

B. Erdem's Rebuttal Model 2

In his second rebuttal model, Dr. Erdem analyzed the relationship between claimant category minutes and base royalty fees. He testified that, quite similar to the results from his Model 1, he found that a negative or statistically insignificant relationship largely persists (except for JSC minutes). As with Model 1, Dr. Erdem interprets this result through the lens of a hedonic regression, finding that it implies that CSOs place a negative value on all distant retransmissions of local programming, except for JSC. Erdem WRT ¶ 54. And also as with Model 1, Dr. Erdem recognizes that these results are ''counterintuitive'' in the context of reflecting value, but rather are a function of the fragmentation of subscriber groups. Erdem WRT ¶ 54. *See also* SDC PFF ¶ 48.[123]

C. Erdem's Rebuttal Model 3

In his third rebuttal model, Dr. Erdem tested the effect of the number of subscribers in a subscriber group (the independent variable) on subscriber group royalty fees and found a strong positive correlation. Erdem WRT ¶ 58. Dr. Erdem, again viewing the modeling as a hedonic regression, has a ready and what he describes as an obvious explanation for this positive correlation:

> [C]able systems place a high positive value on the number of subscribers in a subscriber group.'' Erdem WRT ¶ 58. As alternatively stated by Dr. Erdem, ''[W]e may need to treat the number of subscribers as a measure of volume.'' Erdem WRT ¶ 58. Relatedly, Dr. Erdem opines that ''there is a negative correlation between the number of subscribers in a subscriber group and the number of distant minutes the subscriber group receives''—meaning that, for the more populous subscriber groups, fewer distant signals (and minutes) are retransmitted to them and, thus, the more sparse the number of subscribers in a subscriber group, the greater the number of distant signal minutes. According to Dr. Erdem, this negative correlation is inconsistent with the positive correlation between distant minutes and royalties posited by the theoretical underpinnings of the fee-based regressions. *See* Erdem WRT ¶ 59.[124]

D. Erdem's Rebuttal Model 4

Dr. Erdem's Model 4 seeks to address a finding from his Model 3: ''[T]he relationship between the number of subscribers and royalty fees is positive.'' Erdem WRT ¶ 58 & fig.4. Keeping with his interpretive context, which treats these regressions as hedonic in nature, Dr. Erdem posits that ''[a]n analyst . . . will conclude that [CSOs] place a high positive value on the number of subscribers in a subscriber group,'' such that ''we may need to treat the number of subscribers as a measure of volume.'' Erdem WRT ¶ 58. *But* he then asks, rhetorically: Could it be that, on average, *subscriber groups with fewer subscribers receive more distant minutes of programming?* Erdem WRT ¶ 58 (emphasis added). Dr. Erdem then turns to his next pedagogical regression model, Model 4, to address this issue.

Dr. Erdem's Model 4 indeed demonstrated a ''negative correlation between the number of subscribers in a subscriber group and the number of distant minutes the subscriber group receives.'' Erdem WRT ¶ 59. Dr. Erdem explained his intuitive explanation for this negative correlation:

> One of the principal reasons why a rational CSO *might* choose to use subscriber groups is because the cable system's reach straddles the edge of the 35-mile radius in which a station is considered ''local'' for cable royalty purposes. In this situation, a signal is ''local'' to some subscribers and ''distant'' to other subscribers. The cable system can save money by *breaking its subscribers into geographically based subscriber groups* so that it is paying for the distant retransmission only for the subscribers receiving it on a ''distant'' basis.

Erdem WRT ¶ 59 (emphasis added). Dr. Erdem then presents the data (discussed *supra*) regarding the localized emphasis on ''distant'' retransmission contiguous to the 35-mile legal boundary between local and distance transmissions. Erdem WRT ¶¶ 59–60.

Dr. Erdem recognizes that the several regression experts sought to remove this cost-based negative effect of the number of subscribers in a subscriber group on the number of distant minutes a subscriber group receives. First, he noted that Dr. Tyler, with his SGRP divided the dollar value of fees (the numerator in Dr. Tyler's SGRP) by ''a metric that scales with the number of subscribers,'' *i.e.,* total receipts. (the denominator in Dr. Tyler's SGRP). Second, as an alternative approach, Drs. George and Johnson (and apparently Dr. Crawford previously) introduced a control variable to remove the influence of the number of subscribers (whose increasing numbers would increase receipts and potentially increase royalties either through higher binding base fees or by triggering a base fee obligation in excess of the minimum fee that would otherwise bind). Erdem WRT ¶ 61.[125]

E. Erdem's Rebuttal Model 5

Dr. Erdem then apparently adds to his pedagogical model the control variable that Drs. George and Johnson include, ''controlling for the number of subscribers.'' When Dr. Erdem does so (using lagged and unlagged subscriber numbers, respectively in his modeling), he finds that his ''correlation between total minutes and royalty fees is now *positive.*'' Erdem WRT ¶ 62 & fig.6 (emphasis added). He emphasizes that what he terms the ''fixed price'' for the retransmissions in his modeling is ''based primarily on the type and number of signals and revenues for the subscriber group,'' despite the fact that ''[r]evenues are largely based on the number of subscribers.'' Erdem WRT ¶ 62.

What still remains uncontrolled, Dr. Erdem, notes, is the ''impact . . . from the number of distant signals.'' Erdem

and minutes, he would need to ''control[] for appropriate variables.'' Erdem WRT ¶ 52. However, there is no sufficient indication in the record that Dr. Erdem applied control variables, or any other controls through fixed effects with regard to his Model 1.

[123] Again, Dr. Erdem does not indicate whether he applied control variables, and, if he did, what they were.

[124] The Judges note Dr. Tyler's testimony, discussed elsewhere in this determination, that there is no data identifying the number of subscribers in a subscriber group, in the course of his positive differentiation of the Tyler Model from the other regression models (which unlike the Tyler Model, must estimate the number of such subscribers in an inaccurate manner). It is not apparent from the record that Dr. Erdem had estimated the number of such subscribers in an accurate manner.

[125] Note that when discussing Model 7 considered *infra,* Dr. Erdem admits that ''inclusion of a variable for subscribers . . . could be justified as a volume-based control.'' Erdem WRT ¶ 69.

WRT ¶ 62. He notes the perhaps self-evident point that ''[t]he more signals there are, the more minutes there are, so I would expect a positive relationship after controlling for subscribers.'' Erdem WRT ¶ 62.

F. Erdem's Rebuttal Model 6

Dr. Erdem then breaks the retransmitted minutes into their respective programming categories, and proceeds to test whether the positive correlation between total minutes and royalties (which the regression experts understood to exist) continues to hold on a per-category basis. Erdem WRT ¶ 63. He finds that this positive relationship between minutes and royalties—*on a program category basis—remains positive and is statistically significant* for four of the six category participants—PTV, Program Suppliers, JSC, and the SDC. However, his modeling resulted in mainly positive but statistically insignificant results for CTV and CCG, and, for a minority of CCG observations, a negative relation. (Dr. Erdem's modeling also showed negative correlations for ''network programming'' (not a category at issue). Erdem WRT ¶¶ 63–64 & fig.7. Dr. Erdem interpreted these results to mean that ''the control for the number of subscribers lifted the coefficients for program categories into positive territory by removing the influence of the number of subscribers, but not enough to give all categories a positive and statistically significant coefficient.'' Erdem WRT ¶ 64.

Dr. Erdem asserts that these results ''pose a problem for any analyst hoping to interpret the model as a hedonic regression.'' Erdem WRT ¶ 65. More particularly, continuing from the binary perspective of whether the fee-based regressions are hedonic or not, he unambiguously opines that these regressions are invalid because they are *not* hedonic, in that ''[t]he price is not actually varying based on the valuation of minutes,'' but rather varying based on ''other factors such as the type of signal or the revenue-per-subscriber for the subscriber group or system.'' Erdem WRT ¶¶ 65–66.

Dr. Erdem then states that the regression analyst who nonetheless ''wishes'' to describe his or her regression as hedonic must manipulate the negative coefficients into positive coefficients, so that they ''appear'' plausible as proxies for prices. Erdem WRT ¶ 67.

It is in this context that Dr. Erdem accuses the regression experts of ''leveraging'' the ''negative coefficients for network programming'' (which are ineligible for an allocation of the royalties to be divided in this proceeding). Erdem WRT ¶ 68. To generate this leverage, Dr. Erdem asserts that the fee regression analysts engage in two manipulations (1) they add another control variable for ''the number of distant signals, which correlates directly with the total number of minutes'' and (2) they exclude the variable for ''the number of distant minutes of network programming,'' ''render[ing] all category coefficients 'relative' to the negative coefficient for network programming.'' Erdem WRT ¶ 68. Dr. Erdem emphasizes the elementary point that ''[b]ecause any number is positive in relation to the largest negative number, the exclusion of the variable for network programming has the effect of lifting the variables for all category minutes comfortably into positive territory, creating an apparent positive and statistically significant correlation where there previously was none in some categories.'' Erdem WRT ¶ 68.

G. Erdem's Rebuttal Model 7

To the adjustments included through Models 1–6, Dr. Erdem now injects a control for ''the number of distant stations on royalty fees.'' Also, his Model 7 ''drops network distant minutes in order to get relative numbers'' in the manner undertaken by the fee regression experts. Erdem WRT ¶ 69.

Although (as noted *supra*) Dr. Erdem concedes that the prior ''inclusion of a variable for subscribers . . . could be justified as a volume-based control,'' he finds ''no econometric justification for seeking to value category minutes relative to the negative coefficient value of network programming.'' Erdem WRT ¶ 69. He states that as a *general* matter, ''even if one believed that the coefficients were related to value, there could be no justification for trying to measure value relative to an *arbitrarily* chosen category with a negative value.'' Erdem WRT ¶ 69 (emphasis added).

Dr. Erdem also characterizes the negative coefficient for network programming as ''an artifact of the operation of the copyright royalty system, not a measure of how much anyone values programming, and certainly not a measure of how programming would be valued in the free market.'' Erdem WRT ¶ 70. Alternately stated, he declares that [t]here is no intuitive reason why network programming would be expected to have negative market value when retransmitted on a distant basis.'' Erdem WRT ¶ 70.

Dr. Erdem does acknowledge that, through what he calls this excluded network minute ''manipulation,'' all the coefficients in the categories of interest (for the distant retransmission that is permitted by law) now become positive. Erdem WRT ¶ 70 (''This is exactly how Professor Crawford's model—and, by extension, Dr. George's model and Dr. Johnson's model—works.'').[126]

From this point forward, Dr. Erdem maintains that the fee-based regression experts ''are free from the constraints of econometric reasoning.'' More particularly, he asserts they can, without appropriate justifications use various (1) control variables, (2) fixed effects, (3) transformations and functional forms, and (3) unspecified miscellaneous fine-tuning, all in the service of ''generat[ing] whatever coefficients [they] desire or expect.'' Erdem WRT ¶ 71.

H. Erdem's Rebuttal Model 8

The final model, Model 8, is actually not a ''model'' at all, but rather Dr. Erdem's more particular catalog of ''manipulations'' in which a fee-based regression expert *could* engage, with a model built up through Dr. Erdem's Models 1–7. Without linking any of the following ''manipulations'' specifically to any of the experts in this proceeding, Dr. Erdem states in this ''Model 8'' that the following ''manipulations'' are possible:

1. ''bringing in variations in the number of subscribers to increase or decrease the effect on the dependent variable. For example, we can try the lagged number of subscribers;''
2. ''add[ing] interactions with the number of subscribers'' (as he states Dr. Crawford did in his model); and
3. ''add[ing] fixed effects, which controls for any variation due to inherent characteristics of a subscriber group.''

Dr. Erdem does not assert that such additions would be *ad hoc,* but rather that, consistent with the fundamental defect he finds in the fee-based regressions, they would ''merely leverage the features of the copyright royalty system.'' Erdem WRT ¶ 72.

I. Dr. George's and CCG's Rejoinder to Erdem's Modeling Exercise[127]

At a high level,[128] CCG takes issue with the SDC's emphasis on the

[126] To be clear, Dr. Erdem does not lodge this criticism at Dr. Tyler's model.

[127] CCG and Dr. George, among the other regression experts and parties, were the ones who responded to Dr. Erdem's testimony, apparently because Dr. Erdem's pedagogical modeling was based on ''Dr. George's methodology and production.'' Erdem WRT ¶ 51 n.23.

[128] This high-level ''General Criticism'' also responds specifically to Dr. Erdem's Model 4 discussed *supra,* regarding ''geographic'' effects, which are ''key'' elements of Dr. Erdem's general critique of fee-based regressions. *See* 4/6/23 Tr. 3643–44 (Rubinfeld) (identifying ''changes in the

Continued

assertion that fee-based regressions are predominantly rooted in correlations with (a) the *geographic location* of CSOs and their constituent subscriber groups and (b) statutory features of the copyright royalty system. In this regard, CCG essentially attacks this assertion as much ado about nothing, because the reason *why* CSOs and their subscriber groups retransmit signals as they do does not bear on the fundamental point of the regressions, *i.e.,* to identify *what* the CSOs actually retransmit in order to appropriately compensate copyright owners. Dr. George emphasizes that whether or not subscriber group configurations are geographic artifacts, they nonetheless reflect the strategic profit-maximizing decisions of CSOs as to where they will transmit distant signals. It is this profit maximizing retransmission decision that is the kernel of information that provides insight into ''what would determine relative market value absent regulation.'' *See* George WDT at 15–17, 27–28; The Canadian Claimant Groups' Reply to Proposed Findings of Fact and Conclusions of Law (CCG RPFF) ¶¶ 21–22.

More broadly, CCG characterizes Dr. Erdem's eight-model analysis as incomplete and economically flawed. In this regard, Dr. George criticizes Dr. Erdem's rebuttal pedagogical modeling because therein he analyzes relationships in the data *across* CSOs, whereas the George Model emphasizes variation *within* CSOs to identify coefficients. Thus, CCG and Dr. George essentially attack Dr. Erdem's modeling as a straw man exercise. CCG RPFF ¶ 22; George WDT at 27–28.

At the conceptual economic level,[129] Dr. George takes note of the point (identified by the Judges *supra*) that Dr. Erdem has contextualized his analysis in the wrong economic and legal standard:

> SDC's false criticism that regressions are not driven ''by any plausible measure of fair market value'' suggests that measuring fair market value was a goal of regression. . . . *No pro-regression expert* claims that correlations are driven by ''*fair market value.*'' As the Judges wrote in the prior proceeding: ''In this proceeding, the Judges distinguish between *'relative values'* (to describe the allocation shares), and *absolute 'fair market values.'* Because the royalties at issue in this proceeding are regulated and not derived from any actual market transactions, they do not correspond with absolute dollar royalties that would be generated in a market and thus would *not* reflect absolute 'fair market value.' ''

CCG RPFF ¶ 12 (quoting 2010–13 Determination at 3555 n.17) (emphasis added).

More granularly, CCG asserts that the negative correlations in *Dr. Erdem's* modeling between royalties (the dependent variable) and, respectively, (a) total distant minutes (Model 1), (b) claimant distant minutes (Model 2), and (c) subscriber group size (Model 3), do not, as Dr. Erdem claims, reveal a modeling ''hurdle'' or ''problem'' that bedevils the fee-based regressions. Rather, it is claimed that Dr. Erdem's first three pedagogical rebuttal models fail to consider that CSOs configure their subscriber groups strategically to maximize profits and therefore will only retransmit distant signals to groups of subscribers when the anticipated benefit (essentially, more new or retained subscriptions) exceeds the anticipated costs (royalties). CCG RPFF ¶ 24 (citing, from the 2010–13 proceeding, Crawford CWDT ¶¶ 66–68; Israel WDT ¶¶ 12–14.).

CCG also takes note of the finding in Dr. Erdem's Model 3[130] of ''a positive relationship between the number of distant signals and subscriber group royalties,'' suggestive of the regression experts' hypothesis that cable systems place a high positive value on the number of subscribers in a subscriber group.'' CCG RPFF ¶ 24. Unsurprisingly, CCG and Dr. George do not disagree with his finding.[131]

CCG and Dr. George then address Dr. Erdem's next point regarding: (1) the purportedly problematic ''negative correlations'' in Models 4 and 6 ''between the number of subscribers in a subscriber group and the number of distant minutes the subscriber group receives'' (Erdem WRT ¶ 59); and (2) the attempt to control for the number of subscribers considered in Model 5 (Erdem WRT ¶ 62). In defending the use of a control for the ''number of subscribers'' as an important feature for a fee-based regression, CCG states:

> The negative correlations documented in Dr. Erdem's models are not ''problems.'' The negative correlation with subscriber group size results from the strategic choices of cable systems to minimize the cost associated with distant signal carriage. The negative coefficient for one category of minutes reflects the fact that programming minutes per station sum to a total of 24 hours per day. The goal of the regression is to evaluate how royalty expenditure correlates with claimant programming on distant signals retransmitted, *all else equal.* A control variable for the *number of subscribers* in a subscriber group creates these all-else-equal conditions.

CCG RPFF ¶ 25 (citing George WDT at 52–54; George WRT at 60) (emphasis added).

Turning to Dr. Erdem's pedagogical rebuttal Model 7, Dr. George and CCG assert that Dr. Erdem has changed the fee-based regression modeling in two ways by (1) ''excluding the variable for network minutes'' and (2) ''including a variable for the number of distant signals.'' CCG RPFF ¶ 26. Regarding the alleged error in Dr. Erdem's exclusion of the network minutes variable, CCG avers:

> Since all stations broadcast approximately 24 hours per day, and subscriber groups must have whole numbers of distant signals, programming minutes sum to a constant equal to the number of distant signals times 24 hours per day for 6 months. Dr. Erdem has . . . effectively forc[ed] one of the program categories to produce a negative coefficient. [Dr.] Crawford and [Dr.] George address th[is] . . . by *specifying a model with a control for . . . a reference category of* ''*big-3*'' *network minutes.* Network minutes are a convenient *reference choice* because they are non-compensable and no coefficient for this category need be estimated.

CCG RPFF ¶ 26 (citing George WRT at 31–32, 57–58, 63–64) (emphasis added).[132]

Turning to her objection to Dr. Erdem's second alteration identified in the immediately preceding paragraph, *viz.,* removing of the control for the number of distant signals, Dr. George responded as follows:

> [R]emoving the control for distant stations changes the interpretation of program coefficients so that they no longer show the effect of an additional program minute taking away a minute of network or off-air

number or size of subscriber groups'' as a ''key issue.'').

[129] All the economic experts in this proceeding agree that the initial step in building a regression model is to identify ''a theory that describes the variables to be included in the study.'' American Bar Association, *Econometrics, Legal, Practical and Technical Issues* 8 (1st ed. 2005) (''*ABA Econometrics*''). *See also* Stock & Watson, *supra* note 92, at 282 (''*First,* a core or base set of regressors should be chosen,'' which includes the ''variables of primary interest'' and the ''control variables'' suggested by, inter alia, ''economic theory.'') (emphasis added); Kennedy, *supra,* at 391 (identifying as ''Rule 1'' of applied econometrics: ''Use common sense and *economic theory.*'') (emphasis added).'' Perhaps even more pertinent here is Professor Kennedy's ''Rule 2,'' which states that an econometrician must avoid attempting to ''produce[ ] the right answer *to the wrong question.*'' *Id.* at 391.

[130] CCG misidentifies this point as within Dr. Erdem's Model 4. CCG RPFF ¶ 24.

[131] As noted *supra* regarding CCG's and Dr. George's ''General Criticisms'' of Dr. Erdem's pedagogical modeling, they dispute his assertion in Model 4 that fee-based regressions do not reflect the category-by-category preferences of CSOs as revealed by the minutes of program categories retransmitted.

[132] Moreover, Dr. George pointed out that, at first, Dr. Tyler made the same mistake as Dr. Erdem, neglecting to include or address this reference category when critiquing the Crawford Model. When he realized his error, Dr. Tyler withdrew his attempted replication of the Crawford Model. *See* George WRT at 31–32; *see also* Bennett WRT ¶¶ 127–134.

programming. . . . removing the control for distant signals [thus] alters the ''all else equal'' framework of the model so that program coefficients no longer isolate the effect of additional program minutes, but instead also capture the (omitted) incremental value of additional distant signals.

George WRT at 57–58 (emphasis omitted); *see also id.* at 63–64.[133]

Finally, in responding to Dr. Erdem's conclusory Model 8, CCG concludes by describing Dr. Erdem's pedagogical exercise as merely his recapitulation and criticism of ''his own incomplete models,'' rather than ''a criticism of the well-specified Crawford [M]odel or those presented in this proceeding.'' CCG RPFF ¶ 21. *See also* George WRT at 53 ''(just as there is the potential for experts to 'cherry-pick' results, there is the potential for adversaries to 'cherry-pick' their critiques.'').

J. The Judges' Analysis and Conclusions

The Judges find that Dr. Erdem's pedagogical eight-model approach does not support an abandonment of the Judges' long-standing reliance on fee-based regressions as evidence of relative market value in these section 111 allocation proceedings. The Judges make this finding based on the following:

The Judges agree with SDC's counsel that Dr. Erdem's eight-model analysis is not substantively any different than what he presented in the 2010–13 proceeding. As such, it does not raise new factual arguments.

1. Dr. Erdem acknowledges at the outset that his critique is intended to show that the fee-based regressions fail to generate ''fair market value.'' This is a consequential error on his part, because (a) the Judges' long-existing standard is ''relative marketplace value,'' (b) the Judges expressly distinguished their standard from ''fair market value'' in the 2010–13 Determination, and (c) Dr. Erdem did not attempt to explain his switch in standards. Accordingly, it appears to the Judges that Dr. Erdem expressly characterized his eight-step modeling approach in a manner that attempted to answer ''the wrong question,'' in violation of Professor Kennedy's econometric ''Rule #2'' discussed *supra.*

2. Dr. Erdem's approach is to build up from models which lack control variables, and then to posit that the relationships he finds are inconsistent with the hypothesis behind the fee-based regressions. But that approach leaves out all the control variables that the fee-based regression experts have included in their models, essentially causing Dr. Erdem's simple models to be burdened by omitted variables, which cause regressions to suffer from the eponymously named ''omitted variable bias.'' Moreover, in Models 1 and 2, Dr. Erdem is thus not even engaged in ''multiple regression'' analysis, because he is analyzing only the effect of a single independent variable.

3. Related to the immediately preceding criticism, Dr. Erdem's rebuttal modeling approach thus reflects his own modeling choices and approach, not one utilized by the fee-based regression experts. Thus, his approach is in the nature of a straw man argument. Moreover, his approach does not appear to be so much pedagogical in nature, but rather more of an attempt to utilize his rebuttal testimony to set forth the rudiments of an alternative modeling exercise—after SDC had declined to proffer any such modeling approach in its original or amended written direct statement (when it was fully aware of the points it subsequently raised on rebuttal through Dr. Erdem's eight-model approach).

4. Dr. Erdem does not clearly explain how he estimated the number of subscribers in a subscriber group. If he did so by the same estimation approach as Drs. George, Johnson, and Marx (via Dr. Crawford) then his criticism is as questionable as their analyses in this regard. Moreover, the deficiency of this criticism underscores the relative strength of the Tyler Model, which did not require a control for the number of subscribers, given its use of SGRP as the dependent variable.

5. The Judges cannot credit Dr. Erdem's criticism of the relationship between the negative coefficients he discussed and the use of a ''reference category'' of ''Big-3'' network minutes in the fee-based regressions. The Judges are struck by the fact that Dr. Erdem ignored the rationale given by Dr. George (and other regression experts), *viz.,* that a ''reference category'' serves as a measure of value generated by the regression but not a value at issue under the statutory scheme, and thus the six categories of value can be measured against that ''reference category.'' (Other experts have characterized such a ''reference category'' approach as an ''index'' or ''numeraire.''[134]). Any sufficient criticism of this approach would need to address the ''reference category'' purpose head-on, rather than ignore it.

6. Further, with regard to the reference category issue, the Judges agree with Dr. George that Dr. Erdem's rejection of a referenced category/numeraire effectively forced program categories at issue in this proceeding to produce a negative coefficient, because in a 24-hour day, absent this control, any increase in one royalty-generating category's minutes would necessarily reflect a decrease in another category's minutes.

Separate and apart from the Judges' evaluation of Dr. Erdem's testimony, as discussed above, the Judges note an aspect of Dr. Erdem's testimony that called into question its reliability. By way of brief background, Dr. Erdem testified in the 2010–13 proceeding as well as the present proceeding, and his testimony was consistently reliable and thought-provoking, regardless of whether the Judges ultimately agreed with his opinions. But he also inexplicably endorsed in his testimony the present Bortz Survey as ''very useful.'' 4/5/23 Tr. 3465 (Erdem). Dr. Erdem's testimony in this regard was inexplicable—and jarring—because SDC did not seek to have Dr. Erdem qualified as a survey expert, he was not received as such by the Judges, and, perhaps even more unsettling, he pronounced his endorsement of the Bortz Survey ''sight unseen,'' that is, *he endorsed it without reading it.* 4/5/23 Tr. 3466 (Erdem) ([Q]: ''[I]n your initial testimony that was submitted in this proceeding, you expressed your support for the Bortz Survey *sight unseen,* correct? [Dr. Erdem] *That's correct.*'') (emphasis added)). Nonetheless, Dr. Erdem continued to attempt to justify this testimony in colloquy with Judge Strickler:

> *Q:* Dr. Erdem, but you are not qualified as a survey expert. How can you weigh the value of a survey . . . . I understand [you] to say while there may be no perfect way to estimate relative market value, you say I'll tell you one way that isn't, and that's these fee-based regressions. I understand your testimony. But why would we credit your testimony about the survey being appropriate when it comes to that issue? *You're just a lay witness.*
>
> *Dr. Erdem: You are correct, Your Honor, I am not a survey expert* as an economist.

4/5/23 Tr. 3476 (colloquy) (emphasis added). Dr. Erdem could have chosen to stop there, but he elected to keep digging, seeking to justify his Bortz Survey endorsement:

> *Dr. Erdem:* I am involved in projects and analyses that rely on survey methodologies and survey data. I have *a team* that supports me in those.
>
> * * * * *
>
> *Judge Strickler:* Before you gave your testimony in this case about the Bortz Survey being an appropriate tool to measure relative market value, did you consult with that survey team?
>
> *Dr. Erdem:* I did, Your Honor. You may recall the name Hilary Johnson, who is my director. She is a statistician by training. And I also have a Ph.D. statistician who supported me in the 2010-'13 proceeding. He reviewed the materials. . . . I had conversations with him about methodology. So I had *a team* that supported me in my reports.
>
> *Judge Strickler:* Well, I don't remember you saying anything in your testimony that you relied on your survey team in any way. Hilary Johnson's name I recall, [but] [s]he

[133] Dr. George had the opportunity to express this criticism in her WRT because Dr. Erdem had made this particular criticism in his amended *direct* testimony (which he later incorporated it into his eight-model exercise.)

[134] *See, e.g.,* 4/11/23 Tr. 4141–42 (Marx) (referring to ''the Big 3 network programming''—which is already available on local affiliates in the CSO system and therefore has the lowest coefficient—as the ''numeraire'' that allows for the six category values coefficient values to be positive in relationship to those ''numeraire''/''reference category'' minutes.)

didn't testify in her written testimony . . . about the survey at all, did she?

* * * * *

Dr. Erdem: Correct.

Judge Strickler: Why didn't she give testimony that the Bortz Survey was a good and proper way to estimate value if she's an expert in this field and you're not?

Dr. Erdem: That's a good question.

Judge Strickler: That's why I asked it.

Dr. Erdem: [W]e didn't specifically focus on the methodology aspects of Bortz Survey, you are correct in that.

Judge Strickler: Thank you, Doctor.

4/5/23 Tr. 3476–79 (colloquy) (emphasis added).

The foregoing rather remarkable testimony damaged Dr. Erdem's credibility, suggesting he would be willing to testify regarding matters as to which he lacked both expertise and knowledge. Moreover, it is ironic that he would attempt to salvage his Bortz Survey opinion by reference to his ''team'' of other professionals with the necessary background to offer such an opinion, only to admit in short order under questioning from the bench that they did not ''specifically focus on the methodology aspects of the Bortz Survey.'' His testimony in this regard is rich with irony because Dr. Erdem is the witness who has most forcefully attacked Dr. (John) Johnson of PTV for delegating work to his team of professionals without personal involvement or knowledge of the work of the team.

Thus, separate and apart from the enumerated points set forth above that lead to the Judges' finding that Dr. Erdem's eight-model analysis is insufficient to invalidate the use of fee-based regressions, his foregoing survey-related testimony casts doubt as to his credibility.

In sum, the Judges find that Dr. Erdem's eight-model pedagogical exercise is insufficient to discredit fee-based regressions as a form of evidence on which the Judges may rely.

X. Sub-Category Values

JSC, through its statistical expert, Mr. Harvey, ran what he described as ''validity tests'' that decomposed certain program categories to isolate the coefficients attributable to the decomposed elements. Specifically, he concentrated on (1) paid programming (including ''infomercials'') within the Program Suppliers category and (2) the rare NFL football games that appeared on distantly retransmitted local stations (as opposed to being broadcast on network or cable stations, which are noncompensable in these section 111 proceedings). Harvey WRT ¶¶ 71–90.

With regard to paid programming, Mr. Harvey separated the paid programming out of the Program Suppliers category and created a new category for paid programming. Joint Sports Claimants' Post-Hearing Brief in Support of Proposed Royalty Allocations at 32–33 (and citations therein) (JSC PHB). Performing this task on the Johnson Model, Mr. Harvey calculated that the coefficient for paid programming is larger than the coefficients for the other Program Suppliers content, PTV content, SDC content, and CCG content, and that, on average, the Johnson regression would assign paid programming a share of about 6.8% of the royalty pool per year. JSC PFF ¶ 176. For further perspective, Mr. Harvey computed that this paid programming share is greater than the share of royalties that the Johnson Model assigned to the approximately 2,000 annual JSC games, and approximately three times greater than all the 2015–2017 royalties for all JSC content. *Id.*

In response, Program Suppliers argues that Mr. Harvey failed to properly place his findings within the context of the regression approaches in these proceedings. Specifically, PTV's expert, Dr. Johnson, testified that it was incorrect to decompose the entire category of Program Suppliers' programming and focus on any one sub-category, because the regressions offer ''average relative valuations'' for entire categories. More granularly, Program Suppliers take note of the following testimony on this issue by PTV's expert, Dr. Johnson:

> [I]t is an average relative valuation, so I don't think that's an appropriate use of the model. But his theory is that paid-programming has no value at all, but he didn't remove them from the model. *If he had simply removed the minutes that he thinks are problematic, he would have found that the estimates really don't change very much at all.* So I just don't think that's a valid critique.

3/21/23 Tr. 605 (Johnson).

As a second response, Program Suppliers assert that Mr. Harvey's paid programming argument is ''cherry-picked,'' because he admitted to running other ''validity tests whose subject matters and results he and JSC did not produce in these proceedings.'' PS PFF ¶ 346 (and record citations therein).

CCG, relying on the testimony of its economic expert, Dr. George, also levied Program Suppliers' first criticism above, asserting that Mr. Harvey's validity test on paid programming ignores the very purpose of the fee-based regressions: to estimate the *average* relative values of the six programming categories at issue. CCG PFF ¶ 148 (and record citations therein). CCG adds, in this regard, that none of the economic expert witnesses who proffered fee-based regressions in this proceeding has maintained that it was the purpose or capacity of their models to precisely estimate the relative value of sub-groups of programs. *Id.*

At the hearing, Dr. George provided further detail with regard to this criticism:

> So the paid programming is fixed hours at night. There's just not independent variation with other Program Supplier category. So . . . when [Mr. Harvey] breaks this up, he effectively forces one of the coefficients to be negative because . . . you can't really independently increase paid programming without decreasing the other Program Suppliers' programming.
>
> * * * * *
>
> [T]he coefficients for claimant programming . . . reflect an average. So right now the values per minute are telling us the average of the different—like the diversity of this kind of programming. So, Program Supplier programming has different sorts of things. And so the value per minute is an average [a]nd we're applying it to quantities. And so if I were to design a regression that really wanted to get at the value of paid versus non-paid programming, I could do that, but it would be a pretty different model.

4/18/23 Tr. 5163, 5166–67 (George).

In their post-hearing filings, JSC responds by emphasizing more narrowly that this ''validity'' test reveals the pitfall of the regression models' use of retransmission decisions by *minimum fee-paying* CSOs:

> The failure of the regressions to accurately capture revealed preferences from *Minimum Fee CSOs* is clearly demonstrated by Mr. Harvey's validity tests, which reveal that the regressions would attribute substantial value to programming with no value (*i.e.,* infomercials) . . . .

JSC PHRB at 16–17 (and citations therein) (emphasis added).

With regard to the rare NFL game that appeared on a distantly retransmitted station (as opposed to a broadcast or cable network), Mr. Harvey performed an additional ''validity'' test. Specifically, he separated NFL games from other JSC content, in order to ascertain whether the regression models had the capacity to realistically estimate the relative value of NFL programming. JSC PFF ¶ 180. Mr. Harvey found that across the Johnson, George, and Tyler Models, the NFL retransmissions had lower coefficients than other JSC programming (and sometimes negative coefficients). JSC PFF ¶¶ 181–85 (and record citations therein). Based on these results, Mr. Harvey opined that these regression models were unable to identify realistic values because the high value of NFL games on television is common knowledge and undisputed,

and should have been confirmed by this validity test. JSC PFF ¶ 180.

In response, Program Suppliers and Dr. Tyler first reiterate the same points they made with regard to Mr. Harvey's ''validity test'' pertaining to paid programming, *i.e.,* (1) that the regressions offer average relative values across a category, (2) the program category is too small to generate meaningful results, and (3) the test was ''cherry-picked'' out of a number of validity tests that Mr. Harvey elected not to disclose. But Program Suppliers specifically hones in on the second criticism above, that the program category is simply too small. In this regard, Program Suppliers maintain:

> During the 2014–17 time period, WNBC (one of the handful of distant signals that Mr. Harvey chose to highlight) carried just one compensable regular season NFL game, meaning that compensable regular season *NFL content accounted for less than one one-hundredth of one percent of the content on that station.*

PS PHB at 3 & 25 (citing to PS PFF ¶ 174 (and record citations therein)). *See also* 3/29/23 Tr. 2062–64 (Harvey) (admitting to this percentage calculation).

Regarding this NFL ''validity test,'' CCG made the same argument it made in criticism of Mr. Harvey's ''validity test'' relating to paid programming, described *supra.* In her oral testimony, Dr. George elaborated more broadly regarding the attempt to decompose JSC programming into the rarely retransmitted NFL games, stating that Dr. Harvey failed to appreciate that because ''there's a fixed number of regular season and post-season games in the NFL . . . we don't have independent variation there [and] our 24 model isn't capable of [that] separation . . . and it doesn't need to. 4/18/23 Tr. 5162 (George).

In his oral testimony, Dr. Johnson had a response to Mr. Harvey's NFL de-composition of JSC programming that was consonant with the former's response regarding the paid programming issue. Dr. Johnson testified:

> Mr. Harvey argues that he can change the model and try to separate out NFL or playoffs. He says: Look, I get nonsensical results. I get negative values for these things. The problem is . . . he is trying to parse the regression so finely that he has got less than .01 and .04 of the total minutes that are used in the entire estimation. . . . The model wasn't intended to only estimate isolated values for NFL and playoffs. It's an average relative valuation for the claimants. It can do that well. And that's the purpose of the model.

3/21/23 Tr. 605–06 (Johnson).[135]

The Judges find that Mr. Harvey's ''validity tests'' do not serve to invalidate the usefulness and relevance of the regressions proffered in this proceeding. There are several reasons for this finding.

First, the Judges agree with the criticisms that Mr. Harvey's ''validity tests'' fail to appreciate the fact that the regressions are estimated *average* valuations. When an average is de-composed, looking at any one element in the average fails to consider the average itself and, depending on the question at hand, may offer an interpretation that is off-point.[136]

Second, if it in fact is the case that paid programming, by some other metric, or by the use of common sense, can clearly be found to have far less value than other program types, the fact that the regression provides paid programming with value via the averaging function of the regression does not mean that the Program Suppliers category (where paid programming is situated) received an inflated coefficient. In this regard, the Judges note Dr. Johnson's testimony, cited above, in which he notes that Mr. Harvey did not even attempt to show how, if at all, the coefficients in the regression would have changed if he had simply removed the paid programming minutes from the regression.[137]

Third, Mr. Harvey indicates that the paid programming issue is a factor (or perhaps more of a factor) as it pertains to minimum-fee-only CSOs, as noted *supra.* But because the Judges are relying on the results from the cohort of above-minimum-fee-only CSOs, Mr. Harvey's point in this regard is of less importance.

Further, the program categories were configured by the parties. Although the parties have raised the issue of whether the definitions of the program categories should be changed, the categorizations in this proceeding are the same as the parties have long utilized. The Judges understand these program categories to have been designed to reduce transaction costs, so that each sub-category, or each program, does not make its own claim for royalties, rendering the process prohibitively costly. (The bifurcation of the process into allocation (formerly Phase I) and distribution (formerly Phase II) proceedings is in furtherance of the reduction in transaction costs.) [138]

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[135] The Judges find no merit in the allegation that Mr. Harvey may have ''cherry-picked'' which ''validity tests'' to produce. The issue here is the importance, *vel non,* of his validity tests. In that regard, the Judges find that the tests he discussed in his WRT, including but not limited to the ones highlighted here, all suffer from the problems inherent in de-composing the regression results. Moreover, because Mr. Harvey is a JSC witness, it was incumbent upon JSC to bear the burdens of production and persuasion regarding the impact of these de-composed sub-categories on the regression results, burdens which they have not satisfied.

[136] For example, consider the grade point *average* (GPA) of a college student for a semester, where the student received 3 As in English Literature, World History, and Economics, and one C in biology. Assuming an A = 4.0 points and a C = 2.0 points, the student has a GPA of 3.5. This is the relevant data point if one wants to know generally whether the student is performing well. But if the question is whether the student is showing an aptitude to perform well in medical school, the de-composition is more appropriate, because the 2.0 in biology is the more relevant data point. Here, there is no reason why the paid programming or the NFL data points should be separated out, when the purpose of the regression is to obtain the average.

[137] It appears that there would be no change. A simple thought experiment is instructive. Assume the Program Suppliers category consists of two types of programs: (1) situation comedies and (2) paid programming. For simplicity, assume equal subscriber minutes for both categories and that each situation comedy has the same value to a CSO as any other situation comedy, and each Paid Programming segment has the same value as another such segment to a CSO. Also assume a reality, such as Mr. Harvey has not unreasonably posited, that all paid programming has zero value to a CSO.

Because the regression is constructed to correlate royalties with minutes of programming, none of the minutes attributable to paid programming would correlate with royalties because it is assumed CSOs do not value paid programming. So, all the royalties attributable to Program Suppliers would have been generated by the situation comedies. However, the total subscriber minutes would include both situation comedy and paid programming minutes, reducing the per minute coefficient value (and diluting (by 50%) the value generated by the situation comedies).

Consider some hypothetical numbers: Situation comedies and paid programming each accounted for 262,800 minutes (50% of the 525,600 minutes in a year). The regression, de-composed, gives situation comedies, hypothetically, a .0005 coefficient. But paid programming gets a zero coefficient. The average coefficient across both categories is .00025 which, when multiplied by the number of annual programming minutes (as the regressions do) of 525,600, yields 131.4, and that is the figure that would be compared to the figure similarly computed for the other claimant categories.

What if we excluded paid programming from the regression? There would be 262,800 minutes of situation comedy programming, with a coefficient value of .0005, as assumed. What would be the figure to be used for allocation purposes? It would be 262,800 × .0005, which also equals 131.4. Thus, there is no reason to assume zero-value paid programming is inflating the value of the category in which it is situated if the validity/reality assumption of zero value is correct. (Economists will recognize this result as analogous to the point made by Nobel laureate George Stigler in his explanation of block-booking of movies by a studio to a theatre. *See* G. Stigler, *United States* v. *Loew's Inc.: A Note on Block-Booking,* 1963 Sup. Ct. Rev. 152 (1963)).

[138] If paid programming indeed contributes little or nothing in royalties, the Program Suppliers' representative may address that in the distribution (Phase II) process, but that is of no moment in this proceeding.

However, these tests do underscore the importance of integrating the Bortz Survey as an approach to ascertaining relative marketplace value. It may be the case that a small number of games has value, outside of what is measured by the regression, in retaining subscribers, a measure of value which might be captured by the Bortz Survey, but not by the regressions.

More broadly, the question of the value of different sub-categories of programming takes on salience when the issue is whether certain types of programming have a relative marketplace value independent of the number of minutes they contribute to the category in which they are situated. And an entire category may have value not reflected in the minutes of programming associated with that category and its programming. That is, because these various categories and sub-categories are bundled together in the local stations that are distantly retransmitted, minutes alone may well not reflect the relative values of key drivers of the decision of a CSO to retransmit a station with a bundle of programming category content. For this reason, the Judges are also utilizing the results of the Bortz Survey, which reflect (albeit imperfectly) how CSOs value different types of programming.

XI. Regression Decision

A. Regression Analyses

In the 2010–13 Determination, the Judges placed ''primary reliance'' on a regression analysis [139] to allocate royalty shares among the six program categories. 2010–13 Determination at 3610. In particular, they found a regression model presented by CTV's econometric expert, Dr. Gregory Crawford, ''on balance . . . to be highly useful in estimating relative values in this proceeding.'' *Id.* at 3569. Accordingly, the Judges gave greater weight to regression analysis than they had in prior proceedings, both in absolute terms and relative to other evidence and approaches, such as surveys and descriptive industry witness testimony. An important reason for the Judges' increased reliance on regression analysis was that this methodology approached the relative marketplace value from the perspective of what CSOs actually *had* done in terms of deciding which distant signals to retransmit on their systems.'' *Id.* at 3610 (emphasis in original).

The general form of this regression model is identified, alternatively, as a ''fee-based'' regression, a ''Waldfogel-style'' regression, and, subsequent to the 2010–13 proceeding, a ''Crawford-style'' regression.[140] At a high level, a fee-based regression is characterized by the following elements:

1. It attempts to correlate variation in the program category composition of distant signal bundles with the royalties paid by CSOs to estimate the relative marketplace value of programming;
2. It regresses observed royalty payments for the bundle on the numbers of minutes in each programming category; and
3. It may employ econometric controls in the form of ''control variables'' and ''fixed effects'' in order to isolate the correlation between the dependent variable (some measure of royalties) and the independent (explanatory) variable of interest (the number of programming minutes) from the controlled other drivers of CSO payments.

See 2010–13 Determination at 3557 (record citations omitted).

In proceedings prior to the 2010–13 Determination, the Judges (and their predecessors) relied on fee-based regressions but did not place a *primary* weight on this approach. In the allocation proceeding for 1998–99 royalties, a Copyright Arbitration Royalty Panel (CARP) relied on such a regression model put forth by an economist, Dr. Gregory Rosston, not as a primary allocation measure, but rather as corroboration of the allocation shares generated by the Bortz survey. *See* 1998–99 CARP Report at 46. Subsequently, in the allocation proceeding for 2004–05 royalties, the Judges relied on the fee-based regression model advanced by Dr. Joel Waldfogel (the now eponymous ''Waldfogel-regression'') as ''generally reasonable'' and thus ''helpful to some degree'' because it ''more fully delineat[es] all of the boundaries of reasonableness with respect to the relative value of distant signal programming'' and ''provid[es] some additional useful, independent information about how cable operators may view the value of adding distant signals based on the programming mix on such signals.'' *2*004–05 Distribution Order at 57063, 57068. Accordingly, the Judges found, as did their predecessors in the 2004–05 proceeding, that the fee-based regression approach served to ''corroborate'' some aspects of the Bortz survey and that it also served ''to provide an independent reasoned basis'' for departing in one respect from the Bortz methodology. *Id. at* 57069.

Chronologically, the 2010–13 Determination was the next allocation decision to consider the evidentiary weight to be given to a fee-based regression. In that case, the Judges elevated the regression methodology, namely the model proffered by Dr. Gregory Crawford (the Crawford Model), to a primary body of evidence in terms of explanatory power. The Judges noted that the Crawford Model, like the Rosston and Waldfogel regressions that preceded it, contained a useful differentiating feature: In contrast with the survey approach, regression modeling ''analyzed value from the perspective of what CSOs *actually had done* in terms of deciding which distant signals to retransmit on their systems.'' 2010–13 Determination at 3610.[141] But why did the Judges elevate the fee-based regression approach from the junior status of *corroborative tool* to a position of evidentiary primacy?

The answer mainly lies in the improved way in which the Crawford Model was constructed. Explaining this answer requires the Judges to present a brief tutorial on regressions, based upon the testimony of the econometricians in this proceeding, the textbooks they cited, and the background information set forth in the 2010–13 Determination.

Regression analysis is a ''method of determining the relationship between two or more variables, and it can be a valuable tool for resolving factual disputes.'' 2010–13 Determination at 3556 (citation omitted). When a regression attempts to identify the correlation between a ''dependent variable'' [142] and more than one ''independent variable,'' [143] the approach is known as a ''multiple regression analysis.'' [144] This is the technique that was employed by Dr. Crawford (and Dr. George) in the 2010–13 proceeding and in the present proceeding by Drs. George, Johnson and Tyler.[145] Multiple regression ''is the technique used in most econometric

[139] For an overview of the general concept of regressions, *see* 2010–13 Determination at 3556.

[140] The Judges use these monikers interchangeably in this determination.

[141] By contrast, the survey approach, as in the Bortz Survey proffered in this proceeding, asked each CSO-employed survey respondent, for a given year: ''What percentage, if any, of [a] fixed dollar amount *would your system have spent* for each category or programming?'' Bortz Survey, app. B, attached to Trautman WDT (emphasis added).

[142] Typically, the dependent variable has been a functional form of royalties, see 2010–13 Determination at 3557 n.27, but in this proceeding, Dr. Tyler specifies a different dependent variable, the SGRP.

[143] An ''independent variable'' serves to explain the dependent variable and is therefore also described as an ''explanatory'' variable. 2010–13 Determination at 3567.

[144] Multiple regression analysis ''is the technique used in most econometric studies, because it is well suited to the analysis of diverse data necessary to evaluate competing theories about the relationships that may exist among a number of explanatory facts.'' 2010–13 Determination at 3556 (citing *ABA Econometrics, supra* note 127, at 4).

[145] Dr. Marx utilized a Bayesian regression (described in detail *infra*) for 2014 that builds upon the multiple regression work done by Dr. Crawford for 2013.

studies, because it is well-suited to the analysis of diverse data necessary to evaluate competing theories about the relationships that may exist among a number of explanatory facts.'' 2010–13 Determination at 3556 (citing *ABA Econometrics, supra* note 127, at 4). The basic notation for a multiple regression would be, for example:

$Y = a + bX + cZ + u$

where

Y is the dependent variable
X is an independent (explanatory) variable
Z is a different independent (explanatory) variable
a is the intercept with the vertical axis (on a graphed regression)
b is the coefficient (value) of X
c is the coefficient (value) of Z
u is the error term, a/k/a the ''regression residual'' (reflecting unobserved factors that determine Y)

See 2010–13 Determination at 3556 n.23; Stock & Watson, *supra* note 92, at 158–59. If econometricians are specifically interested in the impact of, say, independent (explanatory) variable X on dependent variable Y, they will hold constant the effect of any other independent (explanatory) variable, such as Z in the above example, which reclassifies Z as a ''control variable.'' [146]

Because of changes in generated data as a result of statutory changes that occurred subsequent to the determination covering the 2004–05 royalty years, Dr. Crawford was able to construct a fee-based regression with more granular detail. The Judges explained this change in data generation in their 2010–13 Determination:

> Between the time of the last adjudicated cable royalty allocation proceeding and the present [2010–13] proceeding, Congress passed the Satellite Television and Localism Act of 2010 (STELA). Before STELA, cable operators were required to pay for the carriage of distant signals on a system-wide basis, even though each signal was not made available to every subscriber in the cable system. . . . STELA . . . amend[ed] section 111(d)(1) of the Copyright Act, which details the method by which cable operators can calculate royalties on a community-by-community or *subscriber-group basis. Id.* From the 2010/1 accounting period and all periods thereafter, cable operators have been required to pay royalties based upon where a distant broadcast signal is offered rather than on a system-wide basis.

2010–13 Determination at 3554 (emphasis added).

This statutory change permitted the participants in these section 111 allocation proceedings to analyze relative value *at the subscriber-group level.* 2010–13 Determination at 3554 (citing Corrected Written Direct Testimony of Gregory Crawford, Ex. 2004 (Crawford CWDT) ¶ 66). More particularly, Dr. Crawford's regression ''looked for a correlation in a subscriber group between changes in the number of minutes of programming the subscribers watched by categories and changes in the percentage of royalties the subscriber group paid while holding constant other potential explanatory variables (called control variables).'' 2010–13 Determination at 3558. As Dr. George succinctly explained in her testimony in the present proceeding, ''[w]ith [Dr.] Crawford's specification, coefficients are identified using only variation *within systems* in each accounting period.'' George WDT at 9 (emphasis added).

Dr. Crawford's approach thus required the existence of at least two subscriber groups in a cable system in order for the retransmission (and thus the programming) decisions of a cable systems operator (CSO) to be used in the regression. The purpose of so limiting the regression was to focus on the relationship at interest in the regression, which is the association between the minutes of per-category programming retransmitted and the CSO's royalties calculated at the subscriber group level. However, by so doing, the Crawford Model reduced the number of observations that it could utilize. In the 2010–13 proceeding, the Crawford model was criticized by the SDC and one of its experts, who argued that his regression approach was ''compromised'' by this limitation, which '' 'effectively discarded' approximately 15% of his observations by disregarding observations from systems with a single subscriber group . . . 'approximately half of all systems in his data set' . . . .'' 2010–13 Determination at 3566 (citations omitted).

But what the SDC saw as vice, Dr. Crawford (and ultimately, the Judges) understood as virtue. That is, Dr. Crawford included this combined control limiting the observations to intra-cable system subscriber group variations in a particular six-month accounting period in his regression to avoid introducing (*i.e.,* to control for) effects on royalties of different business strategies among CSOs (''system'' effects) and different economic conditions over time (''accounting period'' effects). In a regression, these two joint interactive controls are examples of a particular form of control known as a ''fixed effect.'' [147]

Additionally, while his regression was a work in process, Dr. Crawford added another fixed effect for the ''top-six'' MSOs [148] for similar reasons, *i.e.,* to control for their variable ''average receipts . . . signal carriage strategies, pricing, and other relevant dimensions.'' 2010–13 Determination at 3567 (record citations omitted).

More broadly, Dr. Crawford explained that his fee-based regression was intended to explain the association between program category minutes and royalties paid. To that end, it was necessary to control for other factors, specifically including ''the numbers of local and distant stations, the number of activated cable channels, and the size of the CSO.'' 2010–13 Determination at 3558 (record citations omitted). These were in addition to other independent variables that Dr. Waldfogel identified as ''control variables'', including ''the number of subscribers, local median income, and the number of local channels.'' 2010–13 Determination at 3557.

In the present proceeding, Dr. George has well stated the role of control variables in multiple regressions relied upon by Dr. Crawford and by experts in the present proceeding:

> The purpose of control variables is to account for factors other than coefficients of interest that might affect the dependent variable. In the case at hand, control variables are chosen to account for market factors other than distant signal programming minutes that might affect royalty payments. Of particular concern are factors that affect demand for cable services, which in turn can affect the number of subscribers, system revenue, and royalty payments. Failing to control for factors that shift demand and are correlated with programming minutes can lead to *bias* in the . . . coefficients that are of primary interest. Income, the number of local stations and (lagged) number of activated channels are all factors that might affect the number of subscribers or revenue so are included as controls.

George WDT at 52. Indeed, as the Judges explained in the 2010–13

[146] For the definition of a ''control variable'' *see* 2010–13 Determination at 3558 n.33.

[147] For the definition of ''fixed effects,'' see 2010–13 Determination at 3563 n.52. Graphically, the inclusion of ''fixed effects'' generates different intercepts, such that ''a'' in the example *supra* would have a different value for each ''fixed effect.'' (Econometricians sometimes describe ''fixed effects'' as a type of ''control variable,'' but they are more often specifically characterized as ''indicator'' or ''dummy'' variables. *See* 2010–13 Determination at 3562 n.45.

[148] ''MSO'' is an acronym for a ''multi-system operator,'' for example Verizon, 3/21/23 Tr. 347 (Johnson), and refers to ''an operator of multiple cable or direct-broadcast satellite television systems [and is] usually reserved for companies that own multiple cable systems, such as Altice USA, Charter Communications, Comcast and Cox Communications . . . .'' *List of Multiple-System Operators,* Wikipedia, *https://en.wikipedia.org/wiki/List_of_multiple-system operators* (last visited Aug. 10, 2023).

Determination, Dr. Crawford's approach was designed so as to accept some loss of precision (*i.e.,* a greater variance and larger standard errors) in exchange for less bias (by excluding other independent variables). This tradeoff is an inevitable problem for an econometrician, and how an econometrician balances these impacts *is just as much an art as it is a science.* 2010–13 Determination at 3565 & n.59. The Judges noted though, that the tradeoff was moderated because Dr. Crawford ''used the universe of all programming on all distant signals, rather than a sampling'' which created a ''rich data set'' that served to ''mitigate'' the impact of his fixed effects ''so that his parameters remained relatively precise.'' 2010–13 Determination at 3569.

Accordingly, in the 2010–13 Determination, the Judges essentially agreed with Dr. Crawford's modeling decision to include his fixed effects, because he threaded the needle, minimizing bias while maintaining a sufficiently precise relationship between per-category programming minutes and royalties generated. *Indeed, a key reason the Judges elevated the Crawford Model to primary evidentiary status was that ''his use of a fixed effects approach avoided the criticism that he had omitted key variables.*'' 2010–13 Determination at 3569 (citing Crawford CWDT ¶ 107; 2/28/18 Tr. 1398 (Crawford)) (emphasis added).

According to all the experts utilizing fee-based regressions, in whole or in part, this econometric virtue extended through 2014. But in 2015, a *commercial earthquake* struck the retransmission market: WGNA, by far the most distantly retransmitted channel, converted from a broadcast station into a cable channel. See, *e.g.,* Majure WDT ¶ 75 (JSC expert witness noting that ''[t]he removal of the widely carried WGNA materially changed the manner in which CSOs used the section 111 license.''). This metamorphosis had several dramatic effects, one of which was the diminished evidentiary value of Dr. Crawford's new approach of limiting the observations to subscriber group variations within a cable system (accomplished by imposing his systems-accounting period fixed effects.) [149]

After the WGNA conversion, commencing in 2015, the number of cable systems with more than one subscriber group declined significantly. Moreover, what had been a robust source of data for analysis of variation of distantly retransmitted program categories among the local channels distantly retransmitted by CSOs had shrunk. To address the loss of this robust set of data, the fee-based regression experts in the present proceeding each constructed a model that, although *premised* on the Crawford Model, sought a work-around for this significant change.

Dr. Johnson addressed the problem by *eliminating all fixed effects* from his preferred model, *i.e.,* the ''baseline'' model presented in his WDT. In doing so, the Johnson Model was able to generate observable data points that showed programming variations not just among subscriber groups within a cable system in a specific accounting period (as the Crawford Model had done), but also program variations among subscriber groups *across* systems and *across (not within)* the six-month accounting periods in the SOAs.

Curiously, Dr. Johnson's justification for this change was that it allowed for an increase in the number of observations for his regression, thus addressing what he understood to be a key concern of the Judges in the 2010–13 Determination. *Compare* Johnson WDT ¶ 59 (''Professor Crawford's model was criticized because it 'effectively discarded' approximately 15% of his observations . . . which totaled approximately half of all systems in his data set'') *with id.* at ¶ 62 (touting his model for containing ''18,000 subscriber group-level observations'').

The Judges in that proceeding did not find the level of number of Dr. Crawford's observations to be a debilitating problem, declining to find that the Crawford Model was overfit. Rather, the Judges instead found that Dr. Crawford's balancing of a minimization of explanatory bias with an acceptable loss of measurement precision was appropriate to the task the regression was seeking to measure, *i.e.,* the correlation between program category minutes and the log of royalties paid. In so finding, the Judges had acknowledged the value of the fixed effects (and the control variables) in his model in allowing for the isolation of the correlation. 2010–13 Determination at 3569.

Accordingly, Dr. Johnson's claimed justification for eliminating all of these important fixed effects rings hollow. Moreover, their absence from his model increased the bias in his measurements, which meant that the correlation was subject to mismeasurement. More particularly, the bias in question is what econometricians and statisticians in general refer to as ''omitted variable bias.'' Here, the ''omitted variables'' are the ones that the Crawford Model had accounted for with its fixed effects, but which Dr. Johnson injects into his model by eliminating the fixed effects. Accordingly, by this change, the Johnson Model became *less* probative of the claimed correlation between program category minutes and royalties, and for that reason alone the Judges place less weight on the Johnson Model in this proceeding than they did on the Crawford Model in the 2010–13 Determination.

Dr. George, unlike Dr. Johnson, did not eliminate all fixed effects. Rather, as discussed *supra,* she eliminated some, retained and/or modified others, and included new fixed effects. Most importantly, the George Model modified Dr. Crawford's ''systems-accounting period fixed effects.'' Whereas the Crawford Model limited the observed data points to differences among subscriber groups within a cable system *during* an accounting period, Dr. George relaxed that fixed effect. Specifically, she only limited the number of observed data points by separately fixing the effect at the ''systems'' level and at the ''accounting period'' levels. So, for example, if there were two subscriber groups in the Verizon Buffalo cable system, the Crawford Model would only observe the variations between them in a given (six-month) accounting period. By contrast, the George Model would: (1) observe variations between those two subscriber groups *in* the given (six-month) accounting period; and also (2) beyond the (six month) accounting period. Thus, Dr. George maintained a fixed effect that still controlled for the difference in CSO business practices and a fixed effect control for changes over time (the ''accounting period'' control), but, unlike Dr. Crawford, she did not combine the two fixed effects.

Alternately stated, Dr. George sought to address the loss of observable data points caused by the 2015 WGNA conversion by making a different tradeoff in the inevitable bias/variance dilemma faced by the econometrician in this context. She opted for somewhat more bias, accepting somewhat less precision, in order to generate what she understood to be a useful number of observations for her regression to analyze.

Although Dr. George makes a less draconian change from the Crawford Model than the Johnson Model does in this regard, she nonetheless introduces ''omitted variable bias'' into her regression. That is, by allowing variations over time (within a cable system) to impact the correlation, the

[149] The WGNA conversion also (1) substantially reduced the number of CSOs paying the base fee (and concomitantly increased the converse, the number of CSOs paying only the minimum fee) and (2) drastically reduced the number of JSC subscriber-minutes distantly retransmitted.

George Model treats temporal changes as reflective of a correlation between program category choices and royalties.[150] In sum, the George Model introduces omitted variable bias that was absent from the Crawford Model, but to a lesser degree than the Johnson Model. Accordingly, *ceteris paribus,* the Judges give more evidentiary weight to the George Model than to the Johnson Model.

By contrast, Dr. Tyler's approach circumvents this fixed effects dilemma. As explained *supra,* the Tyler Model does not use royalties (linear or log form) as the dependent variable. Rather, the Tyler Model uses the SGRP as the dependent variable. Recall that the SGRP is a fraction: the dollar amount of base fee royalties calculated by a subscriber group divided by the SG's gross receipts. The Tyler Model then looks at the variability in this SGRP across all cable systems. So, what happens to the effects arising from different CSOs (the ''systems'' effects) and the changes over time (the ''accounting period'' effect) for which Drs. Crawford and George (but not Dr. Johnson) sought to control with ''fixed effects''? As Dr. Tyler explains, the system and temporal (''accounting period''), indeed, essentially all fixed effects, are rendered inapplicable when the dependent variable is the SGRP, rather than a form of royalties:

> The Crawford Model used fixed effects. The inclusion of fixed effects would make sense if the SGRPs varied across CSOs due to unobserved factors in the marketplace (other than and apart from choices related to stations, and the minutes in those stations). If that were the case, the use of . . . fixed effects would focus the model on the economic decision-making by a CSO for an accounting period across subscriber groups, having controlled for these unobserved factors.
>
> However, my model . . . instead . . . us[es] SGRP for the dependent variable. The SGRPs for each subscriber group are specified by statute (following the carriage decisions made by CSOs)—an industry characteristic that greatly reduces (and possibly eliminates) concerns over unobserved factors that might impact SGRPs.

Tyler ACWDT ¶ 87 n.71. Program Suppliers added an equivalent explanation of this point in their post-hearing briefing:

> Substantial irrelevant variability exists across the royalty amounts calculated for each subscriber group. For example, greater royalty amounts might be determined for a subscriber group for no other reason than one subscriber group has more subscribers or higher prices, or both, than another subscriber group. PFF ¶¶ 290, 351. And those prices may vary based on factors like cable networks carried, customer service, bundling with internet and phone, or other factors unrelated to distant signal carriage. PFF ¶ 290. A regression model using royalty amounts calculated as the dependent variable must control for these sources of variability in an attempt to isolate the incremental value of minutes by category type. PFF ¶ 290. Unlike royalty dollar amounts, SGRP does not vary across CSOs due to unobserved factors in the marketplace—other than from choices related to distant signals. Thus, because the Tyler Model uses the more targeted SGRP, and not royalties, the Tyler Model can more precisely measure the incremental value of various types of minutes within each year. PFF ¶¶ 291–92. With less irrelevant variability to explain in the dependent variable, the Tyler Model can focus on the relationships at issue in a way that other models, which use royalties as the dependent variable, cannot. PFF ¶¶ 291–92. Furthermore, because SGRP does not vary for reasons unrelated to distant signal carriage, fixed effects (meant to control for unobserved sources of irrelevant variability) are not necessary. PFF ¶ 292.

PS PHB at 38.

Thus, the Judges understand that other demand effects (such as the impact on demand from differences in, *e.g.,* service quality, pricing, etc.) impact the gross receipts, not the royalty decisions.[151] The Judges further note that—although other parties and their experts criticize the Tyler Model for not including fixed effects and note how shares would change in fixed effects were added—none of the partis or experts addresses Dr. Tyler's point, discussed supra, that when the dependent variable is the SGRP rather than a form of royalties, fixed effects are unnecessary because there is no variable omitted that will impact the dependent variable.

Another way to understand the evidentiary problem caused by eliminating or relaxing the fixed effects (as in the Johnson and George Models (but not the Tyler Model)) is to consider a crucial point made in the 2010–13 Determination and again in this proceeding—the difference between an ''explanatory'' regression and a ''prediction'' regression. In this regard, the Judges stated in the 2010–13 Determination:

> The Waldfogel-type regression is an example of modeling utilized to *explain the effects* of different program categories on the *relative* payment of royalties—rather than an attempt to *predict* the level of royalties. Thus, . . . the choice of variables can reasonably be based on the ''underlying theoretical model.'' [G. Shmueli, *To Explain or to Predict?,* 25 *Statistical Science* 289, 290–91, 297 (2010)]; *see also* F.M. Fisher, *Econometricians and Adversary Proceedings,* 81 J. Am. Stat. Ass'n 277, 279 (1986) (''There is a natural view that models are supposed to do nothing other than *predict* . . .'' resulting in the ''danger'' of ignoring ''better models that do not fit or *predict* quite so well but are in fact informative about the phenomena being investigated.'') (emphasis added).

2010–13 Determination at 3564. As in that prior proceeding, the purpose of the fee-based regressions is to ''explain'' the posited correlation between distantly retransmitted program minutes and royalties. It is unsurprising that other variables may be more useful as ''predictors'' of royalties, but that is quite another matter. In this regard, in the 2010 Determination the Judges approvingly cited the following testimony by Dr. Crawford:

> Dr. Erdem misunderstands the purpose of an econometric analysis in this proceeding . . . . For the goal of *prediction,* the focus is on finding the explanatory variables that *best predict the outcome of interest* . . . . [I]f the goal is to predict stock prices[,] and the price of tea in China helps, then . . . include it in the model (and don't worry about the economic interpretation of its coefficient).
>
> *That is not the purpose in this proceeding,* however. In this proceeding, experts are using econometric analyses to help the Judges determine . . . relative marketplace value . . . . The dependent variable in these regressions, the royalties cable operators pay for the carriage of the distant signals, are informative of this relationship . . . . The key explanatory variables in this relationship, the minutes of programming of the various types carried on distant signals, are informative as the impact they have on royalties reveals the *relative* market value of each programming type. Other explanatory variables are included in the model to control for other possible determinants of cable operator royalties. This helps improve the statistical fit of the regression (to ''reduce its noise''), providing more precise estimates of the impact of programming minutes that are the focus of the analysis. . .
>
> The goal here is to find the econometric model that can best reveal relative

[150] This bias is particularly pertinent vis-à-vis the cleave between 2014 and the 2015–2017 period, given the WGNA conversion that shook the distantly retransmitted sector. Moreover, Dr. George (like Dr. Johnson) ''pooled'' her data and applied it to generate one set of coefficients spanning the entire four-year (2014–17) period. By relaxing the fixed effects to obscure the impact of changes over time, the George Model failed to appropriately address the WGNA-conversion effect.

[151] Critics of the Tyler Model maintain that by avoiding the fixed effects problem in this manner, the Tyler Model throws out the baby with the bathwater, in that it fails to correlate the royalties paid with the discrete categories of program minutes, which is the entire point of the exercise. That is, the Tyler Model allegedly fails to uncover the variation in royalties associated with different categories of programming minutes. (And, as some econometric critics of the Tyler Model have testified, it merely ''reproduces the statutory formula.''). As explained *infra,* the Tyler Model, like the other regression approaches, multiplies its derived coefficients by the number of program minutes associated with each of the six program categories, generating allocation shares on a per-program category basis.

marketplace value. Doing so means crafting the econometric model to reflect *the institutional and economic features* of the environment that is generating the data being used . . . . Crawford WRT ¶¶ 91–94 (footnotes omitted) (emphasis added).

2010–13 Determination at 3564. No critic of the regression approach has persuasively addressed this finding in the 2010–13 Determination that relies on the distinction between a regression designed for ''prediction'' and a regression designed to measure the ''effect'' of a variable of interest, has persuasively addressed this finding in the 2010–13 Determination that relies on the distinction between a regression designed for ''prediction'' and a regression designed to measure the ''effect'' of a variable of interest,

Consistent with this testimony, the Judges held that it is not their ''statutory task . . . to identify and rank all the causes of a change in total royalties.'' Rather, the Judges' ''legal, regulatory, and economic task . . . is to determine the relative market value of different categories of programming,'' and thus correlations between royalties and other independent variables, for example, between royalties and the number of subscribers, ''is not in furtherance of that objective.'' 2010–13 Determination at 3564.

The WGNA conversion not only reduced the number of subscriber groups, as discussed *supra,* but also significantly reduced the number of CSOs that actually paid the base fee, as opposed to the minimum fee. A number of experts captured this undisputed effect, and Dr. Marx's testimony below in this regard is clear and illustrative:

For necessary context, it is instructive at the outset of this section to consider how the minimum fee issue was addressed in the 2010–13 Determination. There, the Judges found as follows:

1. ''[A] CSO's decision to distantly retransmit any particular station, when that CSO is otherwise obligated to pay the minimum royalty fee, does not indicate a direct correlation between the decision to retransmit and the decision to incur a royalty obligation.'' 2010–13 Determination at 3568.

2. ''[D]uring the 2010–2013 period, on average 527 out of the 1,004 Form 3 CSOs analyzed (52.5%) chose to retransmit the exact or fewer number of signals than the regulated fees permitted [and] 83 paid the minimum fee yet elected not to retransmit any local stations. . . . Those decisions reveal that the CSO has concluded (whether by analysis or resort to a heuristic) that any of the marginal costs (physical or opportunity) associated with retransmission likely exceed the value to the CSO of such retransmission, even accounting for minimum royalties, which the CSO must pay in any event.'' 2010–13 Determination at 3568.

3. ''Although there is no *marginal royalty cost* associated with th[e] decision [to retransmit stations when . . . obligated to pay only the minimum royalty], the CSO's decision as to *which* stations to retransmit remains a function of choice, preference, and ranking. Thus, the CSO in this context would still have the incentive to select distant local stations for retransmission that are more likely to maximize CSO profits, through either an increase in subscribership or, as Ms. Hamilton emphasized, by avoiding the loss of subscribers through the preservation of 'legacy carriage' through the non-analytical heuristic of maintaining the status quo.'' 2010–13 Determination at 3569.

4. ''There are substantial economic bases for this finding. Because the 'tax' of the minimum fee is paid regardless of whether distant retransmission occurs, that 'tax' is also in the nature of a sunk cost. Fundamental economic analysis provides that a seller should ignore sunk costs when making marginal decisions (although they should try to recoup these costs if the buyers' willingness-to-pay allows it). Nonetheless, a CSO that decides to distantly retransmit a station when the *marginal* royalty cost is zero has revealed that the particular station contains programming that would increase marginal value to that CSO, over and above the next best alternative 'retransmittable' local station and above any other marginal costs (*e.g.,* physical retransmission costs or the opportunity cost of foregoing a different type of cable channel in the CSO's channel lineup).'' 2010–13 Determination at 3569.

5. ''CSOs that pay only the minimum royalty fee and elect to distantly retransmit one station might have elected to pay a positive fee in the absence of the minimum fee. For example, assuming Program Suppliers' programs were more valuable to a CSO than the minimum fee and disproportionately more valuable than any other program category, that CSO would have retransmitted a station that disproportionately included Program Supplier content and willingly paid the minimum fee (or more).'' 2010–13 Determination at 3659.

6. ''[A]n analysis of the CSOs paying only the minimum fee might provide some useful information. However, . . . the record does not provide an adequate basis to incorporate any ''relative value'' differences based on a distinction between CSOs that do and do not pay only the minimum fee.'' 2010–13 Determination at 3582. *See also id.* at 3575 (''[T]he Judges find no basis in the record by which they could or should make a reasonable 'relative value' adjustment based on whether a CSO did or did not pay only the minimum fee.'').

7. ''[T]he data regarding the carriage decisions of CSOs who pay only the minimum fee should not be disregarded [because] even when a CSO is obligated to pay the minimum royalty fee, it still has the incentive to select stations for distant retransmission that it believes will maximize the benefits (or, in economic terms, utility) to the CSO. However, because carriage decisions are not tied even indirectly to a contemporaneous discretionary decision to pay royalties (beyond the mandatory minimum 1.064% for the first DSE), they strike the Judges as potentially less informative than discretionary decisions by CSOs to incur an additional royalty expense in order to distantly retransmit particular stations.'' 2010–13 Determination at 3575.

The Judges consider these minimum-fee-related points in the context of the present factual record, which reveals a dramatically different retransmittal landscape for the final three years of the period at issue, 2015 through 2017.[152]

There is a sub-group within the minimum-fee-only CSOs that decided not to distantly retransmit any local signals despite their duty to pay the minimum fee. Exactly what this decision indicates as to their revealed preferences is unclear from the record. One industry witness suggests that some or all of these CSOs had alternative uses for their bandwidth, for, *e.g.,* other cable programming or internet traffic. Written Rebuttal Testimony of Lynne Costantini, Trial Ex. 7304, at 4–5 (Costantini WRT); 3/27/23 Tr. 1597–1605 (Costantini). But several other witnesses testified that bandwidth concerns no longer existed in the 2014–2017 period, because cable television had converted from analog to digital signals. Written Direct Testimony of Allan Singer, Trial Ex. 7108, ¶ 15 n.1 (Singer WDT); Written Rebuttal Testimony of Allan Singer, Trial Ex. 7109, ¶ 8 n.1; (Singer WRT); 4/3/23 Tr. 2764–65 (Singer); Written Rebuttal Testimony of Melinda Witmer, Trial Ex. 7115, ¶ 13 n.3 (Witmer WRT); 4/10/23 Tr. 4069–70 (Witmer).

Other evidence indicated that CSOs that previously retransmitted WGNA until its conversion to a cable channel simply found no other value in alternative out-of-market local channel programming sufficiently attractive to existing or potential new subscribers that was worth retransmitting. Of course, this argument raises its own questions, because, given that the marginal royalty cost is zero, the presumption of economic rationality strongly suggests that, *ceteris paribus,* these CSOs would have distantly retransmitted some out-of-market local channels' programming.[153] But the reasonable presumption of economic rationality requires the presumption that these CSOs were incentivized not to distantly retransmit additional stations.

[152] The Judges discuss the minimum fee issues separately and in depth elsewhere in this determination.

[153] This point also applies to CSOs that distantly retransmitted some local stations, but had excess capacity, *i.e.,* the capacity to distantly retransmit more of these stations and still not pay more than the minimum fee.

One logical reason would be that they saw no value at all in retransmitting those stations and programming, such that any organizational effort in that regard would be a soft cost sufficient to preclude such transmissions. In this regard, the Judges again take note of Ms. Hamilton's designated testimony, in which she emphasized the *de minim*is nature of the revenues at issue with regard to these potential retransmissions.[154]

But the foregoing points hardly end this analysis. When CSOs have ''excess-capacity'' to retransmit signals/programming at zero marginal royalty cost, or when a CSO has declined to exercise its section 111 ''privilege'' to retransmit any signals or programming, they have differentiated themselves from above-minimum-fee-paying CSOs in a manner that is of both significant economic and of evidentiary importance. The minimum-fee-paying CSOs have revealed a marginal willingness-to-pay of zero for the distant retransmittal of local broadcast stations. The several parties and their economic experts opposing the regression approach in this proceeding make a reasonable objection that it is improper to treat the calculated-but-unpaid base fees of these CSOs as any evidence of the revealed preferences and willingness-to-pay of a minimum-fee-only CSO. But, assuming, arguendo, that this reasonable objection is entirely correct,[155] what is the appropriate way to consider the decisions of CSOs who do not reveal a positive value for such distant retransmittals?

The Judges find that these CSO decisions can be construed in two ways. First, they can be considered to reveal a zero value for these retransmittals, given that the marginal royalty cost of retransmittal is zero through a retransmittal of 1.0 DSE. And second, they could be construed as simply not providing any useful data regarding the value the CSOs assign to these retransmittals, because that value, although perhaps positive, is still less than the (non-royalty) cost of retransmitting.[156] But in either construal, the relevant takeaway is that these CSO decisions do not provide the Judges with any useful information [157] regarding the relative value of the retransmittal of the various programming categories, the determination of which is the statutory task assigned to the Judges under section 111.

So understood, why should the decisions of these minimum-fee-only CSOs serve to diminish the economic and evidentiary usefulness of the decisions of the other CSOs who pay base fees above the minimum fee. That is, it is misleading, to say the least, to categorize the base-fee-paying CSOs as merely a small cohort of the larger population of CSOs, when they are differentiated by the key marker for section 111 purposes: whether they assign a relative value to the retransmittals and thus relative values to the retransmitted programs. The Judges find it more accurate and appropriate to consider the base-fee-paying CSOs essentially as a separate cohort of CSOs whose decision-making is pertinent to a regression analysis in this statutory context.

Indeed, this is precisely how the Judges perceived the issue in the 2010–13 Determination. There, only a minority of CSOs, 47.5% paid above the minimum fee, but their decisions were extrapolated to the entire market. 2010–13 Determination at 3568 (''during the 2010–2013 period, on average 527 out of the 1,004 Form 3 CSOs analyzed (52.5%) chose to retransmit the exact or fewer number of signals than the regulated fees permitted [and] 83 paid the minimum fee yet elected not to retransmit any local stations''—meaning that less than half of CSOs ''voluntarily paid a royalty greater than the minimum fee.''). Nonetheless, the Judges deemed that minority of CSOs sufficient to justify using the *entirety* of the base fee calculations (whether paid or unpaid) to establish relative marketplace value.

But that extrapolation was hardly precise in the context of the slight majority presence of minimum-fee-only CSOs, a context which could have suggested a need for a proportionate weighting of the decisions of the base-fee-paying CSOs.[158] But, when the base-fee-only CSOs are considered as the separate and only cohort actually revealing their relative programming valuations, rather than a mere *subsample* of the entire population of CSOs, then their revealed preferences are seen to reflect 100% of the information regarding relative value generated from CSO decision-making. Implicitly, that is what the Judges did in the 2010–13 Determination.

Further, the Judges are mindful of the testimony by Dr. Marx (herself no fan of the application of the fee-based regression for the 2015–2017 period) that ''*the most informative observations* in a Crawford-style regression are *ones in which a CSO elects to pay more than the minimum fee* in royalties in order to carry additional distant signals . . . .'' Marx WRT ¶ 64 (emphasis added).[159]

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[154] Ms. Hamilton's point would tend to explain more than why some CSOs do not retransmit any signals. It may explain, for example, why Bortz Survey respondents have a myriad of job titles, and why the respondents are not consistently the same from year-to-year (*i.e.,* that no one is really dedicated to this function). Her point would also seem to explain why the CSO decisions from 2010–13 and from 2014 were so consistent: because concomitant with Ms. Hamilton's *de minimis* argument is her point that the CSOs focused on preserving existing subscribers whose subscription decisions might turn on the continued presence of niche programming from distantly retransmitted stations. Indeed, Ms. Hamilton seems to have been prescient: After 2014, the abandonment of all distant retransmissions by CSOs that had only distantly retransmitted WGNA is consistent with her emphasis on legacy carriage. (That is, viewers who had valued WGNA enough to subscribe to a CSO on that basis were no longer legacy viewers who could be retained once WGNA converted.)

The Judges are also struck by the absence of evidence that would be compelling, to wit, the absence of evidence that any CSO has marketed its service to any subscribers who might be induced to remain or become subscribers based on the program offerings by out-of-market stations they distantly retransmit. The Judges decline to take administrative notice that CSOs (or their subscribers) actually contemplate these offerings when considering subscription decisions; in fact, the Judges' own ''reality filter'' would suggest that the opposite presumption would be more realistic.

[155] It is not entirely correct. As noted by Dr. Tyler, discussed *infra,* the calculated-but-unpaid base fees of CSOs that ultimately pay the minimum fee would have some probative weight as those base fees approach the minimum fee, given the uncertainty, *ex ante* royalty payment, as to whether the base fee or the minimum fee would ultimately bind. However, the record does not provide the Judges with disaggregated data sufficient to analyze the minimum-fee-paying CSOs on this basis.

[156] These non-royalty costs include, but are not necessarily limited to, (1) the physical cost of retransmittal and (2) the transaction costs and opportunity costs associated with expending effort making retransmittal choices regarding distant local stations that had *de minimis* value (the choices, if not the stations and programming themselves) relative to the other decision-making undertaken by CSOs.

[157] That is, a zero value for all retransmitted programming is invariant and thus uninformative of relative value, and an absence of a revealed value fails to provide absolute value as well as relative value.

[158] Dr. Marx noted that the 52.5% of CSOs not covered in the Crawford Model included many that had only one subscriber group and would have been excluded from Dr. Crawford's regression anyway, so 80% of all the CSOs eligible for inclusion in the Crawford Model (and their programming and royalty data) were in the regression. There are two problems with this point. First, because only 80–85% of the CSOs were covered, even then the evidentiary weight of the decision-making of those CSOs should have been discounted proportionately, if proportionality is relevant. Indeed, in this proceeding, Dr. Marx testified that, in her opinion, whether to consider the revealed preferences of some CSOs should be a matter of ''degree,'' which is distinct from treating some proportion as a tipping point sufficient to be used *en toto.* Second, the reason why ''only'' 47.5% of the CSOs were included in the Crawford Model is not really relevant to the question of why this minority cohort should generate the entirety of revealed preference value for regression purposes.

[159] Dr. Marx also equates a CSO paying above the minimum fee with a CSO that ''pays the minimum fee with no capacity for carrying additional signals.'' Marx WRT ¶ 64. The Judges disagree. Such a minimum-fee-paying CSO is not revealing a

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Colloquially, the issue may be characterized as whether the Judges should let the perfect be the enemy of the good. Here, the ''perfect'' fact pattern would be where all or most of the data is generated by CSOs paying above the minimum fee. That is not the factual context here. But there is ''good'' evidence from the CSOs who did retransmit enough programming to trigger the base fees of their subscriber groups, and that the Judges do not ignore that data.[160]

Accordingly, the Judges will give due weight to the minority of CSOs that, in the 2015–2017 period, paid above the minimum fee and thus revealed their preferences by paying an additional royalty in order to retransmit one or more additional stations. To be clear, in their weighing of this evidence, the Judges perceive the above-minimum-fee CSOs as providing evidence from three perspectives: (1) reflecting 100% of all the CSOs who *did* reveal their preferences in a cardinal manner, which supports the assignment of due weight to their station and programming choices; and (2) reflecting only a minority of the revealed preferences of the CSOs that found the value in distant retransmissions of local broadcast stations sufficient to add such stations to their lineup—a lower percentage which therefore would support a lower evidentiary weight; and (3) reflecting the revealed preference of an even smaller slice of CSOs and their programming, thus supporting the lowest level of evidentiary weight among these three perspectives.[161]

B. A Separate Criticism: The Tyler Model as a ''Fee Generation'' Model

Two parties, SDC and PTV, ask the Judges to reject the Tyler Model by characterizing it as ''similar'' to a ''fee generation'' approach to the section 111 royalty allocation issue, asserting that this approach is improper and has been rejected previously by the Judges and their predecessors. SDC and JSC are incorrect, and this criticism deserves its own separate section.

The fee generation approach has been defined as ''a valuation method that attempts to measure the amount of royalties actually generated by a particular claimant group.'' Report of the Copyright Arbitration Royalty Panel to the Librarian of Congress, Docket No. 2001–8 (CARP CD 98–99) at 60. In its attempt to characterize the Tyler Model as a fee generation approach, SDC maintains as follows:

> [Dr. Tyler's] approach could be viewed as *similar* in notion to the ''fee generation'' approaches that the Judges and their predecessors rejected in days long past (*see, e.g., 2004–05 Distribution Order,* 75 FR at 57071–73 (''[F]ee generation is not persuasive as the best method for determining relative marketplace value because of the Canadian Claimants' failure to firmly link the relationship between section 111 royalties to that value'')).

SDC PFF ¶ 138. *See also* 6/12/23 Tr. 6007 (SDC counsel's closing argument) (describing the Tyler Model as ''a fee-generation methodology.'').

Similarly, PTV argues:

> Dr. Tyler's regression resembles the fee generation methodology, which attempts to assess relative value based on statutory royalties generated by cable retransmissions. [The] [j]udges have repeatedly considered and rejected the fee generation methodology because the statutory royalties do not relate to the relative value of the distantly retransmitted programming.

PTV PFF ¶ 159.

Of course, to assert, as SDC and PTV do, that the Tyler Model may merely ''resemble,'' or be ''similar to'' a fee generation model, is also to say that the Tyler Model is *not* a fee generation model. Moreover, the Judges disagree with these fee-generation-based arguments for two further reasons. First, the assertion that the Judges have rejected the fee generation methodology is simply wrong. Second, the argument (that the Tyler Model's passing resemblance to a fee-generation approach invalidates its use) fails to address the particular merit of this approach given the evidentiary record.

With regard to the prior rulings regarding fee-generation approaches, Program Suppliers accurately and compellingly demonstrate the incorrectness of the claim that these rulings have rejected a fee-generation approach and precluded its use (or the use of any similar model) in these allocation proceedings. Specifically, Program Suppliers emphasize the Judges' most recent ruling on this issue, in the 2010–13 proceeding:

> [T]he Judges ruled that fees-based regression analyses are distinguishable from analyses of fees-generated. In their post-Initial Determination Order Denying Rehearing [in the 2010–13 proceeding] . . . the Judges specifically rejected the claim that fee-based regressions are the same as ''fee generation'' approaches. They held that fee-based regressions ''identif[y] a positive statistical relationship between (a) royalties paid by CSOs; and (b) program categories on distant local stations that had been retransmitted to subscribers by CSOs. *Clearly, any 'fee generation' approach that did not make use of this regression approach is distinguishable.*'' *See Order Denying Rehearing* at 5 (emphasis added).

Even if the Tyler Model could be likened to a fee generation approach, SDC and PTV are wrong to suggest that such approaches have been categorically rejected by the Judges and their predecessors. Again, the Judges considered and rejected the identical argument in their *Order Denying Rehearing:*

> [N]either the Judges nor their predecessors have categorically rejected use of the broad category of fee generation approaches to ascertain relative value in section 111 allocation proceedings. As the Librarian concluded when accepting in full the CARP Report for the 1998–99 distribution years: ''[W]hile it is true that fees generated do not measure the absolute value of programming, it does not mean that they are not capable of measuring *the relative value* of programming between the claimant groups.'' *Librarian's Order,* 69 FR at 3618 (emphasis added). In that Order, the Librarian expressly noted that 'there does exist precedent,' in the 1990–1992 CARP Report, for using the ''fee generation'' approach to determine relative market value. *Id.* When the Judges succeeded to the CARP's jurisdiction, they likewise stated that ''we are not persuaded that we are precluded from ever considering fee generation as a distribution methodology. . . .'' *2000–03 Determination,* 75 FR at 26805. In fact, in the [Initial 2010–13] *Determination,* the Judges acknowledged the ongoing use of a fee generation approach in particular instances, notwithstanding that it had been ''generally discounted'' in some prior cases. *See Determination* at 48 n.45; 78 n.145.

Program Suppliers' Reply to Proposed Findings of Fact and Conclusions of Law (PS RPFF) ¶ 88 (and record citations therein). *See also id.* ¶ 96. Program Suppliers have also properly relied on the earlier rulings of the Judges and their predecessors in this regard. *See* 2000–03 Distribution Order at 26805 (after detailing the ''origins'' and the ''history'' of the fee generation approach, the Judges stated this approach *never* had been ''flatly rejected . . . as a *methodology,*'' and the Judges thus held that they were ''not persuaded that we are precluded from ever considering fee generation as a distribution methodology. . . .''); 1998–99 Librarian Order at 3606, 3618

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preference in the same manner as a CSO paying above the minimum fee, but rather is taking full advantage of the zero-marginal-royalty cost feature of the minimum fee obligation. The Judges find it more appropriate to treat such minimum-fee/no-excess-capacity CSOs in the same manner as an excess-capacity CSO because the actual marginal cost of their respective retransmittal preferences is zero.

[160] Even information from data that includes CSOs paying only the minimum fee has an evidentiary purpose, as noted *infr*a regarding an adjustment to the allocations based on the Tyler Model.

[161] As noted *supra,* the Judges will discuss *infra* the evidentiary weights they apply, in combination with the evidentiary weights they give to all of the probative evidence.

(the CARP panel rejecting opposition to ''the fee generation method'' because ''there does exist precedent'' for using this methodology). More broadly, the Judges' predecessors have long understood the appropriateness of incorporating fee-generation models in the precise process in which the present Judges are now engaged—analyzing, weighing, and combining *multiple* approaches to the allocation of royalties—when, as now, the Judges cannot identify only ''a *single* formula or rationale adequate to reach our determination and allocations in [the] proceeding.'' 1979 Cable Royalty Distribution Determination, 47 FR 9879, 9892 (Mar. 8, 1982) (considering a fee generation approach together with eight other allocation methods) (emphasis added).

As to the second point, assuming arguendo the Tyler Model bears a passing resemblance to a fee-generation approach, the Judges find, on this evidentiary record, such affinity constitutes virtue rather than vice. A key criticism of the Tyler model's fee-generation resemblance is premised on the fact that both appear to ''ignore[ ] variation relevant to revealing CSO preferences'' among program categories. CTV PFF ¶ 354 (and record citations therein); *accord* CCG PFF ¶ 186 (and record citations therein) (''Dividing the royalty payment by gross receipts removes the variation different signals contribute to revenue.''). However, that argument misapprehends Dr. Tyler's approach. It is decidedly not merely a ''measure [of] the amount of royalties actually generated by a particular claimant group,'' which is the definition of a fee-generation model, as set forth *supra.* Rather, the Tyler Model calculates coefficients that ''represent the incremental impact on the SGRP for each type of compensable minute.'' Tyler ACWDT ¶ 90. Further, the Tyler Model then weights these coefficient values by total receipts, Tyler ACWDT ¶ 88, and then multiplies these weighted coefficients by the number of minutes of each claimant's program category. Tyler ACWDT ¶ 144. That is quite different from the basic fee-generation approach.

But the proponents of the other fee-based regressions are onto something in their observation that the Tyler Model generates less variation than would otherwise be captured when the dependent variable is royalty-specified rather than specified as the SGRP. However, the Judges see this distinguishing feature of the Tyler Model as an improvement over the other fee-based regressions proffered in the present case.

From the perspective of the parties proffering fee-based regressions, the only way to estimate the appropriate variations among program categories is by utilizing a royalty-based parameter (the log of royalties to be precise) as the dependent variable. That is, these more traditional forms of fee-based regressions posit that there is an ascertainable and measurable correlation between program category minutes and the log of royalties, detectable once sufficient fixed effects and control variables are specified. So, there is a black-and-white debate: Which is the preferrable dependent variable for the fee-based regressions in the present case, a royalty based variable or Dr. Tyler's SGRP?

Recall that the first step in any regression modeling is to identify an economic theory which will guide the selection of model specifications. What is that economic theory? Perhaps the more salient phrasing of this question is: What economic theory is *most consonant* with the record evidence of the industry details? Let's take stock:

1. The royalties paid by CSOs for 1.0 DSE is a minimum of 1.064% of gross receipts, with two marginally lower brackets of percentage rates for additional DSEs, flattening out at 0.330% at 5.0 DSE. A CSO needs to decide how many, if any, local broadcast stations to distantly retransmit.

To answer this question, all the economist witnesses attempt to zero-in on what, in their respective opinions, would constitute economically rational decision-making. However, in identifying what is rational, they implicitly assume a CSO would be able to determine if it is retransmitting a profit-maximizing or a sub-optimal bundle of distant programming, but there is no record evidence as to how a CSO would know this.

More particularly, there is no evidence of a measure of estimated subscribers retained, obtained, or lost, or of a change in subscription rates, *caused* by distant retransmission decisions. Are such changes even occurring because of the configuration of distantly retransmitted stations? On this, the record is barren.[162]

2. But, as all the witnesses acknowledge, over the last three years of the relevant period, 2015–2017, the overwhelming percentage of CSOs pay only the minimum fee, and the vast majority of section 111 royalties are generated by those minimum-fee-paying CSOs. That is, most CSOs do not even retransmit enough distant signals to trigger a base fee obligation. Moreover, a large minority of those CSOs elect not to retransmit any signals, demonstrating, as Dr. George notes, that they have a *zero* willingness-to-pay for programming that is royalty costless. *Why have these changes occurred*?

3. The answer is to be found in the evidentiary record. An industry expert witness, Sue Ann R. Hamilton (whose 2010–13 testimony was properly designated as evidence in this proceeding by Program Suppliers), stated (as summarized in the 2010–13 Determination) that:

> [A] CSOs' selection of stations for distant retransmission is marked by *inertia,* not by an affirmative analysis and weighing of alternative stations, [because: (1)] distant retransmission costs represent *a non-material expenditure for CSOs* compared with their other more expensive programming and carriage decisions [and (2)] *CSOs* are more concerned with *losing* existing subscriber ['legacy distant carriage'] if they drop certain stations and the associated programs than they are with whether or not any new retransmitted station and its associated programs might *entice* new subscribers[, or with] adjusting the roster of distantly retransmitted stations.

2010–13 Determination at 3567 (emphasis added).

4. Ms. Hamilton's testimony regarding the CSO's primary concern over retaining legacy subscribers proved prescient when CSOs did not meaningfully substitute for the lost sports programming on WGNA, but rather just retransmitted fewer stations and programs, and thus defaulted to a binding minimum fee rather than a calculated base fee. That is, the phenomena that Ms. Hamilton described has been validated by the impact of the WGNA conversion. JSC professional and college team sports that were retransmitted on WGNA clearly were valuable, both in terms of the regressions (with the highest coefficients) and in terms of the survey results. But when WGNA converted to a cable station, despite the high value of JSC programming (its coefficient fell but remained higher than other category coefficients), JSC programming value vis-à-vis the retransmission sector, as measured by the regression methodologies, dropped precipitously, because the number of subscribers to whom JSC sports were transmitted dropped by over 90%. Although at first blush it may seem odd given the high value of JSC programming that CSOs did not ''backfill'' that loss, Ms. Hamilton's ''inertia'' and ''legacy'' arguments explain the absence of such a ''backfill.'' [163] Such inertia, and the

[162] The Judges also find it telling that there is no evidence in this proceeding, nor apparently in any other allocation proceeding, that any CSO has solicited subscriptions by touting its distantly retransmitted lineup. That this dog has not barked speaks loudly as to the *de minimis* impact of the distant retransmission market. Also absent from the record is any evidence that there is a derived-demand effect at play. That is, there is no evidence that consumers make subscription decisions based on the programming content of distant retransmissions. In this regard, a corollary to the need for identifying an economic theory from the record evidence to guide this Determination is the concomitant need for a ''reality filter,'' by which the Judges can address the reality that the market in question is relatively miniscule (although substantial royalty dollars are most certainly at stake!).

[163] The loss of WGNA should be contrasted with the loss years earlier of TBS, another sports-based superstation that had been distantly retransmitted. That loss did not eliminate all such sports-based-superstation retransmittals, because WGNA remained available. But after WGNA transformed

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loss of WGNA as a legacy channel, apparently made it not worth the effort for CSOs to search for and retransmit a sufficient number of replacement channels and programs.

5. In the context of this backdrop, Dr. Erdem's drumbeat that CSOs' priority is to minimize their costs takes on a bit more significance. CSOs appeared to be relatively less concerned with the ''demand side'' for distantly retransmitted channels and programming, and thus, relatively more concerned with the ''supply side,'' particularly with the royalty costs.

6. In this more *cost-centric* context, Dr. Tyler's regression appears to the Judges to better reflect the *realities* of the market than the other fee-based regressions. The Tyler Model does not put the cart before the horse; that is, it does not place priority on program category (''demand side'') decisions. Rather, it prioritizes the ''budget constraint'' (''supply side'') decisions of CSOs, by which they calculate the percentage of their subscriber group's gross receipts they will pay in royalties.

7. However, for those CSOs transmitting above 1.0 DSE, they have economic decisions to make regarding the mix of programming they will transmit via their signal decisions. Given the economics and reality of this retransmission market, as described above, only *then* will the relative value of program categories be of *material* economic importance. It is at this stage that the Tyler Model generates information as to relative value, through the Tyler model's coefficients.

8. To return to the issue at hand, as its critics assert: Does the Tyler Model identify fewer variations across program categories compared to the other regression models? Apparently, the answer is yes. But those other regressions, although not without evidentiary value, do not appear to be as consonant with the evidentiary record as the Tyler Model.

C. The Economics of the Tyler Model

The foregoing points help to focus on the underlying economics of the Tyler Model. By using the SGRP as the dependent variable, the Tyler Model reflects economic principles relating to the value of a ''public good,'' which is a good ''for which the marginal costs of providing it to an additional person are strictly zero and for which it is impossible to exclude people from receiving the good.'' Joseph E. Stiglitz & Jay L. Rosengard, *Economics of the Public Sector* 107 (4th ed. 2015). But when the good is excludable, but still bears a marginal cost of zero (non-rivalrous in ''econo-speak''), it is considered an ''impure'' (or ''quasi-'') public good. *See also* 3/27/23 Tr. 1496 (Boyle) (a PTV expert witness with a Ph.D. in applied economics agreeing that there are ''characteristics'' and ''elements'' of a ''quasi-public good'' in these distantly retransmitted channels and programs.).

Unlike ''private goods'' (rivalrous and excludable), the demand curve for public goods, impure or otherwise, ''can be thought of as a 'marginal willingness-to-pay' curve [which], at each level of output of the public good, . . . says how much the individual would be willing to pay for an extra unit of the public good.'' Stiglitz & Rosengard, *supra,* at 107. This is consistent with the economic logic of the Tyler Model. *See* Tyler ACWDT ¶ 67 (''Even though the amount of the royalty is determined by statute—and so constitutes a measure of *minimum* willingness to pay as opposed to the outcome of a negotiation—the estimated incremental royalties for the different program types relative to one another provide insight into how the CSOs would actually value these program categories in an unregulated market.'') (emphasis added). Also, the Tyler Model's SGRP is in the nature of an economist's ''budget line'' (a/k/a ''budget constraint''), limiting the combinations of goods that a buyer can purchase. *See* Robert S. Pindyck & Daniel L. Rubinfeld, *Microeconomics* 82 (8th ed. 2013).[164] The Tyler Model's SGRP identifies the percentage of total costs (including profits, which reflect opportunity costs) incurred by CSOs across their subscriber groups in the form of section 111 royalties. With that percentage/budget line established, the Tyler Model then allocates the portions of the weighted category minutes attributable to that SGRP calculation.

In sum, there is a real economic and market-based foundation for the Tyler Model in the context of the present record relating to the 2014–2017 retransmission market. Moreover, the Tyler Model is essentially a fee-based regression, with characteristics of the fee-generation approach, constructed in a manner that reflects both Ms. Hamilton's persuasive testimony and the reduction in distant retransmissions following the WGNA conversion.

XII. Canada Zone

CTV maintains that Dr. George's calculation of the CCG share is incorrect for two related reasons: (1) the George Model as specified implies that CCG had compensable programming outside the Canada Zone; and (2) the George Model overrepresents the Canada Zone. CTV PFF ¶ 330.

This problem arises because the George Model assumes that CCG programming would be available and valuable throughout the United States (*i.e.,* outside of the Canadian Zone) if one assumes the inapplicability of this geographic limitation in the section 111 license for purposes of estimating relative marketplace value for CCG programming. Dr. George explains why this assumption is adopted in the George Model:

> It is in most circumstances right to infer that programming on distant signals re-transmitted has higher value than other programming not transmitted. The primary exception is when cable systems are prohibited from carrying particular signals, such as the case with *Canadian signals outside of the Canadian re-transmission zone.*
>
> . . .
>
> Failing to control for the fact that transmission of Canadian stations is prohibited outside of the Canadian re-transmission zone introduces downward bias in the value of Canadian Claimant programming since the absence of carriage is equated with zero value.
>
> . . .
>
> It is worth repeating that the underlying economic framework is what governs model specification. The prohibition on distant signal carriage on its face imposes a restriction on cable system choices so must be reflected in the model. No further ''evidence'' is needed, or, in fact, possible, since we cannot observe prohibited carriage.

George WRT at 16, 25–26 (emphasis added).

Program Suppliers, through Dr. Tyler, makes the same argument as CTV, and responds to Dr. George's point above as follows:

> Within the Canada zone, CSOs can choose among all of the content categories. But outside the Canada zone, CSOs do not have the option of choosing CCG content. There is a difference between having something available and not chosen versus not having something available at all. Estimating the relationships separately when the Canadian minutes are available or not recognizes this, and this approach makes more economic sense.

itself into a cable station, there was no other sports-based superstation to substitute in order to satisfy legacy viewers of such programming. (Also, recall that the JSC is simply a representative of the major professional sports leagues and the NCAA, and the record does not reflect that they suffered any economic loss because of the reduction of subscriber minutes distantly retransmitted. Indeed, the Judges take administrative notice that their games have been aired on ESPN and other cable stations, national networks, and regional sports networks. The Judges decline to assume that these leagues and associations voluntarily abandoned local broadcasting and thereby deprived themselves of profits, but rather they assume these sports leagues and associations moved to these more lucrative distribution methods.)

[164] The Judges examined two of the expert witnesses at the hearing regarding the concept of the ''budget line'' as it relates to the estimation of section 111 royalties. See 3/23/23 Tr. 1080–86 (PTV's Johnson); 4/3/23 Tr. 2671–73 (JSC's Majure). Dr. Johnson found the concept applicable to the regressions at issue, but Dr. Majure disagreed.

PS PFF ¶ 297 (and record citations therein).

Dr. Bennett, on behalf of CTV, calculated and tabulated the impact on allocation shares of the difference between the approaches of Drs. George and Tyler as summarized above:[165]

Figure 20. Comparison of CCG shares from George Model with and without correcting for imbalance.

Year	Total royalties paid by system	CCG shares and royalties	CCG shares and royalties corrected for imbalance		
		Allocation (%)	Allocation ($)	Allocation (%)	Allocation ($)
2014	$225,787,643	6.5%	$14,662,427	5.6%	$12,746,544
2015	$207,614,933	13.7%	$28,373,785	8.7%	$18,147,786
2016	$200,603,016	12.3%	$24,679,633	8.0%	$16,045,116
2017	$200,192,670	12.0%	$24,090,393	8.3%	$16,549,108

Bennett WRT ¶ 55 & fig.20.

Based on the foregoing, the Judges find that the George Model of Canadian programming's relative marketplace value is not adequately proven by her assumptions regarding the value of such signals if Canadian signals had been made available outside the Canada Zone. Rather, such values are speculative, and no extrapolations can be credibly made from the royalty data. To be clear, the Judges are not saying that programming on Canadian signals would not have value outside of the Canada Zone. But, like the programming retransmitted by minimum-fee-only CSOs, the value of retransmitted programming is not subject to accurate measurement via a revealed preference approach that is the economic concept behind these regressions. Indeed, because this point applies even with regard to minimum-fee-only CSOs who *actuall*y retransmitted distant programming, a fortiori it applies to the hypothetical retransmission of programming outside of the Canada Zone. Further, not only is the *value* of any hypothetical retransmission outside the Canada Zone speculative, there is also no showing that, as a technical matter, such transmissions further away from the Canada Zone would be feasible. *See* SDC PFF ¶ 219 (''[W]hile the statutory limitation restricting carriage of Canadian television stations to within 150 miles of the U.S.-Canada border or north of the forty-second parallel (the ''Canadian Zone'') is set forth in section 111(c)(4) and could therefore be rendered inapplicable in a hypothetical market without the section 111 compulsory license, *the laws of physics* would still operate as a practical physical limitation on Canadian station broadcast signals, absent an alternative (and more costly) delivery method such as fiber or satellite feeds.'') (emphasis added).[166]

XIII. The Judges' Allocation of Shares Pursuant to the Regression Approach

The Judges have considered all of the regression models proffered by the parties in this proceeding. None of the models were excluded from consideration. Based on the Judges' analysis and conclusions regarding each model, as set forth *supra,* and comparing each of them, the Judges find the Tyler Model to be the most appropriate regression model in this record.[167] To recapitulate the principal reasons:

1. On the present factual record, the Tyler Model's SGRP is preferable to the log of royalties, or royalties themselves, as the dependent variable in a fee-based regression.

2. The Tyler Model avoids the conundrum of the variance/bias dilemma that is of particular concern in this case for other proffered regression models. By contrast, Drs. George and Johnson found themselves on the horns of this dilemma. They require fixed effects to avoid bias by isolating the effect of program category minutes on royalties. But given the post-WGNA conversion, the use of fixed effects, as in the model applied in the prior proceeding, would not generate enough observations. And yet relaxing or eliminating fixed effects to obtain more observations weakens the isolation of the effect of interest, the impact of program minutes on royalties, and creates bias.

3. Among the control variables which the Tyler Model does not require is the control for the number of subscribers in a subscriber group, which is required in the other fee-based regressions, but cannot be estimated without measurement error.

4. The Tyler Model utilizes as a useful analogy to price a price proxy in the form of a budget constraint, *i.e.,* the SGRP.

[165] Dr. Bennett also accounted for the fact that the George Model ''assigns too much weight to the minutes within the Canada Zone . . . because [the George Model] bases [its] weights on the minutes within [its] non-representative regression sample (which is over-representative of the Canada Zone) instead of on the contribution that each zone makes to the aggregate royalty pool.'' Bennett WRT ¶ 54. *See also id.* ¶ 50 & fig.17.

[166] The Judges note CCG's argument that in prior proceedings, including one applying the fee-generation approach, the Judges and their predecessors did not make this geographic distinction. *See* CCG PFF ¶ 567–568 (and cases cited therein). But those cases either did not involve regression analysis or did not rely on the regression approach (Dr. Rosston's model) as anything other than corroboration. In the regression context, the Judges find it too speculative to assign value by correlating royalties to distant minutes that were never retransmitted. Moreover, although the Tyler Model, on which the Judges place the most evidentiary weight among the regression models, resembles a fee-generation approach, it is *not* a fee-generation approach, as discussed *supra.* As the Judges have also noted *supra,* a benefit of the Tyler Model is that it better looks at the actual nature of the market and uses the evidence available over the years in question. To allow for value to be estimated by consideration of hypothetical programming retransmission outside of the Canada Zone would be inconsistent with this ''real-world'' rationale for crediting the Tyler Model. Additionally, because the regression approach, unlike the constant sum survey approach, is based on what CSOs actually retransmitted, in order to identify their market-based revealed preferences from those actual decisions, a grafting of the hypothetical retransmission of Canadian signals onto that approach appears inconsistent to the Judges. However, the Judges emphasize that these critiques apply *only* to the regression models of relative marketplace value, and are not intended to address any other adjustments that have been proffered in connection with the Bortz Survey, or with any other evidence, in this proceeding.

[167] The Judges also considered variations proffered by Drs. Johnson and George on their preferred models in their direct and rebuttal testimonies. Although some of those iterations mitigated certain problems in their models, none of them was sufficient to overcome the Judges' preference for the Tyler Model.

5. Although the Tyler Model is not based on a hedonic regression,[168] it can reasonably be described as a ''hedonic-inspired'' regression.[169]

6. The Tyler Model's use of weighting by each CSO's gross receipts is appropriate.

7. The Tyler Model calculates coefficients for each year, rather than ''pooling'' the data to generate a single coefficient for each program category across all four years.

8. The Tyler Model provides sufficient variation among the CSOs' decisions.

9. There is no credible evidence (or even a credible allegation) that Dr. Tyler engaged in anything that could be construed as specification searching. In fact, the SDC and JSC experts—who criticize the other regression models (including Dr. Marx's) for ignoring the impact of potential specification searching—acknowledge that the Tyler Model alone is free from this infirmity. The Judges agree, because the absence of specification searching in connection with the Tyler Model allows it to be transparent and, specifically, free from the consumption of ''phantom degrees of freedom.''

10. The alleged superficial resemblance of the Tyler Model to a fee-generation model is not only factually off-the-mark and legally irrelevant, the shared characteristics of the two models in fact better reflect the real-world decision-making of CSOs, as described in Ms. Hamilton's testimony.

However, as also discussed *supra,* the Judges cannot simply adopt (for all circumstances) the Tyler Model to the extent it includes the base fees of CSOs who only paid the minimum fee from 2015–2017. Rather, for those years, the Judges, for the most part, rely on Dr. Tyler's calculation of allocation shares as derived from the coefficients he calculated for the CSOs paying more than the minimum fee.

In applying Dr. Tyler's approach, the Judges first note that, for 2014, the allocation of shares can be identified by reference to all the CSOs, including those who paid the minimum fee, as explained, for example by Dr. Marx. *See* Marx ACWDT ¶ 34 (''data on programming minutes and royalties based on the carriage of distant signals for 2014 are a close match to comparable data from the 2010–2013 proceeding.'') The allocation shares for 2014 in the Tyler Model, using the data for all CSOs in the regression, are the following:

ALLOCATION SHARES FOR 2014 IN THE TYLER MODEL

Year	Program suppliers (%)	JSC (%)	CTV (%)	PTV (%)	SDC (%)	CCG (%)
2014	26.6	37.2	11.3	14.0	4.3	6.5
	(3.8)	(7.5)	(2.6)	(1.7)	(0.9)	(0.9)

(standard errors in parentheses).

See Tyler ACWDT fig.3.2.

However, for the years 2015–2017, the Judges principally rely on Dr. Tyler's allocation share calculations pertaining only to the CSOs who paid more than the minimum fee, *i.e.,* those whose preferences were revealed by their retransmission decisions. These allocation shares as calculated by Dr. Tyler are the following:

Fig.6.3 Royalty Allocations based on Tyler Model Regression (only CSOs Paying More than the Minimum Royalty)

Year	Program Suppliers	JSC	CTV	PTV	SDC	CCG
2014	29.1%	32.4%	11.3%	14.3%	5.1%	7.6%
	(4.7%)	(9.2%)	(2.6%)	(1.9%)	(1.2%)	(1.1%)
2015	41.0%	2.1%	11.3%	12.7%	9.7%	23.2%
	(2.4%)	(1.5%)	(2.2%)	(0.8%)	(1.2%)	(0.9%)
2016	31.3%	1.3%	13.3%	14.7%	8.3%	31.1%
	(3.0%)	(1.9%)	(3.4%)	(0.8%)	(1.0%)	(1.4%)
2017	33.0%	0.5%	9.9%	14.2%	7.8%	34.6%
	(2.2%)	(1.0%)	(2.0%)	(0.8%)	(1.0%)	(2.1%)

See Tyler ACWDT fig.6.3.

Dr. Tyler noted that these 2015–2017 share allocations were not ''strikingly'' different from the share allocations he recommended by reliance on his regression results for all CSOs, even if they paid only the minimum fee. Tyler ACWDT ¶ 103. Moreover, as a theoretical economic matter, Dr. Tyler opined that he was not aware of ''any logic, a priori,'' that there would be any difference in ''*relative* marketplace values'' as between ''Above Minimum Fee CSOs'' and ''Positive Carriage Minimum Fee CSOs'' (*i.e.,* including excess capacity CSOs). *Id.* In this regard, compare Tyler ACWDT fig.6.3 (above) with Tyler ACWDT fig.3.2 (below):

[168] Dr. Tyler at times appears to describe his approach as a ''hedonic'' regression, *see* Tyler ACWDT ¶¶ 10(e), 85, perhaps on the mistaken belief that such a label was necessary to enhance his approach.

[169] *Cf.* Final rule and order, *Determination of Royalty Rates and Terms for Making and Distributing Phonorecords (Phonorecords III),* 84 FR 1918, 1947–48, 1950 (Feb. 5, 2019) (the Judges relied in part upon an economic model that was admittedly not an established model (the Shapley Model), but rather was a Shapley-''inspired'' model), *vacated and remanded on other grounds sub nom. Johnson* v. *Copyright Royalty Board,* 969 F.3d 363 (D.C. Cir. 2020).

Figure 3.2 Royalty Allocations based on Tyler Model Regression (all CSOs)

Year	Program Suppliers	JSC	CTV	PTV	SDC	CCG
2014	26.6% (3.8%)	37.2% (7.5%)	11.3% (2.6%)	14.0% (1.7%)	4.3% (0.9%)	6.5% (0.9%)
2015	39.7% (1.5%)	2.8% (1.0%)	10.2% (1.5%)	27.9% (0.8%)	6.2% (0.6%)	13.3% (0.5%)
2016	34.0% (1.5%)	2.5% (0.9%)	8.2% (1.8%)	37.4% (0.7%)	4.4% (0.6%)	13.6% (0.5%)
2017	31.8% (1.1%)	1.8% (1.0%)	6.9% (0.9%)	40.4% (0.6%)	4.0% (0.4%)	15.2% (0.9%)

However, Figure 6.3 reports an anomalous increase in the share allocated to the CCG claimants. This anomaly is explainable.

CCG programming is unique among the program categories in this proceeding because it is limited in geographic scope to CSOs located within a 150-mile belt below the U.S./Canadian border. *See* CCG PFF ¶ 59 (''Under the section 111 compulsory license, it is prohibited for a cable company to distantly retransmit a Canadian broadcast signal to communities located more than 150 miles from the United States-Canada border and also south of the 42nd parallel.'') (citing 17 U.S.C. 111(c)(4)(A)).

As such, the data reported in Tyler ACWDT fig.6.3—limited to CSOs paying above the minimum fee—would reflect the unique value of Canadian programming in that region. More particularly, CCG programming is uniquely valuable in the Canada Zone in good measure because of the retransmittal of French language programming, a niche sub-category. *See* CCG PFF ¶ 20 (''The programming on Canadian French-language stations plays an important role for Americans living in the northeast United States and either speak French or have French ancestry. . . . An example . . . is in the successful grassroots campaign of Sanford, Maine residents who lobbied the Metrocast cable company and their local government to restore carriage of the CBC's French-language station CKSH.''); *see generally id.* ¶ 19 (noting the distinct nature of French language programming in demand by CSOs to serve residents of ''New York, Vermont, Maine, New Hampshire, and Massachusetts—that have a sizeable proportion of residents with connections to the French language through a current spoken language or ancestry.''); *see also* Written Direct Testimony of Beverley Kirshenblatt, Trial Ex. 7400, p. 6 (Kirshenblatt WDT) (the CBC programming on Canadian stations retransmitted into the Canada Zone is provided ''in English, French, and eight Indigenous languages . . . broadcast . . . from around the world [as] a pan-Canadian service reflect[ing] Canada and Canadians in both official languages . . . and is a significant contributor to the cultural fabric of Canada through the promotion and creation of a variety of programming.'').

Thus, in *addition* to the demand for the usual complement of distantly retransmitted programming that exists throughout the wider United States, in the Canada Zone there exists this additional demand. Such greater demand means that CSOs would choose to pay more than the minimum fee by adding CCG stations, and thus Canadian claimant programming, to their channel lineup. Accordingly, CSOs in the Canada Zone would very likely be overrepresented in the cohort of above-minimum-fee-paying CSOs in Tyler ACWDT fig.6.3.

The problem this creates, for present purposes, is that the Judges are allocating a royalty pool for which, over the period 2015–2017, *more than 90% of the funding came from minimum-fee-only CSOs.* Thus, while the data from above-minimum-fee-paying CSOs (*i.e.,* in Tyler ACWDT fig.6.3) provides useful economic evidence of CSOs' revealed preferences for other claimant categories, with regard to CCG content and value, this data is distortionary as applied to the Judges' task of allocating *all U.S. royalties.*

Confirmatory of this distinction is the fact that CCG itself has not proposed that it receive the anomalously high allocations suggested by the data in Tyler ACWDT fig.6.3 (23.2% in 2015, 31.1% in 2016, and 34.6% in 2017). Rather, CCG has proposed that it receive 14.8% for 2015, 13.7% for 2016, and 13.6% for 2017. CCG PFF ¶ 617 fig.53. Further, CCG filed its Proposed Findings of Fact on June 15, 2023, and it was aware of the higher CCG shares in Tyler ACWDT fig.6.3 since that document was filed on September 2, 2022. And yet at no time did CCG ever seek to adopt the higher CCG share set forth in Tyler ACWDT fig.6.3.

Accordingly, in their allocations based on the Tyler Model regression, for 2015–2017, the Judges utilize the CCG shares reported at Tyler ACWDT, Fig.3.2. The difference in shares, compared to the CCG share in Tyler ACWDT 6.3, is allocated proportionately among the other five categories, as set forth in the table for Adjustment A below:

ADJUSTMENT A TABLE

Year	Program suppliers (%)	JSC (%)	CTV (%)	PTV (%)	SDC (%)	CCG (%)
2014	26.6	37.2	11.3	14.0	4.3	6.5
2015	46.29	2.37	12.76	14.34	10.95	13.3
2016	39.25	1.63	16.68	18.43	10.41	13.6

ADJUSTMENT A TABLE—Continued

Year	Program suppliers (%)	JSC (%)	CTV (%)	PTV (%)	SDC (%)	CCG (%)
2017	42.79	0.65	12.84	18.41	10.11	15.2

The Judges recalculated the shares of the other five claimant categories by: (1) calculating the percentage each category represents of all the categories' shares except CCG; (2) multiplying each percentage by the reduction in the CCG share generated by replacing the CCG column of Tyler ACWDT fig.6.3 with Tyler ACWDT fig.3.2; and (3) adding that product to the shares of each claimant category.

A further adjustment is still required. As noted *supra* regarding the PTV share, the Judges are adopting the downward adjustments made by Dr. Bennett to reflect the presence of Must Carry PTV stations. *See* Bennett WRT fig.52. The Judges apply those adjustments, and recalculate the shares of the other parties as set forth in the table for Adjustment B below:

ADJUSTMENT B TABLE

Year	Program suppliers (%)	JSC (%)	CTV (%)	PTV (%)	SDC (%)	CCG (%)
2014	26.80	37.48	11.38	13.36	4.33	6.55
2015	47.67	2.44	13.14	11.78	11.28	13.70
2016	40.75	1.69	17.32	15.32	10.81	14.12
2017	44.07	0.67	13.23	15.96	10.41	15.66

The Must Carry adjustment in Bennett WRT fig.52 was based on the PTV shares of all CSO royalties, whereas the Judges are applying this adjustment to the shares of CSO royalties attributable to shares generated by CSOs paying above the minimum fee (subject to the prior adjustment for CCG, discussed *supra*). So, for 2014, the percentage point adjustment to the PTV share is the percentage point adjustment in Bennett WRT fig.52. For 2015–2017, the percentage point adjustment to the PTV share is calculated for each year by (1) finding the percentage of PTV shares reflected by the PTV shares from Tyler WRT fig.6.3 ÷ PTV's shares from Tyler WRT fig.3.2, (2) multiplying that percentage by the percentage point adjustment in Bennett WRT fig.52, and (3) subtracting that product from the PTV share from the table above.

The shares of the other claimants are adjusted upward by: (1) calculating the percentage each category represents of all the categories' shares except PTV, (2) multiplying each percentage by the Bennett Must Carry adjustment (reduced as set forth above), and (3) adding that product to the shares of each claimant category.

There remains a final adjustment. The Judges note that PTV argued that a significant number of its stations were retransmitted by CSOs together with WGNA prior to the WGNA conversion, thereby generating a base fee royalty and an expressly revealed preference and willingness-to-pay. PTV further notes that post the WGNA conversion, many of these CSOs continued to retransmit the same PTV station, but this did not trigger the base fee because the minimum fee applied (with WGNA gone). PTV maintains that the pre-WGNA conversion carriage is probative of the fact that the post-WGNA conversion evidences economic value as if it were generating base fee royalties. PTV PFF ¶ 60 (and record citations therein). The Judges agree.

On this issue, there is evidence in the form of Mr. Harvey's analysis done on behalf of JSC. Specifically, Mr. Harvey reported:

> The number of PTV Only systems increased after the WGNA conversion from 44 at the end of 2014 to 173 by the end of 2017. PTV Only Systems that had carried WGNA and PTV in 2014 account for three-fifths of that increase.

Harvey WDT ¶ 106. The Judges find that Mr. Harvey's reporting demonstrates that 44% of the PTV stations that were identified as retransmitted by minimum-fee-paying CSOs after the WGNA conversion had been transmitted pre-conversion and generated base fee royalties. That is persuasive evidence of ongoing marketplace value. Accordingly, the Judges use that factual finding to increase by 44% the PTV share modification, as set forth in the table for Adjustment C below:

ADJUSTMENT C TABLE—APPLYING THE PTV ADJUSTMENT TO REFLECT WTP OF CSOS THAT MAINTAINED PTV CARRIAGE AFTER WGNA CONVERSION

Year	Program suppliers (%)	JSC (%)	CTV (%)	PTV (%)	SDC (%)	CCG (%)
2015	44.87	2.30	12.37	16.96	10.62	12.90
2016	37.51	1.56	15.94	22.06	9.95	13.00
2017	40.39	0.61	12.12	22.98	9.54	14.35

The Judges recalculated the shares of the other five claimant categories by: (1) calculating the percentage each category represents of all the categories' shares except PTV, (2) multiplying each percentage by the increase in the PTV share generated by adjusting to reflect WTP of CSOs that maintained PTV carriage after WGNA conversion, and (3) subtracting that product from the shares of each claimant category.

Returning to Tyler ACWDT fig.6.3, upon which the Judges principally rely, the Judges' decision to utilize and adjust the share allocations therein is strengthened by consideration of the confidence intervals at various levels of statistical significance, relating to those share allocations. That is, those confidence intervals serve to confirm the reasonableness of their share allocation approach. In that regard, as set forth in the table below, only one claimant category, JSC, has a negative low range bound in its confidence interval at the 90%, 95%, and 99% confidence intervals. Moreover, the negative value diminishes, as the confidence interval widens. The Judges

do not find that this one lower bound issue is sufficient to call into question the usefulness of the share allocations on which they rely.

Additionally, at the 55% confidence interval, this lower bound in fact turns positive, as also noted in the table below.

55%/90%/95%/99% CONFIDENCE INTERVALS FOR CLAIMANT SHARES FROM TYLER ONLY CSOS PAYING MORE THAN MINIMUM FEE MODEL

Claimant	Share	55% Confidence interval	90% Confidence interval	95% Confidence interval	99% Confidence interval
2015					
Program Suppliers	41.0% (2.4%)	39.19% to 42.81%	37.05% to 44.95%	36.3% to 45.7%	34.82% to 47.18%
JSC	2.1% (1.5%)	0.97% to 3.23%	−0.37% to 4.57%	−0.84% to 5.04%	−1.76% to 5.96%
CTV	11.3% (2.2%)	9.64% to 12.96%	7.68% to 14.92%	6.99% to 15.61%	5.63% to 16.97%
PTV	12.7% (0.8%)	12.10% to 13.30%	11.38% to 14.02%	11.13% to 14.27%	10.64% to 14.76%
SDC	9.7% (1.2%)	8.79% to 10.61%	7.73% to 11.67%	7.35% to 12.05%	6.61% to 12.79%
CCG	23.2% (0.9%)	22.52% to 23.88%	21.72% to 24.68%	21.44% to 24.96%	20.88% to 25.52%
2016					
Program Suppliers	31.3% (3.0%)	29.04% to 33.57%	26.37% to 36.24%	25.42% to 37.18%	23.57% to 39.03%
JSC	1.3% (1.9%)	−0.13% to 2.735%	−1.83% to 4.43%	−2.42% to 5.02%	−3.59% to 6.19%
CTV	13.3% (3.4%)	10.73% to 15.87%	7.71% to 18.89%	6.64% to 19.96%	4.54% to 22.06%
PTV	14.7% (0.8%)	14.10% to 15.30%	13.38% to 16.02%	13.13% to 16.27%	12.64% to 16.76%
SDC	8.3% (1.0%)	7.55% to 9.06%	6.66% to 9.95%	6.34% to 10.26%	5.72% to 10.88%
CCG	31.3% (1.4%)	30.04% to 32.16%	28.80% to 33.40%	28.36% to 33.84%	27.49% to 34.71%
2017					
Program Supplier	33.0% (2.2%)	31.34% to 34.66%	29.38% to 36.62%	28.69% to 37.31%	27.33% to 38.67%
JSC	0.5% (1.0%)	−0.26% to 1.26%	−1.15% to 2.15%	−1.46% to 2.46%	−2.08% to 3.08%
CTV	9.9% (2.0%)	8.39% to 11.41%	6.61% to 13.19%	5.98% to 13.82%	4.75% to 15.05%
PTV	14.2% (0.8%)	13.60% to 14.80%	12.88% to 15.52%	12.63% to 15.77%	12.14% to 16.26%
SDC	7.8% (1.0%)	7.05% to 8.56%	6.16% to 9.45%	5.84% to 9.76%	5.22% to 10.38%
CCG	34.6% (2.1%)	33.01% to 36.19%	31.15% to 38.05%	30.48% to 38.72%	29.19% to 40.01%

Source: Derived from data in Tyler ACWDT fig.6.3.
Note: standard errors in parentheses.

The Judges take note of the 55% confidence level because, as they stated in the 2010–13 Determination, there is nothing sacrosanct about the three confidence levels of 90%, 95%, and 99% when a court is considering econometric analyses. In this regard, the Judges take note of the position of the United States Supreme Court regarding the limited evidentiary value of confidence intervals/statistical significance. *See Matrixx Initiatives, Inc.* v. *Siracusano,* 563 U.S. 27, 40 (2011) (''the premise that statistical significance is the only reliable indication of causation . . . is flawed.'').

In this regard, the Judges stated in the 2010–13 Determination:

A statistical significance level of .01, .05 and .1 . . . is ''often referred to inversely as the . . . confidence level,'' equivalent to 99%, 95% and 90%, respectively. [ABA Econometrics at 18]. Although ''[s]ignificance levels of five percent and one percent are generally used by statisticians in testing hypotheses . . . this does not mean that only results significant at the five percent level should be presented or considered [because] [l]ess significant results may be suggestive, even if not probative, and suggestive evidence is certainly worth something.'' [F. M. Fisher, *Multiple Regression in Legal Proceedings,* 80 Colum. L. Rev. 717–718 (1980)]. Thus, ''[in] multiple regressions, one should never eliminate a variable that there is a firm foundation for including, just because its estimated coefficient happens not to be significant in a particular sample.'' *Id.* However, care must be taken not to confuse the ''significance level'' with the ''preponderance of the evidence'' standard, because ''the significance level tells us only the probability of obtaining the measured coefficient if the true value is zero,'' so one cannot ''subtract[ ] the significance level from one hundred percent'' to determine whether a hypothesis is more or less likely to be correct. *Id. See also* D. Rubinfeld, *Econometrics in the Courtroom,* 85 Col. L. Rev. 1048, 1050 (1985) (''[I]f significance levels are to be used, it is inappropriate to set a fixed statistical standard irrespective of the substantive nature of the litigation.''); D. McCloskey & S. Ziliak, *The Standard Error of Regressions,* 34 J. Econ. Lit. 97, 98, 101 (1996) (''statistically significant'' means neither ''economically significant'' nor ''significant [in] everyday usage [where] 'significant' means 'of practical importance' . . . .'').

2010–13 Determination at 3571 n.78. The Judges apply the foregoing principles here. To be clear, the Judges are not substituting the significance levels/confidence levels for the preponderance of evidence (marginally greater than 50%) standard. Rather, the Judges are looking to various levels of statistical significance/confidence intervals to determine the probability of obtaining Dr. Tyler's measured coefficient if the true value was in fact zero. And, the Judges are not wedded to the convention of the 90%, 95% and 99% confidence levels, because they agree with Dr. Rubinfeld, whose treatise is cited above, for the proposition that ''if significance levels are to be used, it is inappropriate to set a fixed statistical standard irrespective of the substantive nature of the litigation.''

The nature of this litigation, as the D.C. Circuit has held (discussed elsewhere in this determination) is an intensely practical endeavor, one in which mathematical precision is not possible, and where ''rough justice'' is the norm. In this regard, the Judges also follow—in addition to the Supreme Court holding in *Matrixx*—the guidance of two scholars (also quoted above in the 2010–13 Determination) who have written extensively to caution, as a matter of economic ethics, against a fixation on statistical significance:

> Statistical significance is not equivalent to economic significance nor to . . . legal . . . significance. . . . The core problem is that statistical significance is neither necessary nor sufficient for testing . . . material fact in a court of law. . . .

Stephen T. Ziliak & Deirdre McCloskey, *Lady Justice Versus Cult of Statistical Significance,* in George F. DeMartino & Deirdre McCloskey, *The Oxford Handbook of Professional Economic Ethics* 352–53 (2016). The need to avoid overreliance on low levels of statistical significance (*i.e.,* large confidence intervals) has been emphasized by Dr. Kennedy, in his textbook cited by the parties and the Judges in this proceeding. *See* Kennedy, *supra,* at 366 (listing as one of his ''Ten Commandments of Applied Econometrics'': ''Do not confuse statistical significance with meaningful magnitude.'').

Accordingly, the Judges note specifically that the table above shows, with regard to the confidence intervals for Dr. Tyler's shares, *only positive numbers* for *all* claimant categories in 2015 at the 55% level. Further, the table also shows *only positive numbers* for all claimant categories for *all* confidence levels in *all* years except for JSC, with a lower bound value for JSC of only −0.13 in 2016 and −0.26 in 2017.[170]

Although the Judges find these data to be persuasive in demonstrating that Dr. Tyler's shares are reasonable, they are concerned that the intervals remain somewhat wide, and they do not simply dismiss out-of-hand the one negative lower bound at the higher confidence intervals. Relatively wide ranges in regression results have been a previous concern in these proceedings, as noted with regard to the Waldfogel Model applied to the 2004–05 proceeding:

> [W]hile the Waldfogel regression analysis provides useful information, we also find that there are limits to that usefulness in corroborating the Bortz survey, largely stemming from the wide confidence intervals for the Waldfogel coefficients. Thus, the implied share of royalties calculated by Dr. Waldfogel would change substantially if the true value of the variable was at one end of the confidence interval rather than at the point estimate value used by Dr. Waldfogel in his calculations. . . . Nevertheless, while one may question the precision of the results on this basis, it only cautions against assigning too much weight to its corroborative value.

2004–05 Distribution Order at 57063, 57068.

The reconciliation is different here than in the 2004–05 proceeding, because here the Judges are considering the regression evidence and the Bortz Survey evidence as essentially equally weighted and useful (but not flawless) evidence, rather than treating the regression evidence as merely corroborative of the survey evidence. Likewise, the reconciliation will be different than in the 2010–13 proceeding, because the Judges are not giving any *primacy* to the regression evidence in this proceeding, given how the changes in the retransmission sector after the WGNA conversion have affected the available data. But the overall point remains: As in prior proceedings, the Judges take note of the wide confidence intervals (and the negative JSC coefficient at the lower bound), as one reason to balance the shares implied by the Tyler Model, as adjusted above, against the results of the Bortz Survey, also as adjusted.

XIV. 3.75% Fund

In the 2010–13 Determination, the Judges made no distinction within the regression approaches themselves between allocation shares attributable to the Basic Fund and to the 3.75% Fund. Rather, as here, the Judges first made their overall allocation share decision after applying all the useful evidence, including evidence from the surveys and regressions. Only then did the Judges consider how to allocate the claimants' royalty shares as between the Basic Fund and the 3.75% Fund.

Specifically, the Judges in the 2010–13 Determination engaged in the following approach in reconciling the 3.75% Fund with the Basic Fund: (1) The Basic Fund percentage allocations were made without disaggregating royalties attributable to the 3.75% Fund and (2) the 3.75% Fund percentage allocations were made by ''reallocat[ing] the PTV share from [the Basic Fund] proportionally among the categories that participate in that fund.'' 2010–13 Determination at 3611. In reaching this ruling, the Judges ''considered and rejected PTV's arguments that the allocations of Basic Fund royalties must be adjusted to account for PTV's non-participation in the 3.75% Fund.'' *Id.* (It is undisputed that PTV cannot receive any share from the 3.75% Fund.)

In the present case, all the parties, except PTV, made arguments and presented testimony proposing that the Judges make the 3.75% Fund allocations in the same manner as in the 2010–13 Determination.[171] PTV, however, through the Johnson Model, has departed from the prior approach and calculated, via regression analysis, separate allocations for the Basic Fund and for the 3.75% Fund. According to PTV, this is warranted because, even though it was not the method used previously, the Judges have acknowledged the ''need to allocate the Basic Fund and the 3.75% Fund separately.'' PTV PHRB at 36–37. But PTV elides the fact that Dr. Johnson's separate modeling of the two rates is not how the separate allocations were accomplished in the 2010–13 Determination, as noted *supra.*

As other parties note, the approach sought by PTV and Dr. Johnson is not only inconsistent with the Judges' prior approach, but also inconsistent with the facts and with economic theory. As Dr. George comprehensively explained:

[170] The negative JSC number at the higher confidence intervals may be the consequence of the lower number of minutes in the regression after the full WGNA conversion. As noted supra with regard to small sub-categories of programming, when there are very few minutes in the regression, the estimates can be inaccurate.

[171] CTV, through its counsel, proposed an alternative method for allocating the 3.75% Fund in its RPHB at 64–65. However, this proposed alternative was not linked to any portion of the record, directly or indirectly. Factual assertions cannot be made after the close of evidence and, in any event, cannot be made by counsel. The Judges therefore do not consider CTV's alternative 3.75% Fund proposal. *See Johnson* v. *Copyright Royalty Board,* 969 F.3d 363, 383 (D.C. Cir. 2020) (rejecting the Judges' reliance on a party's proposal made ''for the very first time *after* the evidentiary record was closed.'').

Dr. Johnson's model produces biased results because it excludes 3.75% fees. Dr. Johnson's model relates base rate royalties rather than total royalties to claimant programming minutes. . . . [T}his approach *does not align with the economic theory* that supports regression estimates in these proceedings. Specifically, *profit maximization* dictates that systems add distant signals if the full incremental value exceeds the full incremental cost. By *excluding* royalties associated with 3.75% fees, coefficient estimates do not reflect the *full* cost of distant signal carriage and hence do not reflect the full *value* of claimant programming. Stated another way, a cable system's choice to carry a signal subject to 3.75% fees reveals the system's willingness to pay for signals to be *higher* than the royalty expenditure Dr. Johnson includes in his regression. Omitting 3.75% fees from the dependent variable will produce regression coefficients that systematically *overstate* the value of public television programming not subject to 3.75% fees and systematically *understate* the value of other programming.

Dr. Johnson *separately* estimates his regression model using *only* fees paid to the 3.75% fund. This model suffers from the *same* problem as considering base rate royalties alone: the dependent variable does not reflect the full incremental costs of carriage, so the model produces biased estimates of program values. These estimates also cannot be used to estimate the relative market value of programming because they do not reflect the economic *choices* of systems in the cable marketplace.

George WRT at 23–24 (emphasis added). *See also* Commercial Television Claimants' Post-Hearing Brief in Support of Proposed Royalty Allocations at 48 (CTV PHB) (''Dr. Johnson's isolation of the base and 3.75% fees is inconsistent both with basic economic intuition and statistical evidence of a correlation between those carriage decisions and thus does not account for the link between these retransmission decisions.''); PS PHB at 55 (''There is no rational economic reason to exclude decisions relating to the carriage of non-permitted stations in assessing CSO preferences.'').

The Judges agree that it makes no economic sense to separate out the two royalty fund payments when the CSOs would economically make no distinction between the two funds when identifying their royalty costs and benefits. (That is, money is fungible, and the CSOs would be indifferent as to how their royalty payments were divided between the two funds.) Further, the Judges are struck by the fact that PTV and Dr. Johnson did not take note of this point when proposing their novel approach, and that PTV's novel approach just so happened to significantly increase PTV's allocation share in the Basic Fund. *See* CTV PHB at 48 (and record citations therein) (''[I]f Dr. Johnson had estimated his regression using both the base fee and 3.75% fee, the implied shares for PTV would have dropped by more than 5% . . . from 2015 to 2017.''). *See also* Johnson WRT tbl.4 (acknowledging a five-percentage point increase in PTV's Basic Fund over the 2014–2017 period, from 43.5% to 48.5% (an 11.5% increase in PTV's share), by separating out the allocations for the two funds).

Accordingly, nothing was persuasively presented in the regression analyses to support a deviation by the Judges from establishing the 3.75% fund allocations as they adopted in the 2010–13 Determination.

XV. Industry Experts

A. Assumptions Regarding CSO Behavior

PTV offered industry expert testimony Lynne Costantini who testified that cable companies evaluate whether to add, delete or maintain channels on their lineups by analyzing the overall value a particular channel adds to their content offerings and the ability of the programs on the channel to attract and retain pay TV subscribers, within the context of the programming mix on the then-current lineup, as well as technological and economic constraints.[172] Written Direct Testimony of Lynne Costantini, Trial Ex. 7301, at 5 (Costantini WDT); 3/27/23 Tr. 1591–92 (Costantini). She then offered her opinion that, based on the aforementioned programming goals of CSOs, the relative value to cable companies of programs included in PTV Distant Broadcast Stations had increased. Costantini WDT at 8–10. Several other industry experts attested to the value of programming that attracts and retains subscribers. See, *e.g.,* Written Direct Testimony of Kate Alany, Trial Ex. 7302, at 2 (Alany WDT); Singer WDT at 7–8; Written Direct Testimony of Daniel Hartman, Trial Ex. 7110, at 7–9 (Hartman WDT); Witmer WRT at 7; Written Direct Testimony of Alex Paen, Trial Ex. 7603, at 13.

Sue Ann Hamilton, an industry expert whose testimony on behalf of Program Suppliers in the 2010–13 Cable Proceeding has been submitted as designated testimony in this proceeding, testified that a CSO's selection of stations for distant retransmission is marked by inertia, not by an affirmative analysis and weighing of alternative stations. Written Direct Testimony of Sue Ann Hamilton (2010–2013), Trial Ex. 7061, at 7 (Hamilton WDT (2010–13)). She identified two reasons for CSO inertia. First, distant retransmission costs represent a non-material expenditure for CSOs compared with their other more expensive programming and carriage decisions. *Id.* at 9. Second, she testified that CSOs are more concerned with losing existing subscribers if they drop certain stations and the associated programs than they are with whether or not any new retransmitted station and its associated programs might entice new subscribers. *Id.* In industry jargon, CSOs are more concerned with legacy distant signal carriage than with adjusting the roster of distantly retransmitted stations. *Id.* at 15. Thus, Ms. Hamilton implied, any correlation between program categories and royalties is spurious, because it is ''inconsistent with [her] understanding of how CSOs actually make distant signal carriage decisions.'' *Id.*

The Judges again find that Ms. Hamilton was a knowledgeable and credible witness, particularly with regard to the *de minimis* impact of distantly retransmitted stations on CSOs and the importance of ''legacy carriage.'' Moreover, the Judges take note that CSO time and effort are themselves finite resources (opportunity costs), and, as Ms. Hamilton implied, it would behoove a rational CSO to expend more of those resources making carriage and programming decisions with a greater financial impact.[173]

Based on the entirety of the record, the Judges do not find that the relative unimportance of distantly retransmitted stations to a CSO has deprived the regressions in evidence of value in this proceeding. Even if CSOs emphasize legacy carriage over potential increases in value from adding or substituting different local stations for distant retransmission, otherwise well-constructed regressions remain a reliable approach to capture the relative values of those legacy-based decisions. The Judges are mindful that regression analyses provide benefit because they look for a correlation between economic actors' choices (the independent explanatory variables) and the dependent variables as potential circumstantial evidence of a causal

[172] This testimony is consistent with the Judges' findings in prior distribution proceedings 2010–13 Determination at 3590 (''CSO executives' valuations reflect their conclusions regarding the extent to which the category of programming contributes to the return on that investment; *i.e.,* helps the cable system attract and retain subscribers.'').

[173] Given the low value of retransmitted stations, a CSO might rationally emphasize the value of ''legacy carriage'' as a heuristic (without further analytical effort), assuming as Ms. Hamilton implies, that eliminating a distantly retransmitted legacy station and its programs is more likely to cause a loss in subscribers than a change in station lineup is likely (without further and costly analytical effort) to increase the number of subscribers.

relationship, but they do not purport to explain what lies behind such a potential causal relation.

B. Value

1. Volume of Programming Minutes

Several industry expert witnesses testified that, from a distributor's perspective, the value and volume of certain categories of programming are not correlated. See, *e.g.* Witmer WRT at 11; 4/10/2023 Tr. 4050:11–4051:8 (Witmer); 4066:1–3, Singer WDT at 19; Singer WRT at 8; Hartman WDT at 23; Written Rebuttal Testimony of Daniel Hartman, Trial Ex. 7111, at 9 (Hartman WRT); Written Direct Testimony of John S. Sanders, Trial Ex. 7500, at 25 (Sanders WDT).[174] Such testimony was generally offered to challenge the regression analyses that look to the relationship between the total royalties paid by cable operators for carriage of distant signals and the quantity of programming minutes by programming category a reliable methods to assign relative market value. A similar indication, that value and volume of certain categories of programming are not necessarily correlated, was also expressed by industry experts who testified on behalf of proponents of regression analyses using minutes of programming. For instance, Lynne Costantini, industry expert offered by PTV, testified that ''you don't sell programming or buy programming based upon the number of minutes.'' 3/28/23 Tr. 1735–36 (Costantini). However, industry experts also cautioned against simply looking at the price of programming and not weighing the volume of licensed content available to consumers when assessing relative marketplace value. 4/19/23 Tr. 5406–07 (Homonoff).

Based on the entirety of the record, the Judges are not persuaded by industry expert testimony that the value and volume of programming are not correlated. The industry expert evidence is set against the more well-established sound economic reasoning underlying the regression analyses in this proceeding. The explanation for the Judges finding logical economic bases to rely on allocations based on programming minutes by programming category from the regression analyses is addressed *supra.*

That is not to say that regressions correlating program category minutes and a measure of royalties is necessarily the only way to determine value. As discussed elsewhere in this determination, and as confirmed by some of the industry testimony, the Judges recognize that certain categories of programming, particularly JSC programming, bundled together with programming from other claimant categories, can have a value (in terms of retaining or adding subscribers) necessarily that is not well-correlated with overall program minutes. To the extent that this bundling of programming with varying values is not smoothed out by the averaging undertaken by the regressions, survey analysis would be an appropriate tool to identify such value to a CSO within a station bundle.

2. Unique Niche Content

CCG, JSC, and SDC assert that the regression analyses fail to adequately capture the value of ''niche'' programming or to appropriately reflect the testimony of industry expert fact witnesses concerning the salient market conditions in the cable industry during the years at issue in this proceeding. CCG PFF at 178–79 and record citations therein; SDC PFF at 64 and record citations therein; JSC PFF at 58–59 and record citations therein.[175] The Judges were urged to test the validity of regression analyses against other evidence of value, as a ''reality filter.'' [176]

JSC's industry expert witnesses testified that JSC content is unique as ''perishable'' content. 4/3/23 Tr. 2750 (Singer). That is, each live game is a singular, real-time event. Mr. Singer asserted that JSC content is largely unique in the marketplace as among the last regularly scheduled ''tune-in'' programs. He added that live sports competitions are mostly only important while they are taking place, do not lend themselves to recording, and are not compelling on replay. He further stated that sports are popular with a passionate segment of customers of the type that television distributors focus on retaining. Singer WRT at 4–5.[177] Such sentiments, offered as an indication of the unreliability of regression analyses and their results, were reiterated by additional JSC industry expert witnesses. 4/5/23 Tr. 3349–50 (Hartman); Witmer WRT at 9; 4/10/23 Tr. 4061–62 (Witmer); Hartman WDT at 10; JSC PFF at 134–41 and record citations therein.

SDC points to similar assertions from industry experts regarding the value of its niche content. Written Direct Testimony of Toby Berlin, Trial Ex. 7508, at 7–10; Written Rebuttal Testimony of John S. Sanders, Trial Ex. 7501, at 27 (Sanders WRT); SDC PFF at 76–79 and record citations therein. Program Suppliers noted that niche programming is not limited to devotional content, and that non-JSC ''Other Sports'' programming is valued as niche programming. PS PFF at 18–19, citing 4/10/23 Tr. at 3824–25 (Berlin), and other record citations therein. Similarly, CCG observed that its programming, including French content, qualifies as unique and valuable niche programming that attracts and retains subscribers. CCG PFF at 178–79, citing Kirshenblatt WDT at 10–18.

The Judges find Mr. Singer and Mr. Berlin to be particularly credible witnesses in relation to their testimony regarding the unique value of JSC content and SDC content in relation to the other content categories during the relevant time period. Based on the entirety of the record, the Judges are persuaded that evidence of the unique value of CCG, JSC, and SDC content serves as a limitation on the applicability of certain proposed regression analyses and their resulting proposed allocation results. These validity test or reality filter findings do not negate valid application of regression analyses as a basis for allocation. However, these factors are taken into account within the Judges' weighting of the allocation methodologies, including application of the Bortz survey, as addressed *infra.*

3. Streaming and Availability on Other Platforms

JSC testified that the value of programming is diminished when that same type of content is available elsewhere, especially for cheaper or no cost. 4/3/23 Tr. 2749 (Singer); 4/5/23 Tr.

[174] At the same time, several of the same JSC experts conceded that there is a relationship between price, or willingness to pay, and quantity of live team and professional sports *games.* 4/3/23 Tr. at 2798–99 (Singer); 4/05/23 Tr. at 3317, 3318 (Warren); 4/10/23 Tr. at 4072–73 (Witmer).

[175] JSC also asserted that regression analysis was unreliable as it overvalued certain content types in relation to JSC content, pointing to valuations of paid programming, devotional content, and public television content. JSC PFF at 60–65 and record citations therein

[176] Asker WRT at 45 (''It is standard practice in econometric research to test the external validity of findings whenever alternative methods are available to answer the same question.''); Harvey WRT at 38–41; 3/28/23 Tr. 1910:3–1911:3 (Harvey) (agreeing with Judge Strickler that ''validity test'' is synonymous with ''reality filter''); 4/18/23 Tr. at 5168:8–5169:8 (George) (urging that the reality filter should reflect the relevant marketplace being considered/measured), See also, CCG PPFCOL at 31 and record citations therein.

[177] Mr. Singer asserted that games are particularly valuable cases of retransmission to geographic areas with deep affinity to specific teams. Singer WDT at 17–18. Several examples of such transmissions were cited to by JSC. JSC PFF at 28–30 and record citations therein. This assertion was disputed by Program Suppliers as merely anecdotal. PS PFF at 43–44 and record citations therein.

3357 (Hartman); Hartman WDT at 18–19. The JSC industry expert witnesses testified that there is a lower risk of losing any subscribers when such content is not carried. Witmer WRT at 14; 4/5/23 Tr. 3378:12–24 (Hartman); Hartman WDT at 18–19. These sentiments were echoed by PTV's industry expert Lynne Costantini. Costantini WDT at 7; 3/28/23 Tr. 1718–19 (Costantini).

SDC pointed to testimony of a similar dilutive effect from streaming, regarding Program Suppliers' programming. SDC noted that syndicated series and movies, represented in Program Suppliers content, historically had often exclusively run on broadcast stations, but were increasingly becoming available on streaming platforms, which grew in popularity during the relevant period. SDC PFF at 108, citing Costantini WDT at 7; Hartman WRT at 10–11. SDC also argued that its content did not suffer from a dilutive effect from streaming, as streaming services were not designed to cater to devotional audiences, thus preserving the retentive value of SDC content to CSOs. SDC PFF at 109–10 and record citations therein.

Program Suppliers asserted that while syndicated shows and movies are available on streaming platforms, that does not necessarily detract from the value of such programs on distant signals. It noted that that as streaming rose, the volume of Program Supplier content carried on distant signals rose as well. 4/19/23 Tr. at 5408 (Homonoff).

CCG testified that while significant CCG content was offered through streaming, it was generally only after exclusive premier via broadcast. Kirshenblatt WDT at 11–13; *see also* Written Direct Testimony of Tom Cox, Trial Ex. 7401, at 1–2. PTV offered testimony that during the relevant years significant portions of PBS programming were offered and viewed free through various digital streaming options. PTV also testified that PBS sold streaming devices related to such free streaming content. 3/27/23 Tr. 1545–50 (Alany).

CTV offered that during the relevant period, the dilutive effects of streaming were not present for original live and local CTV programming or for JSC programming, which was largely unavailable on streaming platforms. Written Rebuttal Testimony of Robert Papper, Trial Ex. 7206, at 45 (Papper WRT); Written Rebuttal Testimony of Mike Vaughn, Trial Ex. 7205, at 4. CTV PFF at 11–15, and record citations therein. CTV's industry experts, as well as Professor Marx, were especially convincing in distinguishing the effects that streaming had on CTV content versus other types of programming. *See, e.g.,* 4/11/23 Tr. 4240:22–4241:12; Tr. 4234:6–10 (Marx).

The Judges find credible evidence that Program Suppliers' content was more predominantly available through streaming channels during the relevant period. Therefore, based on the entirety of the record, the Judges find evidence of dilutive effects to be persuasive as an indicator of decreased relative value of Program Suppliers content. Additionally, the Judges find that CTV content, especially original live local news content, was generally not diluted by streaming and that this is a persuasive indicator of relative increased value of CTV content. The Judges apply these factors into their weighting of allocation methodologies.

Duplication

Industry executives testified that duplicative content does not add value as it does not further CSOs' goals of subscriber retention. Singer WRT at 15–16; Hartman WRT at 12; Witmer WRT at.15. JSC asserted that a significant proportion of the programming on distant PBS signals was duplicative of what was already available from CSOs to subscribers, and reiterated that such duplication did not provide value. Harvey CWDT at 51; Witmer WRT at 14; 4/10/23 Tr. 4064:18–4065:4 (Witmer).[178] JSC pointed to a study that found rates of duplication for these programs to be as high as 98.9%. Harvey CWDT at 55 tbl.28. Mr. Papper also asserted that programming on PTV stations is mostly duplicative and much of it at the exact same time. Papper WRT at 15. Mr. Papper provides specific examples to demonstrate duplicative airing of programming, all demonstrating higher duplication than the overall result average. *Id* at 16–41. Mr. Papper notes that the duplication was a bit lower in 2016 and 2017, but there still is significant duplication of programming. *Id.* at 41. In contrast, duplication with CTV signals was perceived as minimal. *Id.* at 42. Mr. Papper argues the large amount of duplicative programming rarely provides a good reason to import a distant PTV signal unless there really is not a local one. He argues this is supported by the data in which during the 2014–2017 period, only slightly more than a third of the systems and slightly over a quarter of the subscriber groups had both a distant and local PTV signal. *Id.*

The assertions against finding value of duplicative programming were criticized for treating programs as duplicative even if they did not air at the same time on both the distant and the local signal or even if the distant and local signals aired different episodes of the same program. Johnson WRT Ex. 7303 at 40–44.[179] Dr. Johnson argued that different episodes of the same program are distinct programming, and a single episode of a program can create incremental value if shown at a different time. Dr. Johnson conducted an analysis of duplication and found that only approximately 20 percent of PTV programs were retransmitted to subscriber groups at the same time as a local broadcast. *Id.* at 41. JSC addressed the former point by the minimal value of time-shifted programming does not accrue to retaining cable subscribers. 4/3/23 Tr. 2764:13–19 (Singer).

Based on the entirety of the records, the Judges find that significant duplicative content does not, in general, have the same value as non-duplicative programming. The industry experts presented reliable testimony that simultaneous or near simultaneous programming does not enhance the ability to attract and retain customers. However, the Judges also find that time shifted programming does have some value to customers, affording them greater flexibility in their viewing, and therefore provides customer retention value to CSOs. The Judges address this factor in making adjustments to regression methodologies (the Bennett adjustment) and in the Judges' weighting of the allocation methodologies.

4. Bandwidth

Ms. Costantini testified that CSOs' programming decisions should reflect the highest and best use of scarce bandwidth, and that all decisions to carry programming are thus necessarily indicative of value. Regarding bandwidth issues, Ms. Costantini challenged the testimony of other industry experts (addressed below) by asserting that bandwidth considerations were a significant factor in the programming decision-making of cable companies during the relevant time period. Costantini WRT at 3–6. She testified that during the relevant period, many cable companies provided three distinct products: pay TV, broadband internet (important to support internet video products) and IP phone, each of which competed within the CSO that was seeking the most profit able uses of

[178] SDC offered a similar view of PTV content. *See* SDC PPFCOL at 112, record citations therein.

[179] PTV's witness Ms. Alany acknowledged duplication as an issue, suggesting that local public television stations may adjust programming schedules in order to avoid or minimize duplication, but did not offer any evidence of such adjustments having taken place. Alany WDT at 21; 3/27/23 Tr. 1557:20–25 (Alany).

appropriate amounts of bandwidth. Ms. Costantini testified that CSOs placed more value on broadband internet than CSO television programming. Costantini WRT at 4; 3/27/23 Tr. 1597–1605 (Costantini). In support of this view, she pointed to her professional experience while seeking cable distribution during the period 2012–2016, including negotiations with CSOs that oftentimes cited bandwidth allocation as a reason not to carry a new channel. Costantini WRT at 5–6. However, Ms. Costantini also testified to an inability to determine whether ''most or many or the majority'' of CSOs even provided internet service (bandwidth) during the relevant time period. 3/27/23 Tr. 1613 (Costantini).

Ms. Witmer testified that during the relevant period, advances in digital technology meant that bandwidth was no longer a significant driver of carriage decisions. Witmer WRT at 7 n.3. Ms. Witmer asserted that deployment of switched digital technology, headend consolidations, and reclamation of analog bandwidth cable channels opened up considerable digital bandwidth on systems that enabled the launch of more channels and other consumer products such as telephone and broadband services. Several other industry experts also testified that bandwidth was no longer a constraint during the relevant period. Singer WDT at 7; Singer WRT at 5; 3/30/23 Tr. 2595:13–2597:24 (Majure); 4/3/23 Tr. 2764:20–2765:14 (Singer).

Based on the entirety of the record, the Judges are not persuaded that bandwidth remained a significant concern for most CSOs who the record established employed more advanced technology than in previous periods. Bandwidth allocation may have been a legitimate but un-specific concern for smaller CSOs that had not employed improved digital technologies in the early years of the relevant time period. However, on the current record, the Judges are not able to perceive any reliable scope of bandwidth being a significant concern for CSOs in relation to programming decisions. Therefore, the issue does not impact the Judges consideration of the methodologies or resulting allocations offered this proceeding.

5. Other Factors: Cost, Acclaim, Trust

Ms. Alany's offered testimony to indicate relative market value of PTV content is demonstrated by production cost and quality/acclaim of content as well as the level of trust that PBS enjoys in the public eye. See, *e.g.,* Alany WDT at 6–12, citing PBS Trust Brochures 2014–2018; 3/27/23 Tr. 1535:16–1537:1 (Alany). Other industry experts also offered similar testimony regarding production cost matters and quality/acclaim. 4/13/23 Tr. at 4918–21 (Paen).

In response, other expert witnesses argued that such characteristics do not equate to the ability to attract and retain subscribers and economic value. Singer WRT at 17–18; Hartman WRT at 13–15; Witmer WRT at 16. Ms. Witmer, on behalf of JSC, added that the notion that costs of such programming should be considered in royalty share allocation is contrary to the standard for determining the share allocation, namely what would a cable system pay for the content absent the section 111 license. Witmer WRT at 15.

Based on the entirety of this record, the Judges are not persuaded that issues of production cost, quality/acclaim of content or the level of trust that a producer enjoys in the public eye are meaningful toward the Judges' determination of relative market value. The Judges understand that, at some level, programming cost and acclaim may impact value. However, the present record does not equip the Judges to evaluate these factors on a comparative level. Sufficiently established studies of comparative public trust in a producer's content especially, news content, might be properly presented as a valid indication of relative market value. However, the present record, including PBS-commissioned trust survey, does not provide a reliable basis for determining the ability to attract and retain subscribers or for adjusting the Judges' determination of relative market value. In this regard the Judges note that PTV did not adequately correlate levels of public trust with what CSO might be willing to pay for programming. Therefore, these factors do not impact the Judges' weighting of the main methodologies or resulting allocations offered this proceeding.

C. Industry Experts Regarding Bortz Survey Respondents' Identity and Capacity

In her rebuttal and hearing testimony, for PTV, Ms. Costantini challenged the Bortz survey by asserting that the survey likely did not reach the correct executive that is most responsible for carriage programming decision-making in more than 75 percent of the surveyed cable systems across the four years for the following reasons. Costantini WRT at 6–10, 18–47; 3/27/23 Tr. 1621–25, 1595–96 (Costantini). She maintained that the survey likely did not interview the individuals most responsible for programming carriage decisions for these cable systems. *Id.* She appeared to accept that Bortz Media used the *Television & Cable Factbook (Factbook)* to identify contacts for each respective system, particularly telephone numbers, and that Bortz Media usually selected the senior-most executive from that cable system to list as the *initial* point of contact or the survey questionnaire. Costantini WRT at 6–7. However, she indicated the approach was faulty because the *Factbook* does not specifically identify programming carriage decision-makers. She stated that in her experience job position titles at cable companies are insufficient without other data points to assess whether the individual is likely to be most responsible for programming decisions. She testified that in the majority of instances, the description of Bortz respondents' positions do not indicate programming decision-making responsibilities. Costantini WRT at 8.

Ms. Costantini also noted that while some respondents are unlikely to be most responsible for programming carriage decisions, especially for larger cable companies, in some instances, they may provide valuable input regarding programming carriage to the ultimate decision-makers. She added that the persons holding regional management positions are not necessarily more likely to be most responsible for making programming decisions and that at larger cable companies persons holding regional management positions would not be the persons most responsible for making programming decisions. 3/27/23 Tr. 1621–22 (Costantini). She also found that it would be highly unlikely for the title or position of the person most responsible for making programming decisions at a cable system to change year to year, as was alleged to be the case in the Bortz survey. Costantini WRT at 9. These factors led Ms. Costantini to opine that Bortz likely did not interview the persons most responsible for programming carriage decisions for more than 75% of the surveyed cable systems across the four survey years. A summary of these issues was included as Table 1 to her rebuttal testimony. Costantini WRT at 18–47.

Ms. Costantini added that the *Factbook* data are potentially unreliable as a foundation from which Bortz could ascertain the persons most responsible for making programming decisions at the surveyed CSOs. Costantini WRT at 6–7. She also found fault with the Bortz survey's failure to attempt to independently validate the respondents' roles and responsibilities utilizing publicly available sources such as LinkedIn or cable companies' websites, or by asking other questions to confirm they were speaking to the appropriate person. Costantini WRT at 6–7.

Ms. Costantini testified that the questions asking respondents to assign importance, cost, and value to programming on distant broadcast stations are inconsistent with how programming carriage decisions are made by cable companies. Costantini WRT at 10. She maintained that station carriage decisions are not made based upon inclusion or exclusion of a category or genre of programming, but rather on the entire bundle of the distant broadcast station's programming schedule. Costantini WRT at 9.

Ms. Costantini opined that the Bortz survey questions lacked the qualitative and quantitative specificity needed for respondents to accurately answer questions and that respondents would not necessarily understand the terminology used in the questions, and that the questions do not sufficiently address the interplay and overlap across some categories. Costantini WRT at 12–13. A similar concern was also asserted by Sue Ann Hamilton who testified in the 2010–13 Cable Proceeding that the programming categories adopted in royalty distribution proceedings are unique and ''quite different from the industry understanding of what programming typically falls in a particular programing genre.'' Hamilton WDT (2010–13) at 10. Oral Testimony of Sue Ann Hamilton (2010–13), Trial Ex. 7063, at 4309, 4312; Written Rebuttal Testimony of Sue Ann Hamilton (2010–13), Trial Ex. 7062, at 17–18 (Hamilton WRT (2010–13)). For example, she testified that ''most cable operators'' would not recognize that pre- and post-game interviews and highlight compilation telecasts would fall into the Program Suppliers category, or that locally produced high school team sports would fall into the Commercial Television category. *Id.* at 11. Ms. Hamilton further opined that cable operators were not likely to differentiate between network and non-network sports telecasts and that migration of live team sports programming to regional cable networks further complicates the equation. See Hamilton WRT (2010–13) at 17–18.

Ms. Costantini criticizes the Bortz Survey for not providing enough information and time for the respondents to answer the questions accurately. Ms. Costantini expressed doubt that any respondent could accurately answer the survey questions in the course of the telephone interview. She also testified that it is highly doubtful that the respondent would need access to extensive information that would not be readily available to most respondents. Costantini WRT at 10–13.

Mr. Singer and Ms. Witmer, testifying on behalf of JSC, disagreed with Ms. Costantini regarding inappropriate respondents in the Bortz survey. They testified that, while ultimate responsibility for carriage decisions may be at the corporate level, the individuals with the knowledge of why specific distant signals were carried, and why they were valuable to the system in a specific area, would be at the local or regional level. 4/3/23 Tr. 2769–73 (Singer); 4/10/23 Tr. 4054–55, 4061 (Witmer). Mr. Trautman also agreed with this assessment, adding that there is no one-size-fits-all standard for what position or level within a cable system is going to be associated with the person most responsible for programming decisions. 4/3/23 Tr. 2845–46; 2849 (Trautman).[180] Mr. Singer noted that the relevant titles at cable systems for individuals responsible for programming were ''all over the place'' and that there was not necessarily just one person responsible for programming carriage decisions at CSOs. 3/20/23 Tr. 2770–71 (Singer). Ms. Witmer also testified that the titles of relevant executives were a legacy of the history of lots of small systems that rolled up into bigger consolidated systems, and often had various titles, and they were not necessarily consistent from one system to the next. 4/10/23 Tr. 4060–61 (Witmer).

Mr. Trautman testified that use of the Factbook as an initial point of contact or the survey questionnaire is a feature, not a flaw, of the Bortz survey that is an effective tool for assuring survey respondents are qualified. 4/3/23 Tr. 2848–49 (Trautman). He added that while the initial target is often not the survey respondent because ultimately, the survey's goal is to speak with the person most responsible for carriage decisions. *Id.*

Regarding the alleged difficult of accurately answer the survey questions or understand the categories at issue, Ms. Witmer testified that the respondents would have been able to answer the questions. She further testified that the categories of programming listed in the questionnaire make sense to her as a cable executive. She explained that it is common in the cable industry for channels to have different kinds of content on them, but that people working the cable industry and the programming area would be more than capable of understanding the categories of content separate and apart from particular linear channels. 4/10/23 Tr. 4052–55 (Witmer).

Regarding the alleged complexity of addressing the complexity of the Bortz questions, JSC pointed to designated testimony from the 2010–13 proceeding from Mr. Hartman who explained that ''when you look at the type of linear channels that we negotiate for, they really do fall into categories.'' Mr. Hartman also testified that ''it's our day-to-day job to kind of know . . . that type of programming.'' 2010–13 Hartman Oral Testimony Tr., Trial Ex. 7056, at 74–75.

While Ms. Costantini raises some reasonable concerns about the Bortz survey, including concerns that the titles of some respondents may not be indicative of those *most* responsible for programming carriage decisions, the Judges observe that her criticisms were routinely accompanied by significant caveats, such as being *generally* applicable, and focused on *larger* cable companies. Furthermore, the Judges note her acknowledging that ''there are lots of corner cases'' regarding appropriate titles of respondents.[181] 3/27/23 Tr. at 1621–22 (Costantini). Based on the entirety of the record, the Judges are not persuaded that the issue of the respondents' titles is reason to disregard reliance on the Bortz survey. Furthermore, the Judges find that use of the *Factbook* as a starting point in pursuing the appropriate respondents is not unreasonable. The Judges do not discount the reasonable concerns that were established regarding titles, which is a factor the Judges take into account within the Judges' weighting of the Judges' reliance on the various allocation methodologies.

Additionally, the Judges find some aspects of Ms. Costantini's criticism of the Bortz survey questions are undermined by her testimony, which depicted a high level of competency as a cable industry executive who possessed a detailed understanding of nuances underlying the questions in the Bortz survey. The Judges note Ms. Costantini's testimony of her own prior roles in which she held significant responsibility for programming carriage decisions for the Time Warner cable system and was [REDACTED] 3/27/23 Tr. at 1642–43 (Costantini). Ms. Costantini's written and oral testimony indicated that *she* would be capable of providing meaningful responses to the sort of questions posed in the Bortz

[180] JSC also noted that in a prior proceeding the Judges noted that it is not unreasonable to think that CSOs have maintained an institutional memory of the requirements of these proceedings. JSC RPFF at 32 and citations therein.

[181] The reference to *lots* of ''corner cases'' represents the use of an engineering term indicating a situation that occurs outside normal operating parameters. *See Corner Case,* Wikipedia, *https://en.wikipedia.org/wiki/Corner_case* (last visited Aug. 28, 2023).

survey, including while in roles that she was not the person most responsible for programming carriage decisions.

With regard to the categories in the Bortz survey questions and the categories in this proceeding, the Judges observe that they have not changed for decades, giving CSOs time to acquaint themselves fully with the programming comprising each agreed category. In the Judges view, it is not unreasonable to conclude that, even with changes in personnel, the CSOs have maintained an institutional awareness of the subjects and categories at issue in the survey and in this proceeding, and therefore that the Bortz respondents had adequate ability to understand the relevant terminology in the Bortz questions.

Based on the entirety of the record, the Judges find that the industry experts that responded to the Bortz survey were sufficiently equipped to offer reliable evidence indicative of relative marketplace value. The Judges do not find that the respondents' capacity to accurately answer the survey questions or understand the categories at issue serves as a reason to disregard the Bortz survey. Furthermore, the Judges do not find that respondents' capacity serves as a significant negative factor in the weighting of the various allocation methodologies at issue in this proceeding.

In sum, the Judges agree that the Bortz surveys are far from a perfect measure of relative market value, as discussed *infra.* However, based on the entirety of the record, the Judges find that despite the offered criticisms, the surveyed cable system executives were sufficiently identified, competent and familiar with the subject matter to provide reasonably reliable responses.[182]

XVI. Changed Circumstances

The Judges may vary from prior decisions when there are (1) changed circumstances from a prior proceeding or (2) evidence on the record before the Judges that requires prior conclusions to be modified regardless of whether there are changed circumstances.[183]

In the 2014–2017 period, several widely agreed upon changed circumstances have taken place including (1) WGNA's conversion to a cable network,[184] (2) the reclassification of PTV signals from exempt to non-exempt,[185] and (3) the rise in streaming on alternative platforms.[186] Additionally, the Judges observe that the record regarding the conduct and development of the survey and regression methodologies has become more detailed than in prior proceedings. Based on the agreed upon record and Judges' findings here and throughout the determination, the Judges find that significant changed circumstances occurred across the relevant period.

XVII. Survey Evidence and Expert Testimony Relying On Surveys

A. Background

Three of the six parties in this proceeding rely on survey evidence to support their arguments concerning the allocation of shares of the subject royalty funds. For more than 40 years, a survey approach has been offered in royalty distribution proceedings before the CRB and its predecessor bodies (the CRT and CARP), more recently in *Distribution of the 2004 and 2005 Cable Royalty Funds* [187] and *Distribution of Cable Royalty Funds,* Docket No. CONSOLIDATED 14–CRB–0010–CD (2010–2013).[188] In the latter proceeding, data from three separate surveys administered to cable system operators (CSOs) were offered during the hearing, and then analyzed by the Judges in connection with their final allocation distribution. *See* 2010–13 Determination at 3582; 4/3/2023 Tr. 2825 (Trautman). In this proceeding, only one survey was conducted for use in possible litigation in connection with royalty distribution pursuant to section 111 of the Copyright Act, produced during discovery in accordance with applicable regulations,[189] [190] and then offered by a party during the hearing. In particular, JSC, as supported by fact and expert testimony, argues that a constant sum survey (in which survey respondents allocate a fixed sum across different categories, at least in this case, adding up to 100 percent) is well-suited to revealing relative market values of distant signal programming to CSOs. Specifically, JSC argues that the Bortz Surveys,[191] which it commissioned and offered for the years 2014 through 2017, reliably reveal market value relevant to this proceeding.[192] *See, e.g.,* JSC PHB at 43–71; 4/3/2023 Tr. 2822–23 (Trautman). CTV and SDC also make arguments that rely on the Bortz Surveys, as did some of their experts who testified during the hearing. *See, e.g.,* CTV PHB at 1–3, 42–79; Settling Devotional Claimants' Post-Hearing Brief at 64–85 (SDC PHB). Yet, CCG, Program Suppliers and PTV, supported by testimony of their experts, oppose reliance on the Bortz Surveys. *See, e.g.,* Post-Hearing Brief of The Canadian Claimants Group at 50–77 (CCG PHB); PS PHB at 9–10, 57–77; PTV PHB at 38–71, 81–82.

In addition, CTV called as an expert witness, Prof. Robert A. Papper,[193] who testified as to trends in the local television news industry, and particularly his opinion as to the impact of those trends on the relative value of CTV programming during the period 2014–2017. His opinion relied in large part on the results of an annual survey that he has directed for many years, which is called the Radio Television Digital News Association Annual Survey (RTDNA Survey),[194] especially articles and studies (mainly authored or co-authored by Prof. Papper) that concern the results of the RTDNA Surveys for the period 2014–2017. RTDNA Survey information, and the articles and studies on which Prof. Papper relied, are appended to his written direct testimony. *See, e.g.,* 4/11/23 Tr. 4361–63 (Papper); Written Direct

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[182] Regarding faulting the survey for excluding PTV-only CSOs from the 2014 through 2017 surveys received in this proceeding, the Judges address and account for the issue *infra/supra* (addressing application of adjustment).

[183] 2010–13 Determination at 3557 citing 1998–99 Librarian Order at 3613–14.

[184] *See, e.g.,* Harvey CWDT ¶ 7. (Distant signal carriage patterns in 2014 closely resembled those from the 2010–2013 period. By contrast, starting in 2015, following the conversion of WGNA from a superstation to a cable network at the end of 2014, CSOs significantly decreased their use of the section 111 license, with the vast majority of systems electing to carry far fewer distant signals.); *See also,* Marx WRT ¶¶ 6, 60; Marx ACWDT at 16, 20–26, ¶ 43; Bennett ACWDT at 11.

[185] *See, e.g.,* Marx ACWDT ¶¶ 76–77, pp.28–29.

[186] *See, e.g.,* Witmer WRT ¶ 33, p.14; Costantini WDT ¶ 20, p.7; Alany WDT at 12.

[187] See *2*004–05 Distribution Order.

[188] *See* 2010–13 Determination at 3552, 3582.

[189] *See, e.g.,* Order 27 Granting in Part and Denying in Part PTV Motion to Compel JSC to Produce Documents (Feb. 15, 2023); Order 30 On Public Television's Order to Enforce Order 27 (Mar. 31, 2023); Order 31 Further to Order 30 on Public Television's Motion to Enforce Order 27 (Apr. 12, 2023).

[190] The Judges entered a Protective Order on February 17, 2022, pursuant to a Joint Motion filed by all participants. Order No. 27 created a subset of further restricted information consisting of the identities or other personally identifiable information (PII) of Bortz Survey respondents for the years 2014–2017. *See* Order 27 at 5 n.6, 57.

[191] JSC presented the Bortz Survey in documentary form in a report, entitled ''Cable Operator Valuation of Distant Signal Non-Network Programming: 2014–17'' (Bortz Report). During the hearing, the Bortz Report was received into evidence as Trial Ex. 7101. 3/20/2023 Tr. 305, 316.

[192] JSC offered the first Bortz Survey to the CRT in 1983. 4/3/2023 Tr. 2824–25 (Trautman); Bortz Rep. app. A; 2010–13 Determination at 3582.

[193] Prof. Papper was qualified as an expert in broadcast and digital journalism. 4/11/23 Tr. 4370 (Papper). He was retained by the National Association of Broadcasters on behalf of CTV (*i.e.,* the CTV claimants in this proceeding). Papper WDT at 1.

[194] The RTDNA survey was conducted for at least two decades before Prof. Papper began to administer it in 1994. 4/11/23 Tr. 4367 (Papper).

Testimony of Robert Papper, Trial Ex. 7201 (Papper WDT); Papper WRT.

An issue was raised as to whether or not large portions of Prof. Papper's testimony should be viewed as the introduction of a survey or surveys, governed by 37 CFR 351.10(e) and, if so, whether CTV has complied with the production requirements set forth therein. Indeed, before the hearing, Program Suppliers filed their Motion *in Limine* to Exclude Portions of the Testimony of Professor Robert A. Papper (MIL) (eCRB no. 27485). In denying the MIL, the Judges determined, *inter alia,* that the written direct and rebuttal testimonies, including the portions subject to the MIL, ''express detailed opinions based in large part on certain RTDNA Surveys, allowing Professor Papper to be examined on his opinions,'' but that ''would not necessarily mean that the surveys were offered or received into evidence.'' Order 29 at 8. Application of section 351.10(e) was not required at that time. *Id.* Program Suppliers made similar objections to portions of the Papper testimonies during the hearing. *See* 4/11/23 Tr. 4354–55, 4366 (Papper); 4/12/23 Tr. 4445–52 (Papper). Subsequently, Program Suppliers filed their Motion to Strike Portions of the Written and Oral Testimony of Robert A. Papper (eCRB no. 28213). As discussed in Order 39 denying the motion to strike, the RTDNA Surveys were not conducted for the purpose of litigation or offered independently during the hearing as evidence. Rather, the RTDNA Surveys were relied on by Prof. Papper in forming and presenting his expert opinions, and the weight to be accorded data from the RTDNA Surveys shall be determined within the context of evaluating Prof. Papper's expert opinions.

B. The Bortz Surveys

1. Conduct of the Bortz Surveys for 2014 Through 2017

During the hearing, JSC called James M. Trautman, Managing Director of Bortz Media & Sports Group, Inc. (aka Bortz Media), to sponsor the Bortz Surveys, and their report (Bortz Report) which formed part of Mr. Trautman's written direct testimony. Indeed, the Bortz Surveys, including their report, were prepared under Mr. Trautman's direct supervision at the request of Major League Baseball, the National Football League, National Basketball Association, Women's National Basketball Association, National Hockey League and the National Collegiate Athletic Association (*i.e.,* JSC in this proceeding). Written Direct Testimony of James M. Trautman, Trial Ex. 7100, at 1 (Trautman WDT); 4/3/2023 Tr. 2816–20 (Trautman). For nearly forty years, Mr. Trautman has supervised market research addressing a wide range of issues, for a variety of clients, affecting the cable and satellite television industries, including issues related to the valuation of television programming. Mr. Trautman has had primary responsibility for management of previous CSO studies conducted by Bortz Media for JSC and has testified concerning these studies in several proceedings before the Judges of the CRB and their predecessors. In the 2010–13 cable royalty distribution proceeding, he was qualified as an expert; and in this proceeding, he was qualified as an expert in market research, including survey research, applied market analysis and valuation in the cable and broadcast television industries. 4/3/2023 Tr. 2821 (Trautman).

As explained by Mr. Trautman, the Bortz Survey is a telephone survey. He further testified that each Bortz Survey offered in this proceeding is a survey of local CSOs and was designed to address the relative value that distant signal programming has to cable operators, or would have in a free market. *See* 4/3/2023 Tr. 2821–22 (Trautman). As explained by Dr. Mathiowetz,[195] the Bortz Survey may be termed an establishment survey because respondents answered questions of behalf of a business or other entity rather than themselves. 4/10/2023 Tr. 3835 (Mathiowetz).

After a Bortz Survey was first offered in a royalty proceeding in 1983, changes have been made to the design of the survey, sometimes in consultation with experts outside Bortz Media or its predecessor company. Changes were made for the Bortz Surveys offered in this proceeding, as compared to those offered in prior royalty proceedings, including the most recent proceedings for distribution of 2010–2013 royalties. *See* 4/3/2023 Tr. 2824 (Trautman); 4/4/2023 Tr. 3013 (Trautman); 2010–13 Determination at 3582. For example, in 2015–2017, the number of cable systems eligible for inclusion in the Bortz survey had decreased, falling from 788 (in 2014) to 328–361 (for 2015–2017). Bortz Media responded by shifting from sampling eligible systems for 2014 (as it had also done in earlier surveys) to attempting what it refers to as a census of all eligible systems for the surveys conducted for 2015, 2016 and 2017.[196] Thus, for 2015–2017, Bortz Media states that all eligible systems had an opportunity to respond to the surveys. *See* Bortz Rep. at 21. Furthermore, in response to additional changes in the cable industry, Bortz Media modified its questionnaire in 2015–2017 to account for WGNA's conversion to a cable network, which has already been discussed with respect to the regression evidence received in this proceeding.[197]

As in earlier surveys, for the 2014–2017 period at issue in this proceeding, Bortz Media surveyed so-called ''Form 3'' cable systems. Form 3 systems are those that had at least $527,600 in semiannual gross receipts from retransmitting broadcast signals to their subscribers.[198] According to the Cable

[195] Dr. Nancy Mathiowetz was called by JSC as an expert witness at the hearing, and was qualified as an expert in survey research methodology, questionnaire design and statistics. Dr. Mathiowetz has testified before on behalf of JSC. 4/10/2023 Tr. 3828, 3835 (Mathiowetz); Mathiowetz CWDT; 2010–13 Determination at 3587.

[196] Dr. Mathiowetz testified that she treated each of the Bortz Surveys for 2015 through 2017 as a sample rather than a census. She testified that while the Bortz Survey goal was to include each eligible CSO, there is a different expectation with respect to those Bortz Surveys and the data collection effort compared to, for example, that of the decennial census in the United States in which the goal is to measure absolutely every single person in the country. 4/10/2023 Tr. 3842–47 (Mathiowetz). Thus, when Dr. Mathiowetz made computations of standard errors for the Bortz Survey for 2015 through 2017, she treated each survey as a sample. 4/10/2023 Tr. 3844 (Mathiowetz).

[197] Specifically, Bortz Media used two survey instruments for the 2014 cable operator survey. There was one form for survey respondents whose cable systems carried distant signals in addition to, or other than, WGNA. Appendix B (entitled ''Survey Instruments'') to the Bortz Report contains the additional distant signals (ADS) questionnaire that was used with those survey respondents. There was a second form for respondents whose cable systems carried WGNA as their only distant signal (also included in the Bortz Report, app. B). When using the second form, respondents were provided with specific information about (and asked to value only) the compensable programming on WGNA. For the years 2015 through 2017, only the ADS questionnaire was used because WGNA was no longer a distant signal. Bortz Rep. at 24–25. Similarly, changes were made to the Bortz weighting and projection approach for 2015–2017 to account for the changes to the distant signal landscape in that time period. *See id.* at 21 (citing Bortz Rep., Section II).

[198] As indicated by Dr. Mathiowetz in her written direct testimony, pursuant to section 111 of the Copyright Act, cable systems are classified into three tiers based on the level of gross receipts that they receive from their subscribers for the retransmission of over-the-air broadcast signals. Small-sized and medium-sized systems pay a flat royalty fee. With respect to large cable systems (that use ''Form 3'' when filing their SOAs at the United States Copyright Office), royalties are calculated as a percentage of their gross receipts based on the distant signals they retransmit. Yet, without regard to what (if any) distant signals a system retransmits, all Form 3 systems must pay at least a minimum royalty fee. *See* Mathiowetz CWDT at 6–7 (citing 2010–13 Determination at 3553 and 17 U.S.C. 111(d)(1)(B)–(C)). *See also* United States Copyright Office, Statement of Account, SA3 (Long Form), *https://www.copyright.gov/forms/sa3.pdf* (current) (for use when a system's ''semiannual gross receipts

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Data Corporation (CDC), which compiles data from the statements of account (SOAs) that cable systems file with the Copyright Office, Form 3 systems accounted for more than 95 percent of total royalty payments made by cable operators from 2014–2017. Furthermore, Form 3 systems, unlike the smaller Form 1 and 2 systems, are well-suited for Bortz surveys because they identify in their SOAs the distant signals that they retransmitted. Bortz Rep. at 20. Nevertheless, inasmuch as some Form 3 cable systems carry either no distant signals, or carry only distant signals representing a single programming category (*i.e.,* only PTV signals or only Canadian signals), Bortz Media determined that it would not be possible to obtain a comparative value judgment from survey respondents regarding their distant signal programming. Therefore, as it has done in connection with surveys offered in previous proceedings, Bortz Media did not interview, or attempt to interview, those systems in connection with the 2014–2017 Bortz Surveys. *Id.*

The level of copyright royalty payments played an additional role with respect to the 2014 Bortz Survey. As discussed above, for the 2014 survey, Bortz Media attempted to contact what it terms ''a stratified random sampling of Form 3 cable systems,'' with the stratification based on copyright royalty payments. Bortz Rep. at 20. JSC's expert witness, Dr. Mathiowetz testified that as in the proceeding for 2010–2013 royalties, her opinion is that ''the use of a stratified sample results in an efficient sample that assures the resulting sample mirrors the population of interest.'' Corrected Written Direct Testimony of Nancy Mathiowetz, Ph.D., Trial Ex. 7107, at 7 (Mathiowetz CWDT). In this case, Bortz Media obtained data from records compiled by CDC, indicating the royalty amounts paid by all Form 3 systems, based on SOAs filed by cable systems for the first accounting period of each survey year. Bortz Media then constructed a sampling plan so that proportionately more systems with large royalty payments were sampled relative to systems with small royalty payments. Specifically, the stratified sample included 361 Form 3 cable systems that collectively paid approximately 86 percent of the total Form 3 royalties. Bortz Media reasoned that cable systems that carried distant signals in 2014 were overwhelmingly paying copyright royalties that were derived directly from the distant signals they actually chose to carry, and further, while systems paying the largest royalties were typically larger systems (as measured by subscribers served), they also reported carrying more distant signals on average. Thus, Bortz Media concluded that, in general, systems paying more royalties were making more use of the section 111 license. Bortz Rep. at 20–21.

Once the CSOs for inclusion in the surveys were identified, Bortz Media used the *Television & Cable Factbook* (*Factbook*), as it has in the past, to identify contacts for each respective system, particularly telephone numbers. The *Factbook* usually lists approximately three to six managers or executives for each system. Bortz Media usually selects the senior-most executive from that cable system to list as the initial point of contact or the survey questionnaire. 4/3/2023 Tr. 2844–55 (Trautman); Bortz Rep. at A–17 n.57.

Bortz Media retained Sandra Grossman (then, of THA Research) to conduct telephone interviewing for the 2014–2017 cable operator surveys. Ms. Grossman specializes in conducting executive interviews, particularly in the cable industry. Indeed, she has provided market research to cable television industry clients for more than two decades, during which she and her company have been retained by Bortz Media or its predecessor for 17 cable operator surveys, starting with the 2001 survey and continuing through the 2017 survey received in this proceeding. Ms. Grossman personally conducted approximately 65 percent of the interviews for the 2014–2017 surveys. It is unclear whether Ms. Grossman relied solely on the information compiled by Bortz Media from the *Factbook* to contact potential respondents, or whether she also performed internet searches to obtain contact information. Three or four additional interviewers were supervised by Ms. Grossman, and each specialized in surveying professional and managerial personnel, with at least five years of such experience. Interviewers were instructed to call back each cable system as often as necessary to obtain a completed interview or refusal. For almost every completed interview, no more than three direct contacts with the eventual respondent were required. Tr. 2841–45, 3258 (Trautman); Bortz Rep. at A15–17.

Interviewers were instructed that once they had made contact with a cable system, they should ask first for the system executive identified in advance as most likely to have responsibility for programming decisions, and to confirm that he individual was the person ''most responsible for programming carriage decisions made'' by the system. The interviewers were instructed that if the identified executive did not fit the description, the interviewer was to ask for the person who was most responsible for programming carriage decisions. Calls were placed to the cable system until the individual on the telephone indicated that he or she was the individual most responsible for programming carriage decisions. In all cases, the eventual survey respondents were required to confirm that they were most responsible for programming carriage decisions made by their systems. Bortz Rep. at A–17.

Indeed, the ADS questionnaire which, as discussed above, was used for many respondents for 2014, and all respondents for 2015–2017, comprised four questions for the respondent.[199] Question 1 asked the respondent, ''Are you the person most responsible for programming carriage decisions made by your system during [the year in question] or not?'' Bortz Rep. app. B. If the response was no, the questionnaire (*e.g.,* for 2014) instructs the interviewer, ''ASK TO SPEAK WITH PERSON MOST RESPONSIBLE FOR THE SYSTEM'S PROGRAMMING CARRIAGE DECISIONS IN 2014. REPEAT INTRODUCTION AND Q.1.'' *Id.*

After the survey respondents were qualified, the interviewers proceeded to the next questions. Questions 2 and 3 in the cable operator survey are designed by Bortz Media as preliminary questions intended to focus respondents on the particular distant signals carried by the system in the survey year, the types of programming on those signals, and certain factors (importance and cost) [200] that contribute to the key allocation (which Bortz Media sometimes calls a ''budget'' question) that will be required in the fourth and final survey question.

for secondary transmissions (the figure you give in space K of the form) is $527,600 or more. . . .''); United States Copyright Office, Old Cable Statement of Account Forms, *https://www.copyright.gov/licensing/saold.html.*

[199] The WGNA questionnaire used for 2014 had differences in wording specific to carriage of WGNA. *See* Bortz Rep. at 83–86.

[200] The Bortz Report notes that in the 2010–13 Determination, the Judges stated that the reference to expense in Question 3 ''muddled the concepts of cost and value'' and that ''[t]his may have injected some confusion into the respondent's estimation of relative value.'' Bortz Rep. at 27 n.38 (quoting 2010–13 Determination at 3590); 4/3/2023 Tr. 2895 (Trautman); 4/5/2023 Tr. 3466 (Trautman). Mr. Trautman, on behalf of Bortz Media stated in the report that he respectfully disagrees with this criticism, and did not find any evidence of confusion in the 2010–13 Bortz surveys, or in the 2014–2017 Bortz surveys. In any event, the 2010–13 Determination was not available until October 2018, when the 2014–2016 surveys had already been completed, and the 2017 questionnaires were in the field. Thus, there was no opportunity for Bortz Media to evaluate potential changes to this survey question. *Id.*

Bortz Rep. at 27, 30. In Question 2, the interviewer identified the particular distant signals (including call letters) for a specific respondent's cable system (Question 2a). Bortz Media obtained the distant signals for each system by reviewing each system's SOA at for the year in question that was filed at the Copyright Office.[201] The interviewer then asked the respondent to rank up to seven[202] non-network programming categories on those distant signals in order of how important it was for the system to offer each category.[203] *Id.* at 24–27; 4/3/2023; Tr. 2861–64 (Trautman). Indeed, for Questions 2, 3 and 4, the number of programming categories provided to each respondent depended on whether the distant signals listed on the respondent's SOA included public television, Canadian, or live professional and college team sports programming, with the corresponding categories excluded when the respondent CSO did not carry the relevant programming on a distant basis. Bortz Rep. at 26 n.36.

When asking Question 3, the interviewer asked the respondent to rank the same categories of non-network programming broadcast by the same stations in order of how expensive it would have been to acquire that programming if the system had been required to purchase it directly in the marketplace. *Id.* at 26–27, app. B (Ex. 7101 at 80).

The final question, again for the ADS questionnaire only, was Question 4, the constant sum question. In this question, the interviewer asked the respondent to value the various types of non-network programming on the distant signals that the respondent's system carried during the relevant year. This required the respondent to allocate a percentage of a finite dollar amount to each of the program categories on the distant signals that the system retransmitted. *Id.* at 27–29. For example, Question 4a in the survey instrument that incorporated the year 2014 in the text was, as follows:

> 4a. Now, I would like you to estimate the relative value to your cable system of each category of programming actually broadcast by the stations I mentioned during 2014, excluding any national network programming from ABC, CBS and NBC. Just as a reminder, we are only interested in U.S. commercial station(s)_____, U.S. non-commercial station(s) _____, and Canadian station(s) _____.
>
> I'll read each of the seven programming categories we've been discussing again to give you a chance to think about them; please write the categories down as I am reading them. (READ PROGRAM CATEGORIES IN ORDER, STARTING WITH CATEGORY MARKED BY THE NUMBER ''1''.)[204] Assume your system spent a fixed dollar amount in 2014 to acquire all the non-network programming actually broadcast during 2014 by the stations I listed. What percentage, if any, of the fixed dollar amount would your system have spent for each category of programming? Please write down your estimates, and make sure they add to 100 percent. What percentage, if any, of the fixed dollar amount would your system have spent on (READ PROGRAM CATEGORY MARKED BY THE NUMBER ''1'')?[205] And what percentage, if any, would your system have spent on (READ NEXT PROGRAM CATEGORY)? (COMPLETE LIST IN THIS MANNER.)

Id., app. B (Ex. 7101 at 81).

The survey instrument instructed the interviewer to prompt the respondent if the percentages did not add up to 100 percent. *Id.,* app. B (Ex. 7101 at 81). As Question 4b, the interviewer read back the categories and estimates, and then asked whether each respondent wanted to make any changes. Question 4b concludes the survey; and the Question ends the interviewers thanking the respondents were for their time and cooperation. *Id.,* app B (Ex. 7101 at 82).

The interviews were conducted after the calendar year in question.[206] Interviews were completed with between approximately 54 and 58 percent of eligible cable systems.[207] Upon completion of the survey, THA Research returned the completed questionnaires to Bortz Media for proofing and data entry. Bortz Rep. at A–16.

2. Results Reported From the Bortz Surveys

As in prior distribution proceedings, in order to address the issues relevant to this proceeding, the responses provided by the Bortz Surveys, particularly the constant sum rankings obtained through Question 4, must be expressed in terms of percentage allocations of the cable royalty funds to be distributed for the years surveyed, which in this case are 2014 through 2017. The procedures used by Bortz Media to perform obtain such results are in the Bortz Report. *See, e.g.,* Bortz Rep. at A–18 through A–26.[208]

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[201] For each of questions 2, 3 and 4, respondents that reported carrying more than eight distant signals were only asked about their eight most widely carried distant signals. This approach was also followed in the 2010–2013 surveys. Bortz Rep. at 25 n.35; 2010–13 Determination at 3587 (''In the Bortz Survey, interviewers asked respondents about a maximum of eight distant signals even if their systems carried more.'').

[202] The seven categories, which could be tailored for each respondent, were: (1) Movies; (2) Live, Professional and College Team Sports; (3) Syndicated Shows, Series and Specials; (4) News and Other Station-Produced Programs; (5) PBS and All Other Programming Broadcast by Noncommercial Station(s) _____; (6) Devotional Programs; and (7) All Programming Broadcast by Canadian Station(s) _____. Bortz Rep. at 32 & app. B at 79. These categories were intended by Bortz Media to correspond with the program category definitions adopted by the Judges. *Id.* at 26, app. C (''Program Category Definitions'').

[203] For example, for 2014, Question 2b of the survey instrument reads: ''Now, I'd like to ask you how important it was for your system to offer certain categories of programming that are carried by these stations. When you consider this, please exclude from consideration any national network programming from ABC, CBS and NBC. I've grouped the non-network programming on these broadcast stations into seven categories. I will read these seven categories to you to give you a chance to think about their relative importance (READ EACH CATEGORY BELOW, STARTING WITH THE CATEGORY MARKED BY THE NUMBER ''1''). Considering only the non-network programming on these broadcast stations, please rank these seven categories in order of their importance to your system in 2014, with one being the most important category and seven being the least important category. What is your ranking of importance for the 2014 (READ FIRST CATEGORY, AS MARKED BY THE NUMBER ''1'') programming on the broadcast stations I listed. (REPEAT FOR ALL SEVEN CATEGORIES, IN ORDER LISTED BELOW. ENTER NUMERICAL RANK ON TABLE BELOW.)''

Bortz Rep. app.B at 79.

[204] To prevent ordering bias, for each questionnaire, the interviewer was provided with a preset, computer-generated random order in which to read the program types, in order to prevent ordering bias. Bortz Rep. at 29.

[205] For Question 4, the categories, among other things, incorporated the survey year, and other slight variations to the categories listed for Questions 2 and 3. The possible seven categories, to be identified by the interviewer, were: (1) Movies broadcast during (survey year) by the U.S. commercial stations I listed; (2) Live professional and college team sports broadcast during (survey year) by the U.S. commercial stations I listed; (3) Syndicated shows, series and specials distributed to more than one television station and broadcast during (survey year) by the U.S. commercial stations I listed; (4) News and public affairs programs produced by or for any of the U.S. commercial stations I listed, for broadcast during (survey year) only by that station; (5) PBS and all other programming broadcast during (survey year) by U.S. noncommercial station(s) _____; (6) Devotional and religious programming broadcast during (survey year) by the U.S. commercial stations I listed; and (7) All programming broadcast during (survey year) by Canadian station(s) _____. Bortz Rep. at 28, app. B (7101 at 81) (2014 survey instrument). These categories were intended to correspond with the program category definitions adopted by the Judges. *Id.* at 28, app. C (''Program Category Definitions'').

[206] For the 2014, the survey period was 8/11/15–4/7/16; for 2015, the survey period was 8/11/16–4/23/17; for 2016, the survey period was 10/06/17–4/26/18; and for 2017, the survey period was 7/01/18–6/26/19. Bortz Rep. at A–16.

[207] For 2014, the response rate was 53.8% (170 surveys completed); for 2015, the response rate was 54.3% (197 surveys completed); for 2016, the response rate was 57.7% (199 surveys completed); and for 2017, the response rate was 54.6% (179 surveys completed). Bortz Rep. at A–16.

[208] Bortz weighted survey results for 2014 based on the royalties paid by responding systems in the first half of 2014, and applied those results to the universe of Form 3 system royalties (consistent with the weighting approach used in all prior Bortz surveys). For the 2015 through 2017 surveys, inasmuch as most systems carrying distant signals had become Minimum Fee Systems, the methodology was changed to weight the results

Continued

Table I–1. Bortz Survey Relative Value Allocation by Year, 2014–17 from the Bortz Report shows the following compiled results:

TABLE I—1 BORTZ SURVEY RELATIVE VALUE ALLOCATION BY YEAR, 2014–17

	Year				
	2014 (n=170) (%)	2015 (n=197) (%)	2016 (n=199) (%)	2017 (n=179) (%)	Average: 2014–17 (%)
Live Professional and College Team Sports	40.4	28.5	28.5	31.5	32.2
News and Public Affairs Programs	26.0	29.7	30.0	30.6	29.1
Syndicated Shows, Series and Specials	10.4	12.7	14.8	14.9	13.2
Movies	11.4	13.8	13.1	9.0	11.8
PBS and All Other Programming on Noncommercial Distant Signals	5.9	7.9	6.8	7.8	7.1
Devotional and Religious Programming	5.6	6.5	6.0	5.4	5.9
All Programming on Canadian Signals	0.3	1.0	0.8	0.6	0.7
Total	100.0	100.0	100.0	100.0	100.0

Bortz Rep. at 2; *see* CTV PHB at 81 (summary of results for 2014 through 2017, with acronyms of claimant groups substituted for program categories).

Nevertheless, as discussed below, no party unequivocally proposes that the initial results, or allocations, of the 2014 through 2017 Bortz Surveys, reflected in Table I–1 of the Bortz Report, be used directly to allocate shares of the royalty funds that are the subject of this proceeding.[209]

3. Issues Raised With Respect to the Bortz Surveys

a. The Exclusion of PTV-Only and Canadian-Only Systems

As already detailed, Bortz Media chose not to survey Form 3 cable systems that carried no distant signal, or that carried only distant signals representing a single programming category. Thus, as it has for surveys used in connection with prior proceedings, Bortz Media excluded all PTV-only CSOs and Canadian-only CSOs from the 2014 through 2017 surveys received in this proceeding. *See* Bortz Rep. at 20; 2010–13 Determination at 3583; *2*004–05 Distribution Order at 57067. Bortz Media's stated rationale for this decision is that if PTV-only and Canadian-only CSO were survey respondents, they would not be able to provide comparative value judgments regarding their distant signal programming. *Id.* While PTV-only and Canadian-only CSOs may be limited in their ability to respond to provide a response to the Bortz Survey value question as formulated, in prior proceedings, the Judges have found that, while one must not ''overstate the impact of this problem,'' the exclusion of such cable systems ''clearly biases the Bortz estimates downward for PTV and Canadian programming;'' and further, it has been observed that ''the Bortz survey may well be improved in this regard, either through the reformulation of the questions asked in the survey and/or by revisiting the underlying survey sample plan.'' *Id.* In any event, the Bortz Media surveys at issue in this proceeding exclude PTV-only and Canadian-only CSO, and even the parties that rely on the Bortz Surveys, cognizant of adjustments made in prior proceedings, offer certain adjustments to the initial results of the Bortz Surveys. *See, e.g.,* JSC PHB at 83–84; SDC PHB at 82–85; CTV PHB at 79–84.

The adjustments were offered largely with the so-called ''McLaughlin Adjustment'' in mind, which has a long history in connection with the Bortz Survey. For example, in the 2004 and 2005 proceeding, Linda McLaughlin, an economist, set forth calculations to the Bortz Survey results to make, what the Judges deemed to be, an ''appropriate adjustment to the PTV share,'' although her efforts did not fully mitigate deficiencies in the Bortz results with respect to others, such Canadian claimants. 2004–05 Distribution Order at 57064, 57070, 57073 (her ''efforts to correct for cable systems excluded from the survey because they only carry a distant Canadian signal do somewhat ameliorate the under-representation of Canadian signals in the overall survey results''). In the 2010–13 proceeding, Ms. McLaughlin and another witness, David Blackburn, set forth methodologies for augmented PTV and CCG shares, referred to as the ''McLaughlin/Blackburn adjustments,'' which assume, for example, that the PTV-only systems would assign a relative value to PTV of 100%.[210]

based on the Base-plus-3.75 fees attributable to the actual signal carriage of the Form 3 systems, and to apply the results using signal carriage-based fee calculations rather than actual royalties paid. Bortz Rep. at 21–24, A–18.

[209] *See* JSC WDS at 12–13 (''Claim of JSC''); *but see* JSC PHB at 82 (''the evidence demonstrates that the adjusted Bortz survey results are the most accurate and reliable basis for allocating the 2014–17 cable royalty funds''), 84.

[210] In her testimony during the 2010–2013 proceeding, Ms. McLaughlin explained the adjustment, as follows: Q. In order to do your augmentation of the Bortz survey, what were your initial assumptions? A. I assumed that the systems that I was adding back in would have to answer the survey in the same way it was asked for the other people, and that is they were only allowed to respond to the category they are carrying and they are supposed to split up their value among the categories they are carrying. So they would have to say 100 percent for PTV, if that's all they carried. And if all they carried was Canadian signal, they'd have to say 100 percent for Canadian. And if they carried both, they'd have to say something between, you know, zero for one and 100 to the other or 100 for one and zero to the other. Q. How about with regard to response rate? Did you make any assumptions about that? A. Oh, when I added them in, I—I followed the same response rate. If you look at the—some of the highlighted numbers, so in the final eligible sample for the year that we're looking at, 2010, in all the strata together, there were 288 cable systems but only 163 of them completed the surveys. So the response rate, 163 over 288, or, you know, maybe that's, you know, 60 percent, say, 50, 60 percent. So I used that same response rate and I did it actually by strata and applied that to the omitted signal. So I didn't assume that all 16 were included. I only assumed, you know, approximately half of the 16 were included.

Oral Testimony of L. McLaughlin (2010–2013), Trial Ex. 7017, at 27–29.

2010–13 Determination at 3583–85, 3602. In that proceeding, three surveys were received, the Bortz Survey, the Horowitz Survey (which ''did not exclude from its sample systems that distantly carried only PTV and/or Canadian signals'') and the Ringold Survey (which ''focused on Canadian signals'').[211] *Id.* at 3582, 3591. Despite the availability of McLaughlin/Blackburn adjustments ''to augment'' the Bortz Survey results, the Judges placed more weight on the Horowitz results, for several reasons but ''particularly the acknowledged systematic bias against PTV and CCG programming,'' and thus ''the Judges accord relatively less weight to the 'Augmented' Bortz Survey.' '' *Id.* at 3591. The weighting of the Bortz Survey evidence below that of the Horowitz survey did not, however, mean that the Bortz Survey evidence had no weight or played no role in the Judges final allocations. To the contrary, before setting forth the Judges' final Basic Fund allocation, the Judges defined ''ranges of reasonable allocations for each program category, and in doing so relied on ''[t]he Bortz and Horowitz Surveys, together with the McLaughlin 'Augmented Bortz' results and the Crawford and George regressions, taking into account the confidence intervals (when available) surrounding the point estimates . . . .'' *Id.* at 3610.

In this proceeding, only the Bortz Surveys were offered (*i.e.,* no survey such as Horowitz was offered by any party), and the surveys continue to exclude the PTV-only and Canadian-only distant signal cable systems. Although Bortz Media and Mr. Trautman are highly critical of the McLaughlin Adjustment, nevertheless, Bortz Media includes two approaches for adjusting its initial results, both of which bear some relationship to the McLaughlin Adjustment. Bortz Media's ''Adjustment One'' [212] accepts (while not agreeing with) the McLaughlin assumption of attributing 100 percent of value to the PTV (or Canadian category) when that is the only category the system carries distantly, but does not do so for PTV-only systems in 2015 through 2017 that previously carried WGNA. As to the latter group of systems, Bortz Media instead attempts to predict the average valuation from all systems that carried only PTV and WGNA in 2014. The stated rationale is there is no reason to assume that a CSO changed its valuation of PTV content simply because of the WGNA conversion, and indeed, CSOs surveyed in 2015–2017 did not increase their relative valuation of PTV with regard to systems that carried signals containing both PTV and other claimant categories. As for Bortz-eligible systems that were surveyed, Bortz Media weighted the results based on Base-plus-3.75 fees attributable to the distant signals actually carried by the PTV-only systems.[213] *See id.* at 42–43, app. D (''Potential Bortz Adjustments''). Bortz Media obtained the following, applying its Adjustment One:

POTENTIAL ALLOCATION OF ROYALTIES AMONG CLAIMANT GROUPS, 2014–17 (ADJUSTMENT ONE)

	Year				Average
	2014 (%)	2015 (%)	2016 (%)	2017 (%)	2014–17 (%)
JSC	39.1	25.6	24.3	26.0	28.8
CTV	25.2	26.6	25.6	25.3	25.7
PS	21.0	23.7	23.7	19.8	22.1
PTV	8.2	14.0	16.6	19.5	14.6
Devotional	5.5	5.8	5.1	4.5	5.2
Canadian	1.0	4.4	4.8	4.9	3.8
Total	100.0	100.0	100.0	100.0	100.0

Id. at 43 (Table IV–1).[214]

Bortz Media's ''Adjustment Two'' also attributes 100 percent of value to either the PTV or Canadian category when that is the only category the system carries distantly, even for systems that became PTV-only by default as result of the WGNA conversion. However, PTV-only systems that only carried distant PTV signals within those signals' originating DMAs are excluded. The stated rationale is that those systems have not demonstrated any preference for distant PTV programming based on their actual carriage patterns. Again, consistent with the treatment of Bortz-eligible systems that were surveyed, Bortz performed weighting based on the Base-plus-3.75 fees attributable to the distant signals actually carried by the PTV-only systems. *See id.* at 43, app. D (''Potential Bortz Adjustments''). Bortz Media obtained the following application, applying its Adjustment Two:

POTENTIAL ALLOCATION OF ROYALTIES AMONG CLAIMANT GROUPS, 2014–17 (ADJUSTMENT TWO)

	Year				Average
	2014 (%)	2015 (%)	2016 (%)	2017 (%)	2014–17 (%)
JSC	39.8	25.2	23.5	24.8	28.3
CTV	25.7	26.2	24.8	24.1	25.2

[211] Professor Ringold has previously testified, or otherwise given evidence, in proceedings before the CARP, and the CRB. *See* CCG PFF 601; 2010–13 Determination at 3585. In this proceeding, Prof. Ringold was called to testify by CCG, and was qualified as an expert in survey research methodology. 4/17/2023 Tr. 4950–51 (Ringold).

[212] Bortz Media's Adjustment One is referenced in some of the parties' post-hearing filings as Adjustment 1. *See, e.g.,* SDC PHB at 85; CTV PFF 434.

[213] In Adjustment One, systems that carried both PTV and Canadian distant signals (but no U.S. commercial distant signals) are weighted in the same manner, but with the fees allocated equally among the PTV and Canadian categories. Bortz Rep. at 43 n.45.

[214] The Adjustment One results for 2014 are nearly identical with Mr. Trautman's calculation of the 2014 Bortz results when subjected to the McLaughlin Adjustment. *See* JSC Production Materials, Trial Ex. 3049 (discussed in detail later in the main text).

POTENTIAL ALLOCATION OF ROYALTIES AMONG CLAIMANT GROUPS, 2014–17 (ADJUSTMENT TWO)—Continued

	Year				Average
	2014 (%)	2015 (%)	2016 (%)	2017 (%)	2014–17 (%)
PS	21.4	23.3	23.0	18.9	21.6
PTV	6.5	15.3	19.2	23.4	16.1
Devotional	5.6	5.7	4.9	4.3	5.1
Canadian	1.0	4.3	4.6	4.6	3.6
Total	100.0	100.0	100.0	100.0	100.0

Id. at 43–44 (Table IV–2).

JSC endorses the adjustments calculated by Bortz Media, rather than the McLaughlin Adjustment.[215] JSC does so first by raising a number of supposed faults in the McLaughlin Adjustment. It is argued that PTV-only systems were almost all well below the minimum fee, and by 2016 and 2017, an average of over 93% of PTV-only systems could have carried at least one additional PTV signal to all of their subscribers without having to pay more than the minimum fee, and the calculated Base + 3.75 royalty fee attributable to the signals actually carried on PTV-only systems amounted to only 14 percent of the minimum fee royalties ultimately paid by these systems. Yet, JSC observes, the McLaughlin Adjustment would assume that these systems have an extreme preference for distant PTV programming based on their carriage decisions, even though there was almost never an incremental royalty payment associated with those carriage decisions. Furthermore, JSC argues, over 30 percent of the distant signals carried by PTV-only systems in 2014–17 were carried pursuant to the Must Carry rules or the related multicast agreement. The McLaughlin Adjustment nonetheless would assume that these systems valued their distant PTV signals more than any other categories of programming, even though the systems were required to carry the signals, and PTV was prohibited from charging for the content. JSC argues that inasmuch as the price of these signals would be $0 in the hypothetical market, it makes no sense to assign them 100% of the relative value. JSC PHB at 65–67.

Additionally, JSC argues that while more than half of the PTV-only systems during 2016–17 had carried both WGNA and PTV prior to the WGNA conversion, back in 2014, systems that carried WGNA and one or more PTV distant signals valued PTV in Bortz surveys at just 8.8%. JSC argues that the McLaughlin Adjustment would assume a sudden and major shift in valuation. *Id.* at 67 (quoting 3/30/2023 Tr. 2621 (Majure)).[216] Finally, with regard to the McLaughlin Adjustment, JSC argues that the majority of PTV-only systems only carried PTV signals within the signals' originating DMA. Yet, because only the PTV signal is deemed distant, the McLaughlin Adjustment would assume that these systems only care about the PTV content in that bundle of programming, thereby improperly inferring a set of preferences based on distinct regulatory treatment rather than the actual behavior of the cable systems. It is argued that there is no reason to assume that these systems value distant PTV programming more highly than any other category of content, much less at a 100% relative valuation. *Id.* at 67–68.

In contrast, JSC argues, the alternatives calculated by Bortz Media, Adjustment One and Adjustment Two, is supported by evidence and economic theory, and yields similar valuations among the program categories. *Id.* at 68–69 (citing, *inter alia,* JSC PFF 414 (citing Majure)). Indeed, JSC expert witness, Dr. Majure, testified that the Bortz Adjustments ''avoid these gross misinterpretations that the McLaughlin adjustment would otherwise be adding into the calculations. I don't know that they completely resolve the fundamental issue of the McLaughlin adjustment, however. There's still no reason to think, for any particular PTV system, they have this very strongly different set of preferences, that the only thing they like is Public Television content.'' 3/30/23 Tr. 2624 (Majure).

JSC's allocation request is based only on the Bortz survey, specifically Bortz Media's Adjustment One, whose results are reproduced above. JSC states that it prefers Adjustment One because it accounts for the fact that CSOs did not change their valuation of PTV simply because WGNA was no longer available as a distant signal. JSC PHB at 83–84. JSC claims no share of the Syndex royalties. With respect to the 3.75% royalty fund, JSC argues that the Judges should reallocate the shares attributable to PTV proportionally among the other parties, as PTV is not entitled to a share of the 3.75% royalty funds, as follows:

JSC'S PROPOSED REALLOCATION OF SHARES OF THE 3.75% ROYALTY FUNDS

	Year			
	2014 (%)	2015 (%)	2016 (%)	2017 (%)
JSC	42.6	29.8	29.1	32.3
CTV	27.5	30.9	30.7	31.4
PS	22.9	27.6	28.4	24.6
PTV	0.0	0.0	0.0	0.0
Devotional	6.0	6.7	6.1	5.6
Canadian	1.1	5.1	5.8	6.1

[215] Mr. Trautman did calculate a McLaughlin Adjustment, which he does not recommend. The table he prepared in that regard is set forth *infra.*

[216] Dr. Majure was qualified as an expert in economics and industrial organization, including their application to the cable industry. 3/30/2023 Tr. 2551 (Majure).

Id. at 83–84.

Similarly, SDC supports reliance on the Bortz Surveys for 2014 through 2017 in this proceeding, and supports the application of Bortz Media's Adjustment One. SDC PHB at 81. SDC argues that the McLaughlin Adjustment has always been economically unsound, and in this proceeding, there is new evidence that militates against an application of a McLaughlin Adjustment that assigns a 100% value to PTV and CCG-only stations. *Id.* at 82.

SDC argues that unlike past proceedings, the record here shows that a majority of PTV-only systems' distant carriage occurred exclusively within the DMAs in which the PTV signals originate, and were treated as distant only as a result of a regulatory reporting. Indeed, it is argued, PTV signals are the only category of distant content that CSOs can be required to report as ''distant'' under section 111 when such a signal is actually carried locally to subscribers within the signal's DMA, and all other similarly situated, but commercial, signals would be reported as local signals that are ineligible for section 111 royalties; and accordingly, a CSO's choice to carry a PTV signal within its originating DMA cannot be compared to a CSO's choice to carry other signals and programming, and there is no economic basis to assume that a majority of the PTV-only CSOs had a relatively greater preference for PTV programming than other categories of programming, much less valued at a 100% relative valuation (as past adjustments have considered). *Id.* at 83 (citing, *inter alia,* Harvey WRT ¶¶ 126–131;[217] Bortz Rep. at 17–18 (''throughout 2016–17 approximately 77% percent of the aggregate subscribers served by the PTV Only Systems did not receive any distant signals.''); Majure WDT ¶¶ 150–51).

Additionally, SDC argues that adjusting the Bortz survey results to account for PTV-only systems that were excluded from the Bortz sample would inappropriately assign a 100% value to PTV content on the significant number of systems that were compelled to carry PTV programming and reimbursed for such carriage pursuant to the Must Carry rule. *See Id.* at 83–84 (citing Bortz Rep. at 46; Majure WDT ¶¶ 144; Harvey CWDT ¶ 119 (''[a]pproximately 36 percent of the time that a PTV Only system distantly retransmitted a primary PTV call sign, it was pursuant to the Must Carry rule''). It is argued that there is no reason to expect that PTV-only systems value PTV content that they were compelled to carry at all, let alone at 100%. *See* Majure WDT ¶¶ 144–45. Thus, it is argued, there is also no economic basis to apply a McLaughlin Adjustment to the significant number PTV-only stations carried under the primary channel or multicast subchannel Must Carry rules. *Id.* at 84 (citing Tr. 2566 (Asker)).[218]

Nevertheless, SDC argues, SDC's and JSC's valuation experts have acknowledged that some adjustment to the PTV and CCG shares is appropriate, and the only potential Bortz adjustments presented in this proceeding were set forth by JSC and in the Bortz Report. It is argued that as its evaluation expert John Sanders testified,[219] Bortz Adjustment One in the Bortz Report is preferable to the historic McLaughlin Adjustment and to Bortz Adjustment Two because Adjustment One is substantially ''grounded in the survey data that was collected'' and yields reasonable relative value allocations for each of the participating claimant groups. *Id.* at 84 (citing, *inter alia,* Sanders WRT ¶¶ 43–44).

SDC argues that the Judges should conclude that the Bortz survey is the methodology that best reveals relative market value in this proceeding, but that there is no economic basis for applying the conventional McLaughlin Adjustment in this proceeding. Rather, it is argued, the Judges should find that some modest adjustment for PTV and CCG may be appropriate, and the Judges should additionally find that the Bortz survey's point estimates should be adjusted under Bortz Adjustment One. SDC argues that thus the following relative value allocations are appropriate shares for the Devotional claimants with respect to the Basic Fund: 5.5% for 2014; 5.8% for 2015; 5.1% for 2016; 4.5% for 2017; with 5.2% as the average. *Id.* at 85 (citing Bortz Rep. at 48, SDC PFF 246). SDC further argues that to arrive at the Devotional allocation for the 3.75% Fund, the Judges should, consistent with their decision in the 2010–13 proceeding, reallocate the PTV share of royalties proportionally among the categories that participate in that fund, and make the following allocation of the 3.75% Fund to the Devotional claimants: 6.0% for 2014; 6.7% for 2015; 6.1% for 2016; 5.6% for 2017; with 6.1% as the average. *Id.* at 85; SDC PFF 247 (citing 2010–13 Determination at 3611).

CTV argues that the fee-based regression estimates for 2014 that were made by Prof. Marx,[220] and the Bortz survey results for 2014–2017 provide the most appropriate starting point to determine the relative value of claimant shares in this proceeding. It is argued that the cumulative evidence of record in this proceeding shows that the fee-based regressions overestimate the value of PTV programming, while the Bortz survey underestimates the value of PTV and CCG programming. CTV proposes an adjustment to the Bortz initial results, but not the McLaughlin Adjustment, or Adjustment One or Adjustment Two calculated by Bortz Media. Rather, CTV proposes a share adjustment approach that relies on the estimates from the Marx model and the Bortz Surveys in an attempt to what it terms ''the primary challenge of both methodologies,'' which is how to obtain a reasonable and more reliable estimate of the value of PTV programming during the 2014–17 period. *See* CTV PHB at 79–80.

CTV argues that the Bortz Survey's underestimation of PTV and CCG programming due to the purposeful exclusion of PTV-only and CCG-only systems from the survey, affects results in each year, but not the year-to-year trends obtained from the survey. Thus, CTV proposes a share adjustment approach that combines the Marx non-duplicated minute estimates for 2014 with the Bortz results for 2014 to establish a starting point for allocating shares, and then applies the year-to-year net change in each category derived from the Bortz survey results for each year in 2015, 2016 and 2017. CTV argues, in its view, this provides a the only reliable basis to use regression estimates offered in this proceeding to assist in the determination of relative value of the shares. *Id.* at 81–82. To establish the starting point for shares in 2014, CTV proposes taking the average of the Marx 2014 Bayesian regression and Bortz survey estimates in 2014 for PS, JSC, CTV and PTV, and the maximum amount under either method in 2014, inexplicably for SDC,[221] and

[217] Mr. R. Garrison Harvey was called to testify by JSC, and was qualified as an expert in statistics and applied mathematics. 3/28/2023 Tr. 1772, 1777–78 (Harvey).

[218] Professor Asker was called to testify by JSC, and was qualified as an expert in economics, industrial organization, and econometrics. 3/30/2023 Tr. 2390–91 (Asker).

[219] Mr. John Sanders was called to testify by SDC and was qualified as expert in the valuation of media assets, including television programs. 4/6/2013 Tr. 3694 (Sanders).

[220] Professor Marx was called by CTV and was qualified as an expert economist and econometrician with experience in statistical methods and measurements. 4/11/2023 Tr. 4109 (Marx).

[221] *Cf.* Commercial Television Claimants' Post-Hearing Reply Brief in Support of Proposed Royalty

Continued

also for CCG, as illustrated in the following table. *Id.* at 81–82.

CTV'S PROPOSED STARTING POINT FOR SHARES IN 2014

Valuation Method & Steps	PS (%)	JSC (%)	CTV (%)	PTV (%)	SDC (%)	CCG (%)	Total (%)
Marx 2014—excluding duplicates	19.7	43.9	15.6	16.4	0.5	3.9	100.0
Bortz 2014	21.8	40.4	26.0	5.9	5.6	0.3	100.0
Step 1: average of Bortz and Marx	20.8	42.1	20.8	11.2	.....	.....	.....
Step 2: maximum of Bortz and Marx	.....	.....	.....	.....	5.6	3.9	.....
Step 1 + 2	20.8	42.1	20.8	11.2	5.6	3.9	104.4
Normalizing 1 + 2 (to add up to 100%)	19.9	40.4	19.9	10.7	5.4	3.8	100.0

Id. at 81–82. Applying the net change from the Bortz survey results in 2015, 2016, and 2017 to the starting points established for 2014, provides the proposed shares reflected in the following table, which are presented along with the shares awarded in the 10–13 Final Determination for reference.

CTV'S PROPOSED SHARES

Year	PS (%)	JSC (%)	CTV (%)	PTV (%)	SDC (%)	CCG (%)	Total (%)	Source
2010	26.5	32.9	16.8	14.8	4.0	5.0	100.0	2010–13 Final determination.
2011	23.9	30.2	16.8	18.6	5.5	5.0	100.0	2010–13 Final determination.
2012	21.5	33.9	16.2	17.9	5.5	5.0	100.0	2010–13 Final determination.
2013	19.3	36.1	15.3	19.5	4.3	5.5	100.0	2010–13 Final determination.
2014	19.9	40.4	19.9	10.7	5.4	3.8	100.0	Combined 2014 Bortz and Marx shares.
2015	24.6	28.5	23.6	12.7	6.3	4.5	100.1	2014 proposed shares + 2015 Bortz net change.
2016	26.0	28.5	23.9	11.6	5.8	4.3	100.0	2015 proposed shares + 2016 Bortz net change.
2017	22.0	31.5	24.5	12.6	5.2	4.1	99.8	2016 proposed shares + 2017 Bortz net change.

Id. at 82. CTV argues that no individual valuation method or share adjustment approach is perfect, but its proposed share adjustment approach helps address several evidentiary trends established in this proceeding, including: (1) correcting the over-estimation of PTV programming value under the fee-based regressions and aligning PTV shares more closely with the overwhelming evidence in the record that CSOs would not be willing to pay much, if anything, for the right to retransmit distant PTV stations absent the compulsory license; (2) aligning the value of shares during the 4-year period in a manner that reflects the impact of streaming on the value of programming to CSOs, which supports an increase in CTV and JSC programming relative to Program Suppliers and PTV programming; (3) providing a consistent allocation of shares for PS, JSC, CTV, SDC and CCG since 2010 which more reasonably and realistically reflects how CSOs would assess relative value over time; and (4) provides a reliable and reasonable basis for adjusting shares during the 2015–2017 time period when the estimates from the fee-based regressions are meaningless and uninformative and should not be given any weight in determining shares in this case. *Id.* at 83.

PTV argues that the Bortz Surveys for 2014 through 2017 should be rejected in their entirety due to numerous deficiencies in the way that that they were conducted, including their overwhelming bias against Public Television. Nevertheless, PTV acknowledges that the Judges and their predecessors have accepted the Bortz survey results but only after applying the conventional McLaughlin Adjustment to account for the bias against Public Television, and even then, only as a relative value floor for Public Television's allocation award. PTV PHB at 81–82 (citing PTV PCL ¶ 41; PTV PFF ¶ 204 (citing *Distribution of 1998 and 1999 Cable Royalty Funds,* Dkt. No. 2001–8 CARP CD 98–99, Determination at 24; *Report of the Copyright Arbitration Royalty Panel,* Dkt. No. 94–3–CARP–CD–90–92, at 123–24; *1998 Cable Royalty Distribution Proceeding,* Dkt. No. CRT–91–2–89CD, 57 FR 15286, 15299–300 (Apr. 27, 1992); *1983 Cable Royalty Distribution Proceeding,* Dkt. No. CRT–84–1 83CD, 51 FR 12792, 12811 (Apr. 15, 1986); *2*004–05 Distribution Order at 57070–71 n.20; 2010–13 Determination at 3610; 4/4/2023 Tr. 3139–41 (Trautman)).

PTV argues that at the hearing, Mr. Trautman conceded that he calculated a McLaughlin Adjustment for this proceeding two years before filing his written direct testimony, which showed Public Television's annual shares for 2014–17 as 8.4%, 43.6%, 48.4%, and 48.2%, respectively, with average shares of 37.1%. PTV argues that, although Mr. Trautman then embarked on a multi-year quest ''to conjure up'' additional adjustments that would reduce Public Television's shares, neither of Mr. Trautman's alternative proposed adjustments has any reliable basis. Indeed, it is argued, the Bortz Survey results, and Mr. Trautman's two proposed adjustments, give Public Television a lower share of royalties than the Judges awarded in 2013, despite significant changed circumstances such as the elimination of WGN as a distant signal and the substantial changes in the quantity and quality of compensable JSC and Public Television programming—all of which are realities that would warrant substantially increasing Public Television's relative share from 2013 levels. PTV PHB at 42 (citing, *inter alia,* 4/4/2023 Tr. 3142–43 (Trautman) (concerning table in Trial Ex. 3049)).

Allocations at 63–64 (CTV RPHB) (referring to the adjustments proposed by Bortz Media).

PTV argues that if the Judges were to use the Bortz survey to guide allocations in this proceeding, which PTV believes would be inappropriate, given their unreliability, several adjustments, at a minimum, would be needed to correct for clear methodological biases and flaws. It is argued that the adjustments offered by JSC (Bortz Media's Adjustment One and Adjustment Two), which result in shares for Public Television that are less than Public Television's 2013 share, are not credible. PTV argues that only the conventional McLaughlin Adjustment adopted in prior proceedings yields shares that approximate relative valuations for Public Television in 2014–17. *Id. at 82.* Mr. Trautman testified during direct and cross-examination that he calculated the conventional McLaughlin Adjustment to the 2014 through 2017 Bortz surveys. A table prepared by him, and upon which PTV relies is, as follows:

WEIGHTED BORTZ SURVEY RESULTS BY YEAR, 2014–17 (AFTER CONVENTIONAL MCLAUGHLIN ADJUSTMENT)

	Year				Average: 2014–17 (%)
	2014 (n=171) (%)	2015 (n=199) (%)	2016 (n=199) (%)	2017 (n=179) (%)	
PBS	8.4	43.6	48.4	48.2	37.1
Sports	39.0	12.7	12.2	14.8	19.7
News	25.2	19.2	15.3	17.2	19.2
Syndicated	10.0	9.3	9.8	9.8	9.7
Movies	11.0	9.1	8.0	5.0	8.3
Devotional	5.4	4.4	5.0	3.9	4.7
Canadian	1.0	1.8	1.3	1.2	1.3
Total	100.0	100.0	100.0	100.0	100.0

PTV PHB at 82; PTV PFF 208; Trial Ex. 3049 (from calculations prepared by Mr. Trautman); 4/4/2023 Tr. 2881–82, 3142–43 (Trautman).

PS argues that there are fundamental issues with the Bortz Survey that cannot be remedied by after-the-fact adjustments, such that putting ex-post fixes on the Bortz Survey is like putting a Band-Aid on a bad wound. Indeed, the requests for royalty allocation shares made by Program Suppliers are based on Dr. Tyler's regression model,[222] and do not reference the Bortz Surveys. PS PHB at 80–82 (citing PS PFF ¶ 502 (3/27/2023 Tr. 1490–91 [223] (Boyle))); *see* PS PRFF ¶¶ 59–62.

CCG argues that it is time for the Judges to abandon reliance on the Bortz Survey, and does not propose any adjustment to the Bortz initial results. CCG PHB at 66–71, 77. In its reply briefing, CCG again argues that the Bortz results should not be used for any party, and further argues that Bortz results have never been used, and should never be used, for the CCG, with or without these adjustments. CCG argues that the proposed adjustments do not correct the Bortz Survey's fundamental failure to measure relative market value, and do not remedy their utter inapplicability to the CCG. Reply Post-Hearing Brief of The Canadian Claimants Group at 56 (CCG RPHB). Indeed, CCG specifically criticizes the adjustment to Bortz offered by CTV, which is based on Prof. Marx's regression analysis, arguing, ''CTV offered no evidence that would support that conclusion that even though the relative quantity of their programming declined by 60% their relative unit price went up by 370%. The CTV hybrid model represents the worst of both worlds, an incomplete regression model that relies on data from the wrong period combined with the faulty Bortz Survey results.'' CCG RPHB at 56–57.

With respect to the issue of which, if any, adjustment should be made to the Bortz initial results for 2014–2017, it is remarkable that no party had its expert calculate the McLaughlin Adjustment for those results, at least not for presentation at the hearing. While no party argues that royalty fund allocations in this proceeding should be made strictly according to the Bortz initial results subject to the McLaughlin Adjustment, all parties knew that the Judges applied the McLaughlin Adjustment to the Bortz Survey initial results in the 2004 and 2005 proceeding, as well as in the more recent 2010–13 proceeding. Moreover, several parties knew that they would raise the McLaughlin Adjustment at the hearing and in their posthearing filings. As summarized above, some parties specifically criticized the McLaughlin Adjustment and some, despite their criticisms or the criticisms of others, argued for application of the McLaughlin Adjustment in the alternative, or for a calculation that is based upon or otherwise relates to the McLaughlin Adjustment. To see the figures obtained when the McLaughlin Adjustment is applied to the Bortz Survey initial results at issue in this proceeding, the Judges are referred to a chart taken from a spreadsheet prepared by Mr. Trautman, originally for Bortz Media's internal use (Trial Ex. 3049, duplicated above). Fortunately, no party has challenged the figures contained therein as accurately reflecting application of the McLaughlin Adjustment to the Bortz Survey initial results; and as previously noted, the figures on the chart resemble those presented in connection with Bortz Media's Adjustment One to the extent that one would expect similar figures.

The application of the McLaughlin Adjustment to the initial Bortz results for the years now at issue, 2014 through 2017, is relevant, and the adjusted results (or ''augmented'' results, as they were termed in the 2010–13 proceeding) should be given varied weight, depending on whether one is considering the adjusted results for 2014, or for 2015 through 2017. With respect to 2014, the Bortz Survey for that year covers the year immediately following the last year at issue in the 2010–13 proceeding. For the 2014 survey, Bortz Media used a similar sampling method, and asked similar questions. While other factors, such as the Horowitz survey results and regression evidence, weighed more heavily in the Judges' decision, the 2013 Bortz results with the McLaughlin

[222] Dr. Tyler was called by PS, and was qualified as an expert in the fields of economics, data analysis, and econometrics. 4/19/2023 Tr. 5423, 5428 (Tyler).

[223] Professor Boyle was called by PTV and was qualified as an expert in the field of survey research and design. 3/27/2023 Tr. 1400, 1410–11 (Boyle).

Adjustment were taken into consideration by the Judges, even when making their final allocations. *See* 2010–13 Determination at 3591, 3610–11. Thus, the 2014 adjusted results may be used for comparison with earlier results, and would be expected to provide useful insight into relative marketplace value of distant broadcast signal programming retransmitted by cable systems during that year.

Nevertheless, when weighing all the evidence presented in this proceeding, including regression evidence, a concern is presented by the fact that the McLaughlin Adjustment assigns value to PTV content on cable systems that were compelled to carry PTV programming and reimbursed for such carriage pursuant to the Must Carry rule; and further, the value it assigns to PTV, even in such circumstances, is 100 percent. As discussed above, the evidence shows that more than 30 percent of PTV-only systems were subject to the Must Carry rule. *See, e.g.,* Majure WDT ¶¶ 144; Harvey CWDT ¶ 119 (''[a]pproximately 36 percent of the time that a PTV Only system distantly retransmitted a primary PTV call sign, it was pursuant to the Must Carry rule'')). That certain PTV signals are subject to the Must Carry rule is not a new circumstance, and neither is the fact that the McLaughlin Adjustment brings PTV-only systems into the Bortz results with an assigned value of 100% for PTV. Inasmuch as PTV-only systems are still not surveyed by Bortz Media, and there is no empirical evidence to show how PTV-only systems value PTV distant signals, there is no cause now to discard the McLaughlin Adjustment due to the Must Carry rule, especially for the 2014 results which pertain to circumstances similar to 2013. The McLaughlin Adjustment has always been presented as a 100-percent or nothing approach, and the Judges can take that characteristic of the adjustment into consideration. To the extent that one would specifically exclude Must Carry signals, such as in a regression analysis, the fact that the McLaughlin Adjustment is applied to Must Carry signals diminishes the value of such adjusted Bortz results when making a comparison to such other evidence that devalues Must Carry signals.

It has also been shown that PTV signals comprise the only category of content that CSOs can be required to report as ''distant'' under section 111 when such signals are actually carried to subscribers within the signals' DMA, and further that a majority of the PTV-only systems reported such distant signals during the years at issue. As discussed above, it has been argued that similarly situated commercial signals would be reported as local, and thus would be ineligible for section 111 royalties. Bortz Rep. at 17–18 (''throughout 2016–17 approximately 77% percent of the aggregate subscribers served by the PTV Only Systems did not receive any distant signals.''); Majure WDT ¶¶ 150–51. Yet, the designation as ''distant'' is rooted in statutory definitions and requirements, and thus it is not established that such signals have no place in the hypothetical marketplace considered in this proceeding.

Furthermore, with respect to distant signals carried within their DMAs, again certain parties argue that there is no basis to assume that a majority of the PTV-only CSOs had a relatively greater preference for PTV programming over other categories of programming, much less at 100% of relative value. Yet, it has always been the nature of the McLaughlin Adjustment to augment the Bortz results with PTV-only signals, and to impute a 100-percent valuation. Accordingly, the McLaughlin Adjustment is recognized as an adjustment that helps to remedy a bias in the Bortz methodology but may do so on an imprecise basis.

For 2015 through 2017, the Bortz results, when subjected to the McLaughlin Adjustment, show a dramatic increase in the PTV results, *i.e.,* an increase to 8.4% in 2014 to 43.6% in 2015, then to 48.4% in 2016, and by 2017, the results are 48.2%. A significant change is also seen for JSC, whose result is 39% in 2014 but only 12.7% for 2015, declining to 12.2% in 2016, with the JSC result at declining to only 14.8%. *See* Trial Ex. 3049. The unadjusted, initial Bortz results show increases for PTV, and decreases for JSC, but they are not nearly as precipitous between 2014 and 2015, and not nearly as steep overall. *See* Bortz Rep. at 2. Considering the relative value question that the Bortz Surveys set out to have answered, and the adjusted Bortz results, it is hard to see why within only about one year many CSOs went from ascribing relatively small value to PTV to considering it the most valuable. *See* 3/30/2023 Tr. 2621 (Majure) (''just coincidentally at the point where WGNA converted, the system suddenly went from having a small value for the Public Television content to that being the only thing they like.''). Thus, an issue is raised as to whether the Bortz Surveys, particularly after application of the McLaughlin Adjustment, are best suited for the years 2015 through 2017.

With the loss of WGNA as a distant signal, many CSOs that had retransmitted only PTV and WGNA as distant signals became PTV-only systems, which meant that they were no longer eligible for participation in the Bortz Survey. They also became subject to the McLaughlin Adjustment; and according to the adjustment, the value assigned to PTV was, as always, 100 percent.[224] It was also during this time that the universe of Bortz-eligible CSOs declined.[225] That change in the number of eligible CSOs during 2015–2017 was so great that, as already discussed, Bortz Media went from the use of a sampling technique in 2014, which was similar to that employed for many preceding years, to a new and different technique in 2015 and thereafter, which Bortz Media and Mr. Trautman described as an attempt as a census.

Although the bias caused by exclusion of PTV-only systems from the Bortz Survey became more profound in 2015–2017, as many systems that carried only PTV and WGNA as distant signals became PTV-only systems after the WGNA conversion, as illustrated above, there is little evidence to indicate that the application of the McLaughlin Adjustment rectifies the situation. Indeed, no party, not even PTV, argues that the Bortz Survey with the McLaughlin Adjustment is the best methodology of record for arriving at an allocation for 2015–2017.

Adjustment One, proposed by Bortz Media and Mr. Trautman, and supported by JSC and SDC, is offered as a response to the situation in which CSOs once carrying only PTV and WGNA as distant signals suddenly became PTV-only systems. Adjustment One also addresses Canadian-only systems, although it is opposed by CCG; and it has not been shown that Adjustment One calculations would be useful on allocation CCG's share of the subject royalty funds.

As described more fully above, Adjustment One uses the McLaughlin assumption of attributing 100 percent of value to the PTV (or Canadian category)

[224] The number of PTV-only systems grew substantially in 2015–2017. In the second accounting period of 2014, there were 44 PTV-only systems, but that number increased to 173 in the second half of 2017. This increase occurred in large part because systems that previously carried both PTV and WGNA became PTV-only systems when WGNA converted to a cable network at the end of 2014. Indeed, between 50 and 55 percent of the PTV-only systems in 2016–2017 had carried WGNA in 2014. Bortz Rep. at 10–11; Harvey CWDT tbl.32.

[225] This decline in Form 3 CSOs carrying distant signals was largely the result of systems that had previously carried only WGNA electing not to carry any distant signals. Out of the 275 systems that carried WGNA as their lone distant signal in 2014, only 15 (5.5%) of these systems carried a non-WGNA distant signal from 2015–2017. Bortz Rep. at 8.

when that is the only category the system carries distantly, but does not do so for PTV-only systems in 2015 through 2017 that previously carried WGNA. As to those systems, Adjustment One attempts to predict the average valuation from all systems that carried only PTV and WGNA in 2014 because it is not assumed that a CSO changed its valuation of PTV content simply because of the WGNA conversion. Furthermore, systems that carried both PTV and Canadian distant signals (but no U.S. commercial distant signals) are weighted in the same manner, but with the fees allocated equally among the PTV and Canadian categories. *See* Bortz Rep. at 42–43.

The results seen from the application of Adjustment One tend to confirm the fact that the conversion of WGNA had a profound effect on the way that the McLaughlin Adjustment affected the Bortz results for 2015–2017. The application of Adjustment One prevents the steep swings seen in the McLaughlin-adjusted results. Yet, as pointed out by PTV, it does so at a cost. Adjustment One keeps the new PTV-only CSOs from bringing 100-percent PTV value into the calculation because they may have once valued another signal that no longer exists. It treats the class of new PTV-only CSOs differently from other PTV-only CSOs, even though they clearly have not replaced WGNA with other distant signals. Moreover, due to the fact that Adjustment One calculates shares for 2015 through 2017 based on the average valuation from all systems that carried only PTV and WGNA in 2014, the application of Adjustment One, for the purpose of allocating royalties, would in effect attribute a portion of section 111 royalties according to the former existence of WGNA, even though WGNA no longer existed as a distant signal in 2015–2017. Consequently, while Adjustment One is worth considering in the context of gauging the impact of the WGNA conversion on the Bortz results, it does not provide figures that can be used to calculate the allocation of shares of the subject royalty funds.[226]

CTV's proposed adjustment is not a proposed adjustment to the survey evidence available in this proceeding, *i.e.,* the Bortz Survey for 2014 through 2017. Rather CTV proposes that data connected to the survey for 2014 (without adjustment for the exclusion of PTV-only CSOs) be used to expand the application of regression evidence from its expert, Dr. Marx. As detailed above, CTV proposes a share allocation approach that combines the Marx non-duplicated minute estimates for 2014 with the Bortz results for 2014 to establish a starting point for allocating shares, and then applies the year-to-year net change in each category derived from the Bortz survey results for each year in 2015, 2016 and 2017. There is a dearth of expert testimony concerning CTV's proposal. CTV's proposal is supported by no other party. CTV's proposal hinges on acceptance of Dr. Marx's fee-based regression estimates for 2014, which as discussed above has not been accorded the greatest weight.

Accordingly, the McLaughlin Adjustment, provided one understands its aforementioned limitations, is most helpful among the proposed adjustments in understanding the Bortz results. The following table shows the McLaughlin Adjustment allocations when organized according to the claimant groups in this proceeding.

MCLAUGHLIN-ADJUSTED ROYALTY ALLOCATIONS

Basic Fund	2014 (%)	2015 (%)	2016 (%)	2017 (%)
Canadian Claimants	1.0	1.8	1.3	1.2
Commercial TV	25.2	19.2	15.3	17.2
Devotional Programs	5.4	4.4	5.0	3.9
Program Suppliers	21.0	18.4	17.8	14.8
Public TV	8.4	43.6	48.4	48.2
JSC	39.0	12.7	12.2	14.8

b. The Constant Sum Methodology

In the 2010–13 proceeding, some criticisms of Bortz and other survey evidence went to the way constant sum questions were worded or executed, but some criticisms went to use of the methodology *per se.* Dr. Mathiowetz provided an opinion in support of the particular methodology used in the Bortz Surveys received in that proceeding. *See* 2010–13 Determination at 3587. Ultimately, the Judges found certain regression analyses to be more persuasive than the survey results. Yet, far from rejecting the survey results, the Judges concluded, after considering all of the evidence presented in that proceeding, ''*the constant sum survey methodology,* with adjustments, provides relevant information relating to the relative value for each of the six categories remaining at issue.'' *Id.* at 3591 (emphasis added).

Many criticisms have been leveled against the Bortz Surveys now at issue. Yet, even among parties that do not support use of the Bortz Survey in this proceeding, for the most part there has been an acknowledgement that constant sum surveys, if properly designed and executed, might yield useful data, even if the Bortz Surveys presented in this proceeding fall short.[227] In this proceeding, Dr. Mathiowetz testified that a constant sum methodology was used as early as the 1980s in royalty allocation proceedings before the CRB predecessors. Her testimony in this proceeding is that a constant sum question offers a perfect solution to the relevant research question. Mathiowetz CWDT at 4–6; 4/10/2023 Tr. 3849–54 (Mathiowetz). The Judges must allocate 100% of the royalty funds at issue across several different categories, and an increased allocation for one category will necessarily require a decrease elsewhere so as to allocate 100 percent. Consequently, survey evidence that

[226] Additionally, Bortz Media's Adjustment Two addresses the question of whether PTV signals transmitted within their DMA should be treated differently. It also attempts to address the exclusion of Canadian-only systems. As already described in the main text, Adjustment Two accepts (while not agreeing with) the McLaughlin assumption of attributing 100 percent of value to either the PTV or Canadian category when that is the only category the system carries distantly, even for systems that became PTV-only by default as result of the WGNA conversion. However, PTV-only systems that only carried distant PTV signals within those signals' originating DMAs are excluded. Bortz Rep. at 43. Adjustment Two, therefore, does not accept the definition of a distant signal imposed by statute, and may also create a gap in compensation for copyrighted programming within a DMA. Furthermore, no party presents its requested allocation based on implementation of Adjustment Two, or made an adequate record concerning this potential adjustment.

[227] *See, e.g.,* CCG PHB at 50–51; CCG RPFF at 40–41, 47–48.

employs constant sum methodology, such as the Bortz Survey, could again provide relevant evidence.

PTV has a one-paragraph subsection in its main brief devoted to an argument, which it claims is unrebutted, that the key constant sum question in the Bortz Surveys (Question 4) is incapable of producing valid and reliable results because it is not ''incentive compatible.'' It is argued that PTV's expert witness Dr. Boyle is one of the foremost experts on stated preference surveys, of which Bortz's constant-sum question is an example, and further that his written and oral testimony is that the literature has developed on stated preference surveys, and it is now settled that stated preference surveys must be ''incentive compatible.'' His opinion is that the Bortz Survey constant sum question fails multiple requirements for incentive compatibility. PTV PHB at 68 (citing PTV PFF ¶¶ 355–57 (essentially tracking PTV's brief, or vice versa)); *see* Written Rebuttal Testimony of Kevin J. Boyle, Trial Ex. 7306, at 15, 32–36, 42–43 (Boyle WRT).

A review of the parties' briefs and proposed findings of fact shows that, contrary to PTV's claim, PTV's incentive compatibility argument was not in any sense unrebutted.[228] JSC addressed the issue of incentive compatibility at least as much as PTV did in its briefs.[229] *See* JSC PHB 45–46; JSC RPFF 40; JSC PFF ¶¶ 247, 248–51; JSC PRFF ¶ 67. Furthermore, during the hearing, PTV conducted a substantive direct examination concerning incentive compatibility; and then JSC conducted a vigorous cross-examination of Prof. Boyle on his opinion regarding incentive compatibility. Prof. Boyle also answered questions from the bench on this topic.[230]

There is some discussion in PTV's reply as to whether, in response to Prof. Boyle's opinion about incentive compatibility, JSC was wrong to set out to show that constant sum surveys are reasonable or widely used. *See* Public Television's Post-Hearing Reply Brief at 45 (PTV RPHB). Yet, Prof. Boyle's written testimony linked the reliability of constant sum methodology to incentive incompatibility, at least for purposes of PTV's case. Furthermore, the presentation of his incentive compatibility opinion appears as an alternative to evidence concerning the validity and reliability of constant sum questions. In particular, under the heading ''Validity and Reliability of Constant-Sum Questions,'' Prof. Boyle testified in writing, ''There is limited peer-reviewed research on the validity and reliability of constant sum questions. In the absence of evidence on the credibility of constant-sum questions for eliciting preferences to support decision making, I turn to the well-known concept in economics and political science of incentive compatibility (Groves and Ledyard, 1987; Ledyard, 1989) to consider the validity of the Bortz survey constant-sum question.'' Boyle WRT at 32–33 (footnote omitted, which shows Prof. Boyle's reliance on a Google Scholar search, with his search terms, to show limited peer-reviewed research). Far from leaving that statement unrebutted, at the hearing, JSC questioned Dr. Mathiowetz, and she responded, as follows:

> Q. * * * Professor Mathiowetz, did you see the assertion by Dr. Boyle that there is a ''absence of evidence on the credibility of constant sum questions for eliciting preferences to support decision-making''?
>
> A. I did see that by Dr. Boyle. And I disagree with that assertion. First of all, we still see constant sum being used and appearing in the peer-reviewed journal literature. Whether it is being used as an end in and of itself for a substantive topic or sometimes you see the constant sum question being used as a benchmark to compare other relative value methodologies.
>
> Second, in light of Dr. Boyle's comment, I thought it would be useful to go and look at recent marketing research text, because constant sum is often taught in MBA programs dealing with marketing research. And I found textbooks published as recently as 2017, I think was the most recent one, I found, that are still teaching constant sum methodology.

4/10/2023 Tr. 3852–53 (Mathiowetz). Accordingly, in view of that testimony, the use of constant sum evidence in prior proceedings, and other record evidence concerning constant sum methodology, the Judges do not adopt an opinion that there is an absence of evidence on the credibility of constant sum questions, or in the absence of such evidence one must turn to incentive compatibility (notwithstanding the importance that incentive compatibility may otherwise have).

PTV's reply brief, and the proposed reply findings cited therein, provide a summary of Dr. Boyle's testimony on incentive compatibility to the effect ''that (1) a stated-preference question must be incentive compatible for it to produce valid and reliable results; (2) there are four requirements for a stated-preference question to be incentive compatible; and (3) Bortz's constant-sum question is fatally flawed because it fails multiple requirements for incentive compatibility.'' Yet, the requirements for a stated-preference question are not explained in detail. *See* PTV RPHB at 44 (citing PTV PHB at 68; PTV RPFF ¶¶ 254–63). Turning to Prof. Boyle's hearing testimony, he explained, as follows:

> A. So the constant sum, as I said before, is one example of stated preference surveys. And the literature for that has been developing for a long time.
>
> And as it has developed in a variety of different areas of economics, in terms of stated preference questions, it's developed standards that a question needs to be incentive-compatible. And that started, really, evolving in the early 1990s and codified, really, in the 2000s.
>
> But there are kind of four basic axioms of it; that it needs to be consequential, it needs to be truthful, it needs to be a binary choice, and payment needs to be coursed.
>
> And so if you fail one of them, then you're in problems for incentive compatibility. If you fail more than one, you're even more in trouble in terms of incentive compatibility. And, you know, I have—three of them are listed here on the slide, but probably the two most important ones are the truthful and binary because they apply directly to the way the constant sum question is framed.

3/27/2023 Tr. 1419–20 (Boyle); *cf.* Boyle WRT at 34 (quoting Carson and Groves, *Incentive and Informational Properties of Preference Questions,* 37 Environmental and Resource Econ., 181–210 (2007), and a different formulation of the axioms).

Prof. Boyle also testified as to why, in his opinion, the Bortz Survey, particularly Question 4, is not incentive compatible, as follows:

> Q. And why isn't the constant sum question incentive-compatible?
>
> A. It's not incentive-compatible because it's not a binary question and a single application. And so when I was talking about what we did with the Deepwater Horizon, that was a specific dollar amount for a specific valuation that you answered yes or no.
>
> There's no incentive for somebody to answer wrong on that. You have got to answer yes or no. And if you answer wrong, you get an undesirable outcome for yourself. With the Bortz Survey, when you have the different categories that you can allocate percentages to, there's a potential there for somebody to misallocate across categories when you have what's called an open-ended response that you can fill in.
>
> You know, in the Bortz Survey, there was an enumerator, so they were giving the information to the enumerator to fill in.
>
> But, you know, I think one of the examples I used in my report was that if someone had a devotional affinity, they could explicitly or

[228] A review of the parties' filings shows that incentive compatibility was addressed primarily, if not entirely, only by PTV and JSC.

[229] PTV's reply brief and reply proposed findings provided more substance to its argument than PTV provided in its initial briefing. *See* PTV RPHB at 39–40, 44–45; PTV PRFF ¶¶ 252–63.

[230] *See* 3/27/2023 Tr. 1419–21, 1453–54, 1492–512 (Boyle).

implicitly allocate more to devotional or less to others. If they are an atheist, it could be the opposite one.

So there's an opportunity, by how you allocate the percentages, that you could either explicitly, implicitly, or accidentally misconstrue what the true value is that is estimated from the questions.

3/27/2023 Tr. 1420–21 (Boyle).

PTV's argument concerning incentive compatibility is not persuasive. As pointed out by JSC, Prof. Boyle held up as a positive example an incentive compatible public resource survey in which respondents may in fact have had a financial interest in the outcome of the survey. JSC PFF ¶ 249; 3/27/2023 Tr. 1406–07, 1420 (Boyle) (''And if you answer wrong, you get an undesirable outcome for yourself''). Additionally, whether a Bortz survey respondent's personal beliefs, such as religious beliefs (or the absence thereof), might cause a respondent to ''misconstrue'' true value in the Bortz Surveys remains highly speculative.

Moreover, with respect to the Bortz Surveys, Dr. Mathiowetz explained that Prof. Boyle's argument is wrong because ''[c]able system operators are paying [the] royalty fee regardless of how they allocate'' value to program categories in the surveys. *See* 4/10/2023 Tr. 3854 (Mathiowetz). Indeed, it was not shown that Prof. Boyle had any knowledge of whether or how respondents' answers to Bortz Survey questions might actually affect respondents or their CSOs, and what respondents' perceptions might be on the subject. Further, JSC's suspicion that Prof. Boyle lacked knowledge in this area was confirmed on cross-examination, when Prof. Boyle could not provide clear answers to simple questions on this topic. He was, for example, specifically asked, ''whether you have an understanding as to whether cable system operators have a financial interest in the outcome of these proceedings,'' and he testified, ''I am not testifying as an expert on cable systems. I'm testifying as an expert on survey design. And that's how I am answering you.'' Furthermore, when forming his opinions, Prof. Boyle did not consult with anyone who had worked at a cable system. 3/27/2023 Tr. 1502–05, 1513–15 (Boyle).

c. Value Measurement

On behalf of Program Suppliers, Dr. Stec,[231] testified that at best the Bortz Survey results represent an estimate of the cable system operators' relative willingness to pay for the different program categories they were asked to consider, but willingness to pay is not the same as a market price or market value.[232] Furthermore, it is his opinion that the Bortz Survey does not account for the supply side of the transactions, which was noted as early as the CARP 1990–1992 cable royalty proceeding. He opined that although Mr. Trautman indicates that the survey respondents are familiar with the rates charged for programming, as CSOs they do not purchase the individual programming categories as identified in the survey and instead purchase entire broadcast signals that include multiple categories of programming. He opined that survey respondents are unfamiliar with the actual prices charged in the marketplace for the specific programming categories when they are retransmitted on distant signals. Written Rebuttal Testimony of Jeffrey Stec, Trial Ex. 7608, at 21–22 (Stec WRT); 4/19/2023 Tr. 5655 (Stec); PS Brief at 67–71; PS PFF ¶¶ 513–29.

Measurement of sheer willingness to pay may not be identical with a determination of market value. Yet, as discussed throughout this determination, including with respect to regression evidence presented by another Program Supplier expert witness, Dr. Tyler, evidence concerning CSOs' willingness to pay is an important indicator when examining the hypothetical market examined by the Judges in this and prior proceedings.

Furthermore, as pointed out by JSC, Dr. Stec expressed some of the same negative opinions about the Bortz Survey in the 2010–13 proceedings, and although considered by the Judges, the opinions did not prevent the Bortz Survey results from being used by the Judges in making their allocations. *See* JSC PHB at 46; JSC PFF ¶ 253. Indeed, the Judges recognized that the CARP had determined that in the relevant hypothetical market, the supply of programming would be fixed and value would be determined only by the CSOs' demand as reflected in their willingness to pay. Additionally, in the 2010–13 proceeding, the Judges ''agree[d] with the pronouncement in prior determinations that the royalties that would be paid in the hypothetical market would essentially be a function only of the CSOs' demand and the copyright owners' costs, and their supply curves (if any) would not be important determinants of the market-based royalty.'' *See* 2010–13 Determination at 3583, 3555 n.18 (citing, as an example, 1998–99 Librarian Order at 3606, 3608).[233] In any event, the wording of Question 4 of each Bortz Survey for a particular year does not seek a response about actual prices charged in the marketplace, referenced by Dr. Stec. Rather, it seeks a CSO response about percentages of a fixed dollar amount the system ''would have spent'' and specific categories of programming that the system carried as distant signals in the subject year.

The parties have made further arguments to the effect that Bortz Survey, and its results, are unable to shed light on market value relevant to this proceeding. For example, Program Suppliers argue that the Bortz results are not credible because they are inconsistent with market changes, noting that with the conversion of WGNA to a cable system, the share of compensable minutes for JSC and CTV content significantly declined; and further, while in 2014, over 90% of the sports programming was JSC content, by 2015 that share dropped to approximately 65%, with the balance of 35% being Program Suppliers or CTV content, yet changes to programming shares observed in the marketplace are not reflected in the Bortz Survey results. It is argued, among other things, that despite the 94% decline in JSC content, the Bortz Survey suggests that JSC's volume fell by only 22% and remained the most valuable category in 2017. *See* PS PHB at 77. Similarly, CCG argues that according to the Bortz Survey results, JSC content retains a constant relative value, and is ranked the most expensive and most valuable according to Bortz Survey results, but that is unrealistic after 2014 when WGNA converted to a cable station. Such consistency, it is argued, does not comport with reality, inasmuch as WGNA carried 94.2% of compensable distant JSC programming minutes in 2014, and with WGNA's conversion, compensable distant programming minutes of JSC content dropped precipitously. CCG argues that the year-to-year consistency in average JSC relative values from Question 4 despite

[231] Dr. Stec was called to testify by PS, and was qualified as an expert witness in economics and survey research. 4/19/2023 Tr. 5641 (Stec).

[232] Dr. Stec, citing to an article on willingness to pay at the point of purchase, opines ''research studies show that, when controlling for question formats, the hypothetical bias in consumer-intent type measures, like willingness-to-pay, can be substantial with the hypothetical willingness to pay exceeding the real willingness to pay. Even in the absence of any other flaws, by not accounting for this hypothetical bias, the Bortz Survey likely measured willingness to pay, in the form of budget percentages, inaccurately.'' Stec WRT at 26 (footnote omitted); PS PHB at 70–71; PS PFF ¶¶ 527, 529. The relevancy of this consumer-intent, point of purchase opinion to the Bortz Survey remains unclear, especially in view of a dearth of testimony on the subject.

[233] As Dr. Majure testified, Question 4 is essentially a budget-setting exercise, and as such it is his opinion that importance and expected cost are relevant to the value of distant signal programming, as they are to forming a budget. 3/30/2023 Tr. 2616 (Majure).

a loss of over more than 90% of retransmitted content after 2014 can only be explained through heuristics, question order bias, and the possible knowledge of the survey's purpose. *See* CCG PHB at 60.

JSC argues that while CCG and Program Suppliers take the position that the Bortz Survey responses are not sensitive enough (by some unspecified degree) to the change in volume of subscriber-weighted minutes resulting from the WGNA conversion, the Bortz results show a strength of the Bortz survey that the Judges' predecessors have highlighted. JSC points out that in the 1998–1999 proceeding, following the conversion of WTBS from a superstation to a cable network, the Bortz survey results showed only a modest decrease in JSC's relative value allocation, despite a similar drop in volume as the one at issue in this proceeding. Indeed, JSC argues, it is wrong to expect that changes in value will track with changes in the volume of programming, as might be the case in other industries where value is driven by per-unit sales. Further, it is argued, it is entirely reasonable that, as the Bortz Surveys show, CSOs continue to value highly the other JSC programming they carry after a superstation conversion, and perhaps value it even more. JSC points to the CARP's assessment that the ''Bortz respondents take account of changes in volume, viewing, and all other material factors;'' and argues that as a result, the Bortz surveys, unlike other methodologies, would not lead the factfinders astray by confusing volume with value. Rather, it is argued, as the CARP found in its determination, affirmed by the Circuit Court, the surveys would ''best inform [the CARP] as to whether any changes in sheer programming volume, viewing minutes, subscriber instances, or any other volume metric, truly translate into changes in value.'' Joint Sports Claimants' Post-Hearing Reply Brief at 54–55 (JSC RPHB); JSC PFF at 167 ¶¶ 17, 18 (quoting 1998–99 CARP Rep. at 30–31 and *Program Suppliers* v. *Libr. of Cong.,* 409 F.3d 395, 401–02 (D.C. Cir. 2005)).

JSC correctly argues that value, particularly as ascertained for the purpose of royalty allocation, is not merely reflective of compensable minutes or of the volume of programming. Furthermore, as recognized by the CARP, when determining the value of programming, CSOs, such as Bortz respondents, have the ability to take account of changes in volume, viewing, and all other material factors when assigning value. Therefore, to some extent, the Bortz results may show that the CSOs contacted for the Bortz Surveys, as argued by JSC, always valued JSC programming highly, and taking many factors into consideration may have continued to do so, or may have done so to an even greater extent, after the loss of WGNA as a distant signal. Thus, to retain usefulness in allocations proceedings, the Bortz Survey results need not track precisely the availability of WGNA. Furthermore, as JSC suggests, it is unclear exactly how closely the Bortz results would have to track such a market change for its detractors to be satisfied.

Nevertheless, the magnitude of the changes caused by the conversion of WGNA is so great that one could expect some appreciable reflection of that event in the Bortz results, particularly if there had not been significant changes in the Bortz methodology as changes in the market occurred. Indeed, the Bortz results do show diminished percentages for JSC after 2014. Yet, as already detailed, it was at the time of the conversion that, citing various factors, Bortz Media made a radical change in its methodology such that it abandoned its prior sampling methodology in favor of an attempt to contact all CSOs it deemed eligible to participate in a Bortz Survey, while still excluding CSOs that carried only PTV or Canadian programming as distant signals. Bortz Media also calculated alternative adjustments to be used when interpreting the Bortz initial results after the WGNA conversion to replace the McLaughlin Adjustment used previously by the Judges. Thus, it is not simply a question of whether the Bortz Surveys were sensitive to changes that occurred from 2014 through 2017. There should be a realization that after 2014, one is looking at Bortz results that in certain respects are based on a different methodology, and that different adjustments have been proposed. Consequently, one must exercise caution when comparing results from 2014 (or before) with results for 2015–2017.

As explained by Dr. Stec, for 2014, Bortz Media sought to interview a random sample of Bortz-eligible CSOs, but for 2015 through 2017 Bortz Media attempted something like a census while failing to interview anything near all eligible CSOs. In fact, about 46% of eligible CSOs did not participate in those surveys. Dr. Stec testified that participation or non-participation in the surveys was ''self-selected,'' which maybe an accurate appellation; but in any case, the sampling that Bortz Media obtained was not a random sample. Thus, in Dr. Stec's opinion, one cannot ignore whatever differences might exist between respondents and non-respondents and, relying on the statistical properties of randomness, impute the results obtained from the respondents to the non-respondents, and thus for the entire target population. To do so, he opines, could introduce bias or inaccuracies into the results. *See* 4/19/2023 Tr. 5671–74 (Stec); CCG PFF ¶ 354.[234]

Somewhat similarly, PTV argues there is no dispute that the massive number of Public Television and/or Canadian-Only Systems excluded from the 2014 through 2017 Bortz surveys would have responded differently than the CSOs Bortz actually surveyed, and further, Bortz's exclusion also creates a clear non-response bias in the years that Bortz attempted to conduct the surveys as a ''census.'' It is argued that Bortz defined its target population, in part, based on the amount of the section 111 royalties they represent, but by 2017, the scope of Bortz's exclusion of PTV- and/or Canadian-only systems exceeded the scope of CSOs that were actually surveyed as part of the attempted census, including in terms of the numbers of systems (37% of systems were excluded while 34% of systems were surveyed), the section 111 royalties they paid (45% of royalties were paid by excluded systems while 28% of royalties were paid by surveyed systems), and the number of subscribers they represented (41% of subscribers were subscribed to excluded systems while 30% of subscribers were subscribed to surveyed systems). PTV PHB at 40 (citing PTV PFF ¶¶ 199–200 (relying in part on Boyle WRT at 38–39)).

JSC argues that the Bortz opponents fail to rebut Dr. Mathiowetz's finding that there was no evidence of non-response bias impacting the Bortz estimates in any year. It is argued that, as Dr. Mathiowetz explained, the ''risk and type of non-response bias'' is the same under either the sampling or the ''census'' approach, with no assumed statistical difference or indeterminacy in one compared to the other. JSC argues that there is an established method to test for non-response bias, which Dr. Mathiowetz applied, and found no bias. JSC RPHB at 48; JSC PFF 381. Indeed, during the hearing, Dr. Mathiowetz

[234] Even after the WGNA conversion in 2014, small numbers of cable systems continued to report carriage of the signal. The reasons for doing so may be varied on the part of the cable systems, but in any event remain unclear. *See* Trautman WRT at 2–3; Bortz Rep. at 7 n.6. As discussed, *supra* note 27, there may have been some residual WGNA carriage as WGNA transitioned from a broadcast channel to a cable station.

provided a succinct explanation of her assessment, as follows:

> Q. * * * Just in the interest of time, if you could give us at a high level what you did to assess whether there was a problem of non-response bias here and what you concluded?
>
> A. So as we have already established, right, there are respondents and there are non-respondents. And you worry about non-response bias to the extent that those who don't respond differ from those who do respond to the survey.
>
> In order to make that assessment, you have to take two steps. First of all, you have to take and look at characteristics or variables that you have for both respondents and non-respondents.
>
> So we have a lot of information about these cable systems. We know their total royalty payments. We know the region of the country. We know the distant signal equivalents. We know the programming mix being offered by those cable systems.
>
> So the first step is to say: Are there any of these characteristics related to non-response? And as Dr. Boyle asserts, there is—we see that there is a relationship between size of royalty and non-response.
>
> But you have to take the second step and you have to say: Now, among the respondents, is the characteristic that I saw related to non-response related to valuations? And when you look at that, total royalty payments is not related to average program valuations.
>
> So while we see a difference in non-response rates, there is no indication of non-response bias in any of the years of the Bortz Survey.

4/10/2023 Tr. 3906–08 (Mathiowetz). Dr. Mathiowetz's opinion expressed at the hearing is supported by her written testimony.[235] *See* Mathiowetz CWDT at 18–19.

Dr. Mathiowetz's analysis does not answer the theoretical question of whether or not the samples obtained through the Bortz's census-type approach in 2015 through 2017 can be treated the same way as random samples. Nevertheless, with respect to the target population of the Bortz Surveys, Dr. Mathiowetz's analysis provides actual evidence of the absence of non-response bias in the Bortz Surveys for 2014 through 2017, which the Judges take into consideration when determining the extent to which the Bortz results indicate value.

Yet, Dr. Mathiowetz's analysis does not speak to a different bias, which is the bias in the design of the Bortz Survey caused by the complete exclusion of PTV-only and Canadian-only CSOs. The hypothetical allocation by those CSO's under Question 4 would presumably have to have been 100% for the only distant signal that they carried. *See* 3/23/2023 Simonson Tr. 1228;[236] 4/4/2023 Tr. 3131–34 (Trautman). The changes in the Bortz results that occur when PTV-only or Canadian-only CSO are taken into account, especially after the conversion of WGNA, are significant and have already been discussed.

d. The Identification and Qualification Process of Survey Respondents

Questions have been raised concerning the identification and qualification of the respondents that Bortz Media contacted for participation in its surveys. An inaccuracy found among the criticisms of the Bortz surveys is that the executives identified as initial contacts for the interviewers (whose identities and phone numbers were obtained primarily through the Factbook) were the targets, or target populations of the surveys, or the targets for the interviewers.[237] Yet, the target for the interviewers, and for the surveys, was always the person most responsible for programming carriage decisions. While the initial contacts may in fact serve as the survey respondents, in most cases, the interviewer was referred to a subsequent contact within the CSO. Notwithstanding some arguments to the contrary, the method of making an initial contact, and then pursuing a referral when needed, is not a new method for the 2014–2017 surveys. *See* 2010–2013 Trautman Oral Testimony, Trial Ex. 7043, at 103–05. Furthermore, despite suggestions to the contrary, Mr. Trautman's hearing testimony on this topic is consistent with the Bortz Report, and with the interviewer instructions of the survey instrument.[238]

The Bortz Survey has also been criticized as failing to reach the person most responsible for programming carriage decisions because decision-making authority within the systems might be at the national or corporate level, or because the survey respondents worked in the marketing or video product departments. While one cannot say with certainty that in all cases the Bortz interviewers reached the right respondents, the evidence shows that during the time period in question, individuals with the knowledge of why specific distant signals were carried often worked at the local or regional level, and furthermore could work in departments with titles such as marketing or video rather than programming. *See* 4/3/2023 Tr. 2769–73 (Singer);[239] 4/10/2023 Tr. 4054–55, 4060–61 (Witmer);[240] 3/28/2023 Tr. 1714–16 (Costantini); [241] 4/17/2023 Tr. 5066–67 (Ringold).

e. Whether There Was Interviewer Error, Interviewer Bias, or a Lack of Training

Opponents of the Bortz Survey argue that they have found ''error'' by the interviewers in as many as 90% of the survey responses, although none seems to involve recording the survey responses. The alleged error, it is argued, occurred in recording information such as the recording of ''partial names'' or ''multiple positions'' for the same respondent. There are even criticisms based on respondents' LinkedIn profiles (which assumes, without record evidence, that LinkedIn accounts would be accurate, and up-to-date for the survey periods in question). *See, e.g.,* PS PHB at 64–65; PTV PHB at 52–53; CCG PHB at 54; Tr. 1278–79 (Simonson). Yet, as explained by Mr. Trautman, respondents in these telephone surveys often hesitate to provide detailed information about themselves such as full names, or happen to provide abbreviated titles.[242]

[235] In his written rebuttal to Dr. Mathiowetz's written direct testimony, Prof. Boyle questions Dr. Mathiowetz's use of Census regions when reviewing cable system responses, opining that her investigation might have been appropriate if one were doing a survey of the population but not for a survey to provide input to cable royalty revenue allocations. Boyle WRT at 43–44.

[236] Dr. Simonson was called by PTV, and qualified as an expert in an expert in the fields of survey methodology, marketing, and managerial decision-making. 3/23/2023 Tr. 1170–71 (Simonson).

[237] *See, e.g.,* PS PHB at 63 (''Since Mr. Trautman only reached between 5.9% and 9.0% of his intended target population, there should have been a process for qualifying respondents who were not the intended targets.'').

[238] The survey instrument instructs interviewers, when introducing themselves, to ask to speak with the listed respondent, and if unavailable to confirm he/she is the person most responsible for programming carriage decisions for the system and to arrange for a call back; and if not, then to ask to speak with the person most responsible for programming carriage decisions for the system. In addition, Question 1 on the survey instrument is: ''Are you the person most responsible for programming carriage decisions made by your system during [year] or not?'' If the response is negative, the interviewer is instructed by the survey instrument to ask to speak with the person most responsible for the system's programming carriage decisions for the subject year, and then to repeat the introduction and Question 1. *See* Bortz Rep. app. B; 4/5/2023 Tr. 3220–21 (Trautman).

[239] Mr. Singer was called by JSC, and qualified as an expert in the operation of cable systems and cable networks, including the valuation of television programming in the cable industry. 4/3/2023 Tr. 2738, 2745 (Singer).

[240] Ms. Witmer was called by JSC, and qualified as an expert in the operation of cable systems, including the valuation of cable and broadcast television programming. 4/10/2023 Tr. 4035 (Witmer).

[241] Ms. Costantini was called by PTV, and qualified as an expert in the cable television industry and valuation of television programming. 3/27/2023 Tr. 1583, 1588 (Costantini).

[242] There is an email in which Mr. Trautman asks his contractor running the interview process to make sure interviewers do not record titles short-

Continued

4/4/2023 Tr. 2992, 3004–05 (Trautman). Furthermore, it is not uncommon for regional personnel to oversee activities at individual systems, depending on the size and individual system characteristics and responsibilities. Nor is it uncommon to find individuals who are responsible for more than one function within a company. *See* 3/27/2023 Tr. 1622 (Costantini).

Bortz opponents argue that Ms. Grossman's long experience working on the Bortz surveys, and the large number of interviews she conducted, could have resulted in bias in the surveys she performed. That criticism is somewhat speculative. Furthermore, Dr. Mathiowetz tested for that question, and found no such bias. Specifically, it was found that on average, responses to the surveys Ms. Grossman performed did not differ from those of obtained from other interviewers. 4/10/2023 Tr. 3893–94 (Mathiowetz). On the other hand, despite the long history Bortz Media has with Ms. Grossman, there are criticisms about a supposed lack of training materials, although the record shows that it is standard to use the survey instrument, or the questionnaire, as the training material when there is a small team of interviewers as in the case of the Bortz Surveys.[243] 4/10/2023 Tr. 3895–96 (Mathiowetz). Moreover, Bortz Media conferred with Ms. Grossman and her team with respect to the 2014–2017 interviews before starting each survey. 4/3/2023 Tr. 2841 (Trautman); 4/4/2023 Tr. 3006 (Trautman). Subsequently, Bortz Media monitored approximately 20 percent of the interviews ''to ensure accurate interviewing techniques and to observe any issues related to the respondent's comprehension or ability to respond to the constant sum valuation question.'' Bortz Rep. at A–15.

f. Whether the Bortz Survey Questions Are Overly Complex or Caused Confusion or Recall Bias

When examining the actual Bortz Survey constant sum question, industry experts explained that cable system executives are more than capable of understanding the categories of content separate and apart from particular linear channels, that they know these types of programming as part of their day-to-day job. The survey respondents also have experience running businesses and expenses. Thus, the constant sum question is the type of question one would ask them. *See* 4/10/2023 Tr. 4052–55 (Witmer); 4/3/2023 Tr. 2769 (Singer).

With respect to the terms used during the Bortz Survey interviews, there is argument and testimony that in some cases the terms used to describe the program categories are undefined or vague. *See, e.g.,* PS PHB at 72. The terms used to describe the program categories are by necessity generalizations. Yet, there is no showing of widespread confusion among survey respondents. On the contrary, there is evidence that the categories are generally understood, in particular a term such as ''live professional and college team sports.'' *See* 2010–2013 Hartman Oral Testimony, Trial Ex. 7056, at 73–77; 3/28/2023 Tr. 1722–23 (Costantini).

With respect to the general complexity of the Bortz Survey, and especially Question 4, Dr. Mathiowetz, who has studied and conducted establishment surveys, testified that the Bortz constant sum question was similar in complexity to other establishment survey questions, and underscored that the executives contacted for the survey have a sophisticated level of knowledge about the concepts in the survey. 4/10/2023 Tr. 3854–55 (Mathiowetz). Indeed, Dr. Ringold has conducted surveys of CSO employees, and has asked respondents a constant sum question that required respondents to allocate 100 points among seven different claimant categories. *See* 4/17/2023 Tr. 5014–16 (Ringold).

Furthermore, one well-known indication of respondents who were overwhelmed or confused could be what is termed ''satisficing,'' in which a respondent may take a cognitive short cut to stay in the role of a respondent albeit at a minimum.[244] *See* 4/10/2023 Tr. 3855–56 (Mathiowetz). Yet, Dr. Mathiowetz found no pattern of respondent confusion or satisficing behavior in the Bortz survey data. There was, for example, a case cited by PTV of a Bortz respondent who gave the same rankings and value allocations for two different systems. Dr. Mathiowetz testified, however, ''[w]hat you want to see when you're looking for evidence that there are problems with the question is that you see that pattern [of satisficing] overall across most respondents,'' not just ''one or two.'' 4/10/2023 Tr. 4015–26 (Mathiowetz).[245]

A question has been raised as to whether the timing of the Bortz surveys led to recall error or bias. Mr. Trautman testified that as a matter of best survey practices, in general it is better to perform the Bortz Survey closer to the end of the survey year, rather than farther from it. As discussed above, the Bortz Surveys did not begin until several months after the end of the preceding calendar year. Nonetheless, Mr. Trautman did not conclude that there was recall bias in this the surveys now at issue. 4/4/2023 Trautman Tr. 3012, 3029–34. Yet, as Dr. Simonson observed, ''the Bortz Survey mistakenly asked a few respondents about programming categories that they did not actually carry.''[246] 3/23/2023 Simonson Tr. 1223. In all such cases, the respondents should have realized that their systems had not carried distant signal programming in those categories, and allocated zero value to such programming. Yet, Dr. Simonson testified, for 2017, for example, over 11 percent of respondents allocated values of up to 50 percent to categories they did not carry. *Id.* Dr. Mathiowetz was candid about the fact that there are some errors in the Bortz Survey. She testified, ''I think there are cases in any data collection effort where there is misinformation, respondent error, respondent recall. That's the nature of the beast when you go and interview humans. And the best you can do is understand how that can impact the data.'' It was her opinion, which appears reasonable, that incorrect answers in those cases, *i.e.,* answers other than zero for a programming category that was not carried, could be the result of recall error. She explained that ''a respondent is under the impression that the interviewer is giving them—most respondents work under the impression that the information being conveyed by an interviewer is accurate. And so we may have cases of recall error as opposed to just not

hand form. While Mr. Trautman was doing the due diligence of quality control, there is no proof of actual error. *See* 4/10/2023 Tr. 3967–68 (Mathiowetz).

[243] Bortz only used a separate, one-page training document for these surveys in the late 1980s to early 1990s, when it worked with a large contractor whose interviewers were not as clearly experienced in executive interviewing. 4/4/2023 Tr. 3168–69 (Trautman).

[244] With respect to satisficing, during the hearing, Dr. Mathiowetz quoted from the Encyclopedia of Survey Research Methods, as follows: ''Satisficing has been posited to at least partly explain several response effects, including acquiescence effects, non-response order effects, no opinion option effects, and non-differentiation in answering batteries of rating scales.'' 4/10/2023 Tr. 3856 (Mathiowetz).

[245] Even before the production of more detailed information, as originally produced, the redacted Bortz data contained anonymized respondent identifications showing every time the same individual responded on behalf of multiple systems in a given survey year. 4/10/2023 Tr. 2922–24 (Mathiowetz). It appears, therefore, that early in this proceeding any party could have used such information to track potential satisficing.

[246] Such occurrences are indeed few in number, but not to be ignored. Specifically, for 2014 through 2017, 90 respondents overall, four in 2014, 33 in 2015, 24 in 2016, and 29 in 2017, provided relative value allocation to compensable programming that they did not carry. *See* PS PFF 541 (citing Stec WRT at 41).

understanding.'' 4/10/2023 Mathiowetz Tr. 4030–31.

Despite a relationship between importance and cost, already discussed, there is a concern that because ''warm-up'' Question 3 asks about cost, it might have influenced responses to Question 4, which asks about value. *See, e.g.,* 2010–13 Determination at 3590 (''This may have injected some confusion into the respondent's estimation of relative value.''); 3/27/2023 Boyle Tr. 1422 (''But if I was doing it, I probably would not have had Question 3 before Question 4, if it was something that was important. I would have had Question 3 after Question 4, after the primary source of information that I was looking to get.'').[247]

In this proceeding, there is no strong evidence offered either way to show whether Question 3 unduly influenced responses to Question 4. The best evidence was, however, found in the opinion of Dr. Mathiowetz who testified, ''when you look at the relationship between importance and relative value, you see a stronger relationship in the [Bortz] data between importance and relative value than you do between expense and relative value.'' When asked whether Question 3 biases response to Question 4, she answered, that ''My analysis suggests that it is not biasing, that there is a very logical relationship, but it is one that also includes understanding how respondents answered the importance question.'' 4/10/2023 Tr. 3878 (Mathiowetz); *see* Mathiowetz CWDT at 11 (''One means by which questionnaire designers can signal the distinction among related concepts is by employing different question forms, thereby presenting the respondent with a different task. In the case of the Bortz surveys, the warm-up questions require the respondent to rank order among the program categories, from 1 to *k,* whereas the key question of interest related to relative valuations is a constant sum task'').

g. Whether Pre-Testing and Post-Testing Verification Procedures Were Needed

PTV and CCG criticize the Bortz survey for not performing ''qualitative pre-testing'' or ''post-survey verifications.'' For example, CCG argues that pretesting is a best practice even for longitudinal surveys that are fielded with the same instrument over a long period of time, according to the American Association for Public Opinion Research (AAPOR),[248] so that changes or adjustments can be made to the questions asked. CCG PHB at 51–52. PTV argues in favor of pre-testing, and also that Bortz failed to conduct any post-survey verification to confirm validity and reliability, such as test/retest reliability or recontacting respondents to confirm ''that they actually exist, the survey actually happened, or that the respondents were qualified, and to learn how the respondent understood and answered.'' PTV PHB at 58.

JSC argues that it is inaccurate to suggest that pre-testing is the only way to assess whether the surveys produce valid and reliable results. JSC argues that there are many ways to test for, for example, internal consistency in responses, evidence of satisficing, and bias; and Dr. Mathiowetz tested for all of those things, even if other experts did not do so. JSC RPHB at 52.

While neither JSC nor Dr. Mathiowetz disputes the value of pre-testing in general, Dr. Mathiowetz testified that pretesting of the 2014–2017 Bortz surveys was not necessary because the survey has been fielded for many years and has been established in prior proceedings as a valid approach to looking at relative market value. She explained that the need for pre-testing is different than if one were undertaking brand new questionnaire development. Furthermore, Dr. Mathiowetz testified that there is also a significant downside to pre-testing a survey such as the Bortz Survey because there is a small population, and Bortz Media goes back to them in the next year. Also, any cases used for pre-testing usually would not be used in the main study. Tr. 3863–64, 3958–60 (Mathiowetz).

With respect to post-survey verification, Dr. Mathiowetz explained that due to the small population, and recurring nature of the survey, ''you don't want to burn bridges'' by recontacting CSOs that Bortz Media knows it will want to survey again, just to verify their prior identification of the respondent. Indeed, Dr. Mathiowetz had never seen such a verification process for an establishment survey in the literature, nor had she done it herself. 4/10/2023 Tr. 3897–98 (Mathiowetz). Similarly, Mr. Trautman's reason for not contacting survey respondents after each survey is a concern about ''placing an additional burden on respondents or potential respondents,'' who are ''busy executives,'' and the resulting ''risk of not being able to continue to interview respondents in the future.'' 4/4/2023 Tr. 3106–07 (Trautman).

h. Whether Bortz Media Used Undisclosed Quotas, Financial Incentives, and Pressure To Produce ''Extraordinary'' Results That Biased the Data

PTV argues in one paragraph of its brief that JSC has trumpeted high response rates achieved for the Bortz surveys, but never disclosed any response rate quotas it imposed, as revealed in compelled discovery showing that Bortz imposed substantial quotas on Ms. Grossman and her team, and pressured them to produce ''extraordinary'' results;[249] and despite persistent and increasing difficulty, specifically pressured them to ''keep the response rate as high as possible because it has been a big selling point for the Bortz survey in these proceedings . . . based on past emphasis by the Judges.'' It is further argued that Mr. Trautman admitted, and documents confirmed, that Ms. Grossman and her team had a financial interest in meeting these quotas in order to keep the surveys going, and did ''everything possible to reach those numbers that [Mr. Trautman] needed,'' including placing many calls, pleading, calling neighboring systems, disregarding institutional policies against participating in surveys, and staying in the field for a longer time. *See* PTV PHB at 50 (citing PTV PFF ¶¶ 266–73).

JSC argues that Bortz Media appropriately sought to obtain high response rates, and to do so through its contractor, and at higher expense, spent more time in the field and made more

[247] Dr. Conrad was called by CCG, and qualified as an expert in survey methodology with specialization in questionnaire design and data collection. 4/13/2023 Tr. 4796–97, 4806 (Conrad). He expressed concern over Question 3, and its order in the survey. *See* Written Rebuttal Testimony of Frederick Conrad, Ph.D., Trial Ex. 7405, at 4 (''The cost question (Q3) was intended as a warm-up but the information respondents used to answer it was almost certainly salient and particularly accessible in their working (short-term) memory when they answered the value question (Q4) immediately afterward, allowing the cost information to dominate the valuation process; if the order of these two questions had been reversed, *i.e.,* if Q4 had been asked before Q3, cost information would less likely be the central consideration in the valuation process. This pattern, *if observed,* would be what survey researchers call a question order effect—considered a type of measurement error'') (emphasis added).

[248] The AAPOR is a leading organization on survey research standards, and its past presidents include JSC's expert witness Dr. Mathiowetz. In 2015, she was awarded the AAPOR Award for Exceptional Distinguished Achievement. *See* Mathiowetz CWDT at 1–2; 4/10/2023 Tr. 3943–44 (Mathiowetz).

[249] Dr. Simonson testified that he never heard the term ''establishment survey'' before testifying, and had never heard of a business or organization survey obtaining a response rate of 50% without offering compensation (and did know of any compensation for respondents in connection with the Bortz Surveys). 3/23/2023 Tr. 1248–51 (Simonson).

efforts to reach respondents than one might otherwise do. It is argued that no expert testified to the existence of ''quotas'' or resulting bias in the Bortz results. It is argued that to the contrary, Dr. Mathiowetz testified that there is ''absolutely not'' anything problematic about telling a survey organization to work hard to obtain good response rates, even if that requires interviewers to make more frequent calls or leads to cost overruns. Furthermore, it is argued, Mr. Trautman testified unequivocally that interviewers were never paid for completing an individual interview or completing a specific number of interviews. JSC RPHB at 4, 55.

JSC argues that PTV is simply misreading the AAPOR disclosure standard, which it never submitted into evidence and never showed to any of the numerous testifying survey expert, including former AAPOR President, Dr. Mathiowetz. Furthermore, JSC argues that the AAPOR standards require disclosure of quotas used as part of the ''methods of sampling'' for the survey, sometimes referred to as ''quota sampling.'' Quota sampling is used to ''achieve a pre-specified distribution on some set of variables'' (such as gender or Census region) within a survey sample, and there is no suggestion that Bortz used quota sampling or anything like it, and thus nothing that Bortz improperly failed to disclose. *See id.* at 55–56.

Indeed, there was a lack of development of any accusation that Bortz Media, or any party associated with the Bortz Surveys at issue used undisclosed sampling quotas, let alone to obtain extraordinary results. Furthermore, it has not been established that interviewers or anyone else associated with Bortz Media or its contractors received undisclosed financial incentives to obtain results,[250] or the Bortz Media or anyone else associated with the Bortz Surveys engaged in ''quota sampling,'' as it has been explained in the meager record on the topic.

[250] PTV's Proposed Finding of Fact 270 contains the statement: ''Ms. Grossman and her team were *financially incentivized* to meet Mr. Trautman's quotas because their compensation was a product of keeping the study going, and the time and effort needed to do so. Ms. Grossman and her team required, *inter alia,* more money, resources, longer time in the field.'' PTV PFF at 96 (footnotes omitted) (emphasis added). An examination of the evidence cited in supporting footnotes (*i.e.,* 4/4/2023 Tr. 3195–202 (Trautman)) confirms that the financial incentives involved were, as indicated in PTV's proposed finding, only in the nature of compensation for the time, effort and resources needed to keep the study going and to exceed expectations.

C. The Testimony of Professor Papper

CTV argues that the testimony its expert witness Prof. Papper, referenced above, is based on empirical analysis and his decades-long expert assessment of trends in the local television news industry generally and their impact on the relative value of CTV programming during the 2014–2017 period. In particular, Prof. Papper opines that there has been a steady rise in the production and airing of local news.[251] Thus, CTV argues that it is entitled to an increased share of royalties. *See* CTV PHB at 4–6. In its reply, CTV argues that despite criticisms of RTDNA surveys, Program Suppliers provide no evidence, empirical or otherwise, to rebut or refute what Prof. Papper consistently presents throughout his testimony, which is that that local television stations across the country, including those that were distantly retransmitted, were producing and airing increasingly more local news programming over the course of 2014–2017.[252] Further, CTV argues that as Prof. Marx testified, CSOs' inability to offer as much CTV content in 2015–2017 was divorced from any actual choice made by the CSOs, and was due to the reduction of available CTV programming as a result of the WGNA conversion. CTV Reply at 52–53.

Program Suppliers argue that the RTDNA Surveys should be given no weight for several reasons, including the fact that Prof. Papper failed to provide the information necessary to evaluate his target population, sample design, the data he collected (and did not collect) from the RTDNA Surveys, the quality of that data, or the accuracy of the data collection and recording of that data. Moreover, Program Suppliers argue that Mr. Papper's hearing testimony revealed that the reliability issues are more severe, pervasive, and disqualifying than originally thought. Indeed, it is argued, the RTDNA Surveys are not surveys at all, but are instead part of what CTV terms a ''fact-gathering exercise,'' presumably because Prof. Papper admitted that he is not a survey expert and lacks the expertise necessary to sponsor the RTDNA Surveys as evidence in this proceeding. CTV PHB 4. In addition, Program Suppliers argue that while CTV takes the position, based solely on Mr. Papper's RTDNA Survey, that there was an increase in the amount of CTV programming appearing on distant signals, this summary conclusion is directly contrary to the quantitative study conducted by the other CTV experts, Dr. Bennett [253] and Dr. Marx, which shows the dramatic decline in CTV distant carriage over time. Program Suppliers' Post Hearing Reply Brief at 22 (PS RPHB).

The RTDNA Surveys were not offered or received as survey evidence, but rather as information, along with articles, that Prof. Papper relied upon in forming his expert opinions. As such, the RTDNA Surveys were not scrutinized as, for example, the Bortz Surveys were scrutinized in this proceeding. Based on the totality of Prof. Papper's opinions and the sources upon which he relies, including his involvement in the broadcast journalism industry, it is found that there was a trend toward increased production and airing of local news during the 2014–2017 time period, although the extent of that trend is difficult to gauge from Prof. Papper's testimony. Furthermore, that trend does not in and of itself translate to a greater allocation of section 111 royalties for CTV, and the opinions of Dr. Bennett, Dr. Marx and others who testified on the subject of CTV programming are addressed elsewhere.

For the foregoing reasons, the Judges accord evidentiary weight to the Bortz Survey, with the McLaughlin Adjustment—relatively equivalent with the weight given to the regression analysis as discussed *supra.* A reconciliation of these two useful (albeit imperfect) approaches, augmented by the testimony of industry witnesses, is set forth below.

[251] CTV, based on the written testimony of Prof. Papper, argues that there has been a steady increase on the amount of news broadcasts by station, including an increase in the amount of local news from 5.3 hours in 2014 to 5.7 hours in 2017; and the amount of local news also went up on the weekend, from an average of 2 hours per Saturday in 2014 to 2.1 hours in 2017, while the amount of local news on Sunday rose from 1.9 hours in 2014 to 2.1 hours in 2017. Further, it is argued, the number of stations running local news rose from 1026 in 2014 to 1062 in 2017, and as television stations continued to increase their local news budgets during the four-year period, they added more local newscasts to their lineups in the 4 p.m. to 7 p.m. time slots, and the 5 a.m. to 7 a.m. time slots. *See* CTV PHB at 5; CTV PFF ¶¶ 10–11.

[252] CTV argues that in support of the value of their own content, Program Suppliers continue to rely on reports that are like those they find objectionable from Prof. Papper, and the articles Prof. Papper writes that in part rely on the RTDNA Survey. Specifically, CTV argues that Program Suppliers relies on the content of the *Nielsen Year in Sports Media Report, U.S. 2017.* It is argued that this Nielsen Report, which includes and relies on a variety of sports media data, studies and survey results, is no different from Prof. Papper's articles and opinions that are informed, in part, by results from the RTDNA Survey. CTV RPHB at 53 n.267 (citing PS PHB at 13).

[253] Dr. Bennett was called by CTV, and qualified as an expert in statistical methods and measurement. 4/12/2023 Tr. 4497, 4504–05 (Bennett).

XVIII. Conclusion And Award

Regression evidence was presented through Drs. Johnson, Tyler, George and Marx, with the Johnson, Tyler and George regression models generating proposed royalty fund shares for each of the claimant groups in each of the years 2014 through 2017. Furthermore, survey evidence was presented only in the form of the Bortz Survey, which was conducted for each of the years at issue, along with adjustments that could be made to the initial results to account for certain factors (most notably the exclusion of CSOs from the surveys because they carried only PTV or only Canadian programming as distant signals). In addition, the Judges received evidence from industry experts who testified from their unique perspectives about the regressions and annual surveys presented at the hearing, as well as the valuation of programming relative to several of the claimant groups.

For the reasons detailed in this determination, the Judges have found that no form of evidence, be it a regression, the Bortz Survey or the testimony of industry experts, provided data that translates directly into the allocation of royalty fund shares needed for this determination.[254] The results of all regression models in evidence have been considered, but the Judges find that the Tyler Model is the most appropriate regression model in this record, and have accorded it the most weight. The Bortz Surveys provide relevant illustrations of the values placed on distant signal programming during the relevant time period. For 2014–2017, the Bortz Surveys had limitations that other Judges and tribunals have long recognized. In some cases, a more comprehensive assessment of values can be made by applying adjustments proposed by various parties, especially the McLaughlin Adjustment, which has been used at least since the 2004 and 2005 proceeding. The Judges have also taken into consideration the fact that Bortz Survey methodology, like the regression models, faced challenges over the period following 2014, especially due to the conversion of WGNA.

In view of the totality of the evidence presented in this proceeding, the Judges find that a synthesis of regression and survey results is necessary to arrive at the required allocations. In particular, with respect to JSC, the Judges weighted heavily evidence from the Bortz Surveys. While the record shows that minute volume is not as applicable to sports programming (which is more dependent, for example, on games carried), JSC's allocation must be limited by the fact that significantly less sports was transmitted after the WGNA conversion. Yet, with respect to PTV, the regression evidence was accorded greater weight for 2014, and dispositive weight for 2015–2017. As already described, the regression evidence accounted for the reduction of shares due to the Must Carry signals, as well as increases due to the implicit willingness to pay as shown by cable systems that continued to carry PTV even when WGNA was no longer available as a distant signal. By contrast, the Bortz Surveys did not examine such circumstances, and there is no rationale for augmenting the survey results with the McLaughlin Adjustment for all the PTV-only systems that came into existence after 2014.

For CTV, the Bortz Surveys weighed heavily in making the allocation, which is not inconsistent with evidence presented by industry experts Mr. Vaughn and Prof. Papper, as well as the industry analysis provided by Dr. Marx. Relatively speaking, the value of CTV should have increased since 2013, with the rise of streaming and over the top programming, more than one sees when simply looking at the regression results. Much of the CTV programming was not available on streaming, and would increase its relative value in what was technically distant signal programming because it was retransmitted to a contiguous area.

With respect to the allocation for the Program Suppliers, the Bortz Survey evidence weighed more heavily than the regression evidence. Expert testimony showed that streaming services could substitute for retransmitted signals. This factor was not reflected in the regression evidence, but the Bortz Survey respondents, as cable industry executives, would have understood the factors affecting the value of Program Suppliers programming in much the same way as the testifying industry experts.

There is ample evidence in the record that SDC provides niche programming whose value is not so much determined by minutes, and might not show up well in regressions. Yet, the niche value of SDC has been reflected well in the Bortz Surveys received in this proceeding, and previously, and is reflected in relatively consistent numbers. Inasmuch as the allocations for SDC, by any parties' estimation, resulted in low numbers, one sees share allocations with relatively steep jumps or declines between years, but when compared to the overall allocations to be made, the variations are not great in absolute terms.

With respect to CCG, in general, the regressions examined the value of Canadian programming in detail, and were relied upon in making allocations. Yet, even the regression evidence was weighed carefully because although CCG had strength as a niche offering, it also overwhelmed some regressions, including the above-minimum-fee programming model. The Bortz Surveys were considered, but accorded no weight when arriving at the Basic Fund allocations because much Canadian programming is not taken into consideration, and the Bortz results were clearly off the mark.

Accordingly, the allocations are, as follows:

TABLE 2—BASIC FUND ROYALTY ALLOCATIONS

Basic Fund	2014	2015	2016	2017
CCG	6.19	14.59	14.60	15.77
CTV	20.55	19.78	17.36	17.50
JSC	36.13	11.42	10.72	12.36
Program Suppliers	21.21	28.29	25.53	23.29
PTV	11.07	19.18	24.78	25.25
SDC	4.85	6.74	7.01	5.83

[254] To the extent that any criticism of, or deficiency in, the record evidence was not discussed, it is because said criticism or deficiency does not change the outcome of this determination.

With respect to the 3.75% fund, it is recognized that PTV is a nonparticipant. To arrive at the allocations for the 3.75% fund set forth in Table 1, the Judges have reallocated the PTV shares proportionally among the claimant categories that participated in that fund.

The Register of Copyrights may review the Judges' Final Determination for legal error in resolving a material issue of substantive copyright law. The Librarian shall cause the Judges' Final Determination, and any correction thereto by the Register, to be published in the **Federal Register** no later than the conclusion of the 60-day review period.

Dated: April 17, 2024

David R. Strickler,
Copyright Royalty Judge.

Steve Ruwe,
Copyright Royalty Judge.

David P. Shaw,
Chief Copyright Royalty Judge.

The Register of Copyrights closed her review of this Determination on June 13, 2024, with no finding of legal error.

Dated: June 13, 2024.

David P. Shaw,
Chief Copyright Royalty Judge.

Approved by:

Carla B. Hayden,
Librarian of Congress.

ADDENDUM A

Before the Copyright Royalty Judges

The Library of Congress

In re Distribution of Cable Royalty Funds
Docket No. 16–CRB–0009 CD (2014–17)

Public

Order 46 Granting in Part and Denying in Part PTV's Motion for Rehearing and Denying JSC's Motion for Rehearing

I. Procedural Background and Legal Standard

a. Procedural Background

On September 6, 2023, the Copyright Royalty Judges (''Judges'') issued their Initial Determination of Royalty Allocation (''Initial Determination'' or ''ID'') in the captioned proceeding (eCRB no. 28762).

On September 21, 2023, the Public Television Claimants (''PTV'') and the Joint Sports Claimants (''JSC'') filed motions for rehearing (eCRB nos. 30637 and 30638, respectively).

On September 25, 2023, the Judges issued Order 43, permitting written responses to the motions for rehearing by October 5, 2023.

On October 5, 2023, the Canadian Claimants Group (''CCG''), Program Suppliers (''PS'' or ''Program Suppliers'') and Settling Devotional Claimants (''SDC'') filed a Joint Response in Opposition to the Motions for Rehearing (eCRB no. 32670) (''Joint Response'').

On October 5, 2023, JSC and the Commercial Television Claimants (''CTV'') filed responses in opposition to PTV's Motion for Rehearing (eCRB nos. 32671 and 40001, respectively).

On October 5, 2023, PTV filed a Response in Opposition to JSC's Motion for Rehearing (eCRB no. 32673).

On October 10, 2023, the Judges issued Order 44, granting movants leave to file replies by October 19, 2023.

On October 19, 2023, JSC filed a reply in support of its motion for rehearing (eCRB no. 33842) and PTV filed a reply in support of its motion for rehearing (eCRB no. 33843).

b. Legal Standard

Pursuant to the Copyright Act, the Judges may grant a motion for rehearing in exceptional cases. 17 U.S.C. 803(c)(2). Applying this statutory ''exceptional case'' requirement, the Judges' regulations state that the movant must show that an aspect of the determination is ''erroneous.'' *i.e.,* ''without evidentiary support in the record or contrary to legal requirements.'' 37 CFR 353.1–.2.

In applying these statutory and regulatory standards, the Judges grant rehearing only ''when (1) there has been an intervening change in controlling law; (2) new evidence is available; or (3) there is a need to correct a clear error or prevent manifest injustice.'' *See* Order Granting in Part and Denying in Part Motions for Rehearing at 2 n.3, *Determination of Royalty Rates and Terms for Making and Distributing Phonorecords (Phonorecords III),* Docket No. 16–CRB–0003–PR (2018–2022) (Oct. 29, 2018) (citing Order Denying Motion for Reh'g at 1, *Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services (SDARS I),* Docket No. 2006–1 CRB DSTRA (Jan. 8, 2008) (applying federal district court standard under Fed. R. Civ. P. 59(e))). *See also* Order Granting in Part and Denying in Part Sirius XM's Motion for Rehearing and Denying Music Choice's Motion for Rehearing at 1–2, *Determination of Royalty Rates and Terms for Transmission of Sound Recordings by Satellite Radio and ''Preexisting'' Subscription Services (SDARS III),* Docket No. 16–CRB–0001 SR/PSSR (2018–2022) (Apr. 18, 2018) (''*SDARS III* Order'') (same). Moreover, in the *SDARS III* Order, the Judges made clear what would not be sufficient to warrant rehearing: ''A rehearing motion does not provide a vehicle 'to re-litigate old matters, or to raise arguments or present evidence that could have been raised prior to the entry of judgment.' '' [255] *Id.* at 2 (quoting *Exxon Shipping Co.* v. *Baker,* 554 U.S. 471, 485 n.5 (2008) (quoting C. Wright & A. Miller, *Federal Practice and Procedure* § 2810.1 (2d ed. 1995))).[256]

II. JSC'S Motion For Rehearing

Pursuant to 17 U.S.C. 803(c)(2) and 37 CFR 353.1, JSC requests rehearing, arguing that the Judges' allocations must conform to the record evidence and the law by: ''(1) correcting the Initial Determination's reliance on an outdated and unreliable version of the 'McLaughlin adjustment' calculation; (2) adjusting JSC's 2014 share to align with the record evidence and the reasoning of the Initial Determination; and (3) eliminating reliance on a regression model for the 2015–17 time period that no witness endorsed and is at odds with the record evidence.'' JSC Motion at 1.

a. JSC's Motion Is Deficient Because It Does Not State a Standard Under Which It Can Seek Rehearing

The JSC Motion fails to explicitly set forth a governing rehearing standard for the Judges to apply that would support the substantive arguments on which JSC seeks rehearing. As the Judges noted *supra,* a party may seek rehearing if (1) it demonstrates the existence of an ''exceptional'' case under the applicable statutory section, which, (2) by regulation, means that a party must show that the aspects of the determination identified by the movant were ''erroneous,'' pursuant to (3) specific grounds, such as, *e.g.,* ''clear error'' or ''manifest injustice.'' [257] JSC

[255] An attempt to re-litigate old matters, or to raise arguments or present evidence that could have been raised prior to the entry of judgment, is colloquially referred to as an improper attempt at ''a second bite at the apple.''

[256] In determining whether to grant motions for rehearing, the Judges have also previously relied on *Fresh Kist Produce, LLC* v. *Choi Corp.,* 251 F. Supp. 2d 138, 140 (D.D.C. 2003), which involved a Rule 59(e) motion in a case relating to economic rights. *See, e.g., SDARS III* Order at 2, 7. In view of the facts in *Fresh Kist,* the district court held that ''[a]lthough the court disapproves of parties raising arguments that they could have advanced earlier, the court recognizes that the interests of justice and fairness support reviewing the plaintiff's motion.'' *Fresh Kist,* 251 F. Supp. 2d at 141. Accordingly, the Judges recognize a tension between the proscription against using a rehearing motion to obtain a ''second bite at the apple'' and the need to prevent an unfairness that constitutes a ''manifest injustice,'' which can be addressed on a case-by-case basis.

[257] As also noted *supra,* a ''negative'' requirement for a proper rehearing motion is that the motion cannot simply attempt to relitigate matters that were addressed at the hearing (the so-called ''no second bite at the apple'' requirement) or to raise issues that the movant could have presented at the hearing but did not.

does not express and apply these specific standards, let alone maintain that its arguments meet these standards.

The Judges should not have to *guess* at the standard on which a movant relies for seeking rehearing. Accordingly, the standardless nature of the JSC Motion renders it deficient on this basis alone.[258]

Further, the Judges note that JSC sets forth an incorrect standard for consideration of requests for rehearing, by repeating three times that the Judges' adjustments were ''arbitrary''. Motion at 8–10. However, that standard is an *appellate standard,* not a standard for rehearing. *See, e.g., Hammond* v. *Reynolds Metals Co. Pension Plan for Hourly Emps.,* 2006 WL 8436765, at *2 (N.D. Ala. May 25, 2006) (holding that the ''arbitrary and capricious'' appellate standard of review is inapplicable to the court's ''stringent standard'' for consideration of a Rule 59(e) motion and ''the judicial interest in finality of decisions . . . .''); *Perrin* v. *Hartford Life Ins. Co.,* 2008 WL 11472191, at *2 (E.D. Ky. Mar. 24, 2008) (''the court finds that the defendant cannot attain arbitrary and capricious review of its decision. The court concludes that the defendant has failed to demonstrate appropriate grounds for relief under Rule 59(e)).[259]

Despite the *legal* deficiency of JSC's ''arbitrariness'' argument as a basis for rehearing, in the interest of completeness, the Judges explain *infra* why JSC's substantive assertion that the adjustments were arbitrary is *factually* deficient.

b. Whether the Judges' Initial Determination Relies on an Incorrect Version of the McLaughlin Adjustment

As JSC states in its pending motion, in the Initial Determination, the Judges relied in part on the Bortz Survey with the McLaughlin Adjustment, as the adjustment is found in Exhibit 3049. JSC Motion at 1–2 (citing ID at 177–78, 181, 197–98). JSC argues, however, that Exhibit 3049 is an ''inaccurate version of the McLaughlin adjustment,'' and reliance upon Exhibit 3049 reflects two separate errors. *Id.* at 1.

According to JSC, the first error is that Exhibit 3049 was an early, preliminary calculation of the ''conventional McLaughlin adjustment,'' as proposed in prior proceedings, that was subsequently updated in Exhibit 3105, and ''[t]hus, as between Exhibit 3049 and 3105, Exhibit 3105 is the more accurate calculation of the McLaughlin adjustment.'' *Id.* at 1–2. The second error, according to JSC, is that ''Exhibit 3049, as well as Exhibit 3105, rely on royalty-based weighting that is economically inappropriate after the conversion of WGNA and the enormous increase in minimum fee systems.'' *Id.* at 2. JSC argues that

Bortz subsequently implemented a revised weighting system (referred to as ''base plus 3.75'') that takes account of the proliferation of minimum fee systems in 2015–17 by weighting based on what the CSO would have paid according to the system's distant signal usage absent the minimum fee. Use of royalty-based weighting for 2015–17 conflicts with the Judges' findings regarding minimum fee systems.

Id. JSC further argues, ''[i]f the Judges are relying on Bortz with the McLaughlin adjustment, they should use the version set forth in Exhibits 4001–4003, which applies base plus 3.75 weighting.'' *Id.* Each of these two alleged errors (*i.e.,* (1) using Exhibit 3049 rather than Exhibit 3105, and (2) not using a ''base plus 3.75'' adjustment supposedly set for in Exhibits 4001–4003) are further detailed separately in JSC's motion, and are addressed separately, as follows.

i. Whether Exhibit 3049 Is Outdated, and Should Not Be Used To Determine Shares

1. Summary of the Parties' Arguments

a. The JSC Motion

In addition to the JSC arguments recounted above, specifically with respect to the use of Exhibit 3049, JSC argues:

Mr. Trautman prepared Exhibit 3049 in July 2020, roughly two years before he submitted testimony in this proceeding. *See* Tr. at 3142:22–3143:8, 3145:2–3146:11 (Trautman); Ex. 7100 (Trautman Corrected WDT). As Mr. Trautman testified, it takes an extensive period of time—well beyond when the surveys are fielded—for Bortz to obtain and evaluate the voluminous programming data presented in this proceeding. *See* Tr. at 2886:21–2887:9 (Trautman). That programming data is used in the Bortz results to project allocations to non-respondents according to programming carriage patterns. *See* Ex. 7101 (Corrected Bortz Report), at 29 (''Bortz projected non-respondent values based on signal carriage characteristics,'' including ''the carriage (or lack thereof) of JSC programming''). Thus, while the survey *responses* are not changed over time, the *weighted results* of the survey can be expected to become more accurate over time, as Bortz evaluates more comprehensive programming information.

Mr. Trautman performed, and JSC produced, ''UPDATED'' calculations of the weighted Bortz Survey results and ''conventional McLaughlin adjustment'' dated ''1–21–21'' which are different in small but significant respects from the July 2020 calculations. These ''UPDATED'' calculations are in the record at Exhibit 3105 and a copy is attached as Exhibit 1 hereto. *See* Tr. at 3099:12–21 (admitting Exhibit 3105).

There is no reasoned basis or record support for relying on the outdated, incorrect version of the ''conventional McLaughlin adjustment'' calculation in Exhibit 3049 given that an updated version is in the record

[258] JSC does cite 17 U.S.C. 803(c)(2) and 37 CFR 353.1, which provide parties with the right to seek rehearing, but those mere citations are not enough. The Motion must attempt to tie the movants' substantive arguments regarding the challenged aspects of the determination to specific rehearing standards.

The Judges also note that JSC does attempt to tie its arguments to actual standards *in its Reply.* However, the Judges are highly reluctant to permit new arguments to be made for the first time in a Reply, because such delinquent assertions sandbag the adverse parties, who had already filed their permitted Responses and are unable to address the delinquent arguments in the Reply.

In any event, the Judges' discussion *infra* rejecting JSC's arguments makes it clear that, even had JSC made a timely attempt to identify allegedly applicable specified standards for rehearing and attempted to connect its factual arguments to those standards, the JSC Motion would nonetheless be denied (in part). (In this regard, the Judges note that, in its Reply, JSC cites the Judges' order in the 2010–13 allocation proceeding which noted the rehearing standard in 37 CFR 353.2, requiring a movant to state why it believes the determination is ''without evidentiary support in the record or contrary to legal requirements.'' JSC Reply at 2. JSC makes no allegation of legal error and, as discussed *infra,* there is abundant evidentiary support for the factual findings with which JSC takes issue.)

[259] The paucity of cases in which a party even attempted to rely on the *appellate* issue of whether a decision was ''arbitrary and capricious'' is indicative of the inapplicability of that issue in the context of a Rule 59(e) type of motion. *But see Arias* v. *DynCorp,* 752 F.3d 1011, 1016 (D.C. Cir. 2014) (''We have squarely held that a party must preserve an issue for appeal even if the only opportunity was a post-judgment motion.''); *see also Jones* v. *Horne,* 634 F.3d 588, 603 (D.C. Cir. 2011) (same). The Judges perceive JSC's ''arbitrary and capricious'' arguments as potentially prophylactic measures intended to preserve this issue on appeal, rather than a proper basis for rehearing pursuant to statute, regulation, and the Judges' prior rulings regarding rehearing, which are expressly patterned on Fed. R. Civ. P. 59(e).

Further, JSC relies on a case which does not involve a Rule 59(e) motion, but rather addresses the standard by which the D.C. Circuit reviews a district court's entry of summary judgment. *See N. Cent. Airlines, Inc.* v. *Cont'l Oil Co.,* 574 F.2d 582, 587 n.14 (D.C. Cir. 1978) (cited in Reply at 2). But in the same breath, JSC acknowledges the *narrower* Rule 59(e) standard. Reply at 2 (citing *School for Arts in Learning Public Charter School* v. *Barrie,* 810 F. Supp. 2d 52, 55 (D.D.C. 2011) for the narrow standard, as ''routinely'' held by courts (and CRB Judges), that *Rule* 59(e) motions are not vehicles for (1) rearguing facts and theories upon which a court has already ruled or (2) for raising new issues that could have been raised previously, and that such motions are disfavored and granted only upon a showing of ''extraordinary circumstances''). Additionally, JSC relies on another case, *Dyson* v. *Winfield,* 129 F. Supp. 2d 22 (D.D.C. 2001), in which the district court found an error regarding a question of law, rendering that decision inapposite. But again, the broader defect is that JSC afforded Respondents no opportunity to address the JSC Reply's application of these prior decisions.

Accordingly, the Judges understand JSC's Reply as setting forth the same standards that the courts in the D.C. Circuit routinely apply to Rule 59(e) motions and, as stated in the prior footnote, consider the JSC Motion on that basis.

at Exhibit 3105 and was cited to the Judges. Indeed, the proposed findings of fact of Public Television Claimants (''PTV'') cite to Exhibit 3105 (not Exhibit 3049) in presenting the ''Proposed Shares'' of PTV and JSC ''Determined by Various Analyses of Relative Marketplace Value in 2014–17.'' PTV Corrected PFF ¶ 12, Table 3 & ¶ 43, Table 5. At a minimum, if the Judges are to rely on Mr. Trautman's calculation of the ''conventional McLaughlin adjustment,'' they should rely on the ''UPDATED'' calculation in Exhibit 3105.

The existing record supports the use of Exhibit 3105 rather than Exhibit 3049. However, if the Judges believe that additional information on this issue would be helpful, JSC respectfully requests that rehearing be granted to present additional evidence. Throughout the course of this proceeding, ''[n]o party argue[d] that royalty fund allocations . . . should be made strictly according to the Bortz initial results subject to the McLaughlin adjustment,'' and ''no party had its expert calculate the McLaughlin adjustment . . . for presentation at the hearing.'' Initial Determination at 178. As a result—while JSC vigorously argued that the McLaughlin adjustment should not be used in the abstract, *see, e.g.,* JSC Post-Hearing Br. at 65–68—JSC has not had an opportunity to present evidence on which specific version of that calculation is most accurate and reliable.

JSC Motion at 2–4.

b. The CCG, PS, and SDC Joint Response

In their joint response, CCG, the Program Suppliers, and SDC oppose JSC's motion with respect to the McLaughlin Adjustment, arguing that merely because Exhibit 3049 was an ''early'' calculation that Mr. Trautman subsequently ''updated'' with a recalculation ''does not by itself render the original version outdated or incorrect.'' Joint Response at 4–5. Furthermore, they argue,

> JSC has only itself to blame for failing to explain away the earlier results or to advocate more forcefully for reliance on the later results, particularly considering that Mr. Trautman was specifically asked about Exhibit 3049 and his preparation of 'other documents regarding potential adjustments and weights that would alter those shares' on cross-examination.

Id. at 5 (citing 4/4/2023 Tr. 3142–3145 (Trautman)). Indeed, they argue that, contrary to JSC's assertion, nothing precluded JSC from ''present[ing] evidence on which specific version of that calculation is most accurate and reliable.'' *Id.* at 5 (quoting JSC Motion at 3–4). They argue, ''[a]s the *Initial Determination* observes, 'all parties knew that the Judges applied the McLaughlin [A]djustment to the Bortz Survey initial results in the 2004 and 2005 proceeding, as well as in the more recent 2010–2013 proceeding.' '' *Id.* (quoting ID at 178). According to CCG, the Program Suppliers, and SDC, ''JSC was on notice and cannot use rehearing as a vehicle to present arguments or evidence that it could have raised prior to issuance of the *Initial Determination. Exxon Shipping Co.,* 554 U.S. at 485 n.5.'' *Id.*

c. The PTV Response

PTV argues that JSC and the other parties devoted considerable time and pages during the hearing and in post-hearing briefing to the question of the appropriate weighting for the Bortz Survey responses, and the Judges, having evaluated those arguments, reached a conclusion based on the evidence and the arguments. PTV argues that JSC's motion for rehearing ''merely attempts to relitigate these issues, and now inappropriately advocates for yet another of its panoply of preferred weighting methodologies (another version of a 'base plus 3.75' weighting scheme), among dozens of options that JSC's experts mined to identify shares that increased JSC's allocation.'' PTV Response at 3 (citing Ex. 3039). PTV argues that JSC, apparently aware that its attempt to advance yet another weighting methodology does not meet the standard for rehearing,

> argues alternatively (indeed, primarily) in favor of a more modest adjustment—that the Judges should use Exhibit 3105 rather than Exhibit 3049 as the most accurate calculation of the conventional McLaughlin-adjusted Bortz Survey results. While the differences between these two exhibits appear relatively small, the record lacks evidence supporting JSC's argument, and JSC had more than ample opportunity to introduce evidence during the hearing on this point but chose not to do so.

Id. Accordingly, PTV argues, rehearing is inappropriate under the well-established requirements for a motion for rehearing. *Id.*

Specifically with respect to Exhibit 3015, PTV argues that ''[k]nowing that its broad arguments for re-weighting pursuant to a new methodology exceed what has typically been allowed on rehearing, JSC's more modest lead argument is that the Judges should rely on a purportedly 'updated' calculation of the conventional McLaughlin [A]djustment. JSC's argument should be rejected because JSC failed to argue the point . . . .'' *Id.* at 3. It is further asserted that

> JSC failed to . . . introduce evidence supporting its argument prior to its motion for rehearing, despite ample opportunity to respond to Public Television's questioning at the hearing and arguments in its post-hearing briefing. JSC's request does not meet the rehearing standard because it seeks ''to raise arguments or present evidence that could have been raised prior to the entry of judgment.''

Id. at 3–4 (citing Order Denying Program Suppliers' Motion for Rehearing and Correcting 2012–13 Allocations for Certain Parties, Docket No. 14–CRB–0010–CD, at 1 (Dec. 13, 2018) (''2018 Rehearing Order'')). Indeed, PTV argues that during the hearing, Mr. Trautman was questioned extensively about Exhibit 3049, and Exhibit 3049 was the basis for Public Television's request, in the alternative, that the Judges use the McLaughlin-adjusted Bortz Survey results as the ''royalty floor.'' *See id.* at 4 (citing PTV PFFCL ¶ 208 & n.327; PTV Post-Hearing Br. at 42–43 (citing PTV PFFCL ¶ 208 (depicting Ex. 3049))). PTV argues, ''Despite these arguments, JSC chose not to introduce evidence regarding the relative accuracy of Exhibits 3105 and 3049, and chose not to challenge the figures in Exhibit 3049 until its rehearing motion.'' *See id.* PTV observes,

> [a]ccordingly, in the Initial Determination, the Judges noted that they were ''referred to a chart taken from a spreadsheet prepared by Mr. Trautman, originally for Bortz Media's internal use (Ex. 3049 . . .),'' and correctly observed that, ''[f]ortunately, no party has challenged the figures contained therein as accurately reflecting application of the McLaughlin adjustment to the Bortz Survey initial results.'' Initial Determination at 178.

Id. at 4.

PTV argues that JSC belatedly asserts that Exhibit 3049 is an ''outdated, incorrect version of the 'conventional McLaughlin adjustment''' and that Exhibit 3105 is ''an updated version.'' *Id.* (quoting JSC Motion at 3). Yet, PTV argues, ''There is no support in the record for this assertion. Nor is there support (or even any citation) for JSC's assertion that 'the weighted results of the survey can be expected to become more accurate over time.' '' *Id.* Rather, it is argued, ''there was substantial evidence that over time, Mr. Trautman attempted to develop a number of creative weighting schemes with the purpose of seeking to increase JSC's share, not to achieve more 'accurate' results.'' *Id.* at 4–5.

Finally, PTV argues that JSC is incorrect to argue that JSC lacked the opportunity to present evidence on which specific version of the conventional McLaughlin Adjustment is most accurate and reliable. *Id.* at 5. PTV argues that JSC ''had ample opportunity to present evidence and argument on this issue, including during the extensive examination of Mr. Trautman regarding Exhibit 3049, or in response to Public Television's post-hearing submissions.'' *Id.* It is argued that while JSC asserts that PTV cited to Exhibit

3105 (not Exhibit 3049), such citation ''was only in two illustrative comparison tables collecting various calculations by various witnesses, in order to show that all allocation methodologies showed an increase in Public Television's share, and a decline in JSC's shares.'' *Id.* (citing PTV PFFCL ¶¶ 12, 13 & tbls. 3, 5; PTV Post-Hearing Br. at 41–42). PTV argues that it ''proposed that Exhibit 3049 could be used in the alternative as a 'royalty floor.' *See* PTV PFFCL ¶ 208 & n.327; PTV Post-Hearing Br. at 42–43. Public Television did not advocate for the adoption of Exhibit 3105 as a basis for share allocation.'' *Id.* (footnote omitted).[260]

d. The JSC Reply

In its reply, JSC reiterates that one reason Exhibit 3049 is incorrect is because it is an early, preliminary calculation that was updated in Exhibit 3105. JSC Reply at 5–6 (citing JSC Motion at 1–4). JSC argues that ''[n]o party disputes that Exhibit 3105 is a more recent, 'UPDATED' version of the calculation in Exhibit 3049'', or that ''over time, Bortz incorporates more comprehensive programming information into its calculations.'' *Id.* at 5. JSC argues the ''Responding Parties' speculative attempts to justify reliance on Exhibit 3049 instead of Exhibit 3105 are contrary to the record.'' *Id.* JSC argues that while the

> Joint Respondents posit that a ''later'' calculation ''does not by itself render the original version outdated or incorrect'' . . . Exhibit 3105 is not simply a ''later'' calculation; the record supports the conclusion that Exhibit 3105 is more accurate because it incorporates more comprehensive programming data to project allocations to non-respondents.

Id. (citing, *inter alia,* JSC Motion at 2–3). JSC further argues that while PTV speculates that Mr. Trautman may have applied some creative weighting scheme with the purpose of seeking to increase JSC's share in Exhibit 3105, there is no evidence of that. *Id.* (citing PTV Resp. at 4–5). Rather, JSC argues, ''Exhibit 3105 was created for Bortz's internal use, not to present a proposed share allocation in these proceedings.'' *Id.* (citing 4/3/2023 Tr. 2881–2882 (Trautman)).

2. Discussion

As addressed in the Initial Determination, the parties knew going into the hearing that the McLaughlin Adjustment, having been applied to Bortz surveys in the 2004 and 2005 allocation proceeding, and in the 2010–2013 allocation proceeding, would be relevant to the issues addressed during the allocation hearing for 2014–2017. *See* ID at 178. Indeed, during its opening argument, JSC expressed its disagreement with use of the McLaughlin Adjustment to allocate shares, particularly with respect to 2015 through 2017. *See* 3/20/23 Tr. 69. JSC also knew that it had produced calculations found in Exhibits 3049 and 3105,[261] which showed that Mr. Trautman, JSC's witness from Bortz Media who sponsored the Bortz 2014–2017 surveys, had calculated the McLaughlin Adjustment for the 2014–2017 time period. *See, e.g.,* JSC Motion at 2–3; ID at 161. During Mr. Trautman's direct examination at the hearing, JSC asked Mr. Trautman questions about the McLaughlin Adjustment, including questions concerning the fact that he had performed the McLaughlin Adjustment, as follows:

> Q. * * * In the course of doing your work for 2014 to '17, did you ever run the McLaughlin adjustment?
> A. Early on, I did, yes.
> Q. Why did you do that?
> A. Well, I was aware that some form of the McLaughlin adjustment had been applied in past proceedings, including in 2010 to '13, and so I was interested to see what the outcome would be if that were applied for 2014 to 2017.
> Q. And if someone were to say: Well, the fact that Mr. Trautman ran the McLaughlin adjustment shows that it was his view that McLaughlin adjustment was appropriate, what would your response be?
> A. That that's not the case at all. I was simply performing a calculation in order to see what the outcome would be.

4/3/2023 Tr. 2881–2882 (Trautman). Thus, Mr. Trautman testified that ''[e]arly on'' he performed ''a calculation.''

Subsequently, during the cross-examination of Mr. Trautman, PTV raised the fact that he calculated the McLaughlin Adjustment, as follows:

> Q. * * * Mr. Trautman, you did attempt to calculate the McLaughlin adjustment for the 2014 to '17 Bortz Survey results before you filed your written direct testimony in this proceeding, correct?
> A. Yes. Early on in my review of 2014 to '17, I did prepare spreadsheets that calculated what the outcome of the McLaughlin adjustment would be or could be.
> Q. So let's take a look at Exhibit 3049, which was produced as JSC 00081249. Mr. Trautman, you recognize Exhibit 3049 as one of your documents, correct?
> A. Yes.
> Q. And I'll represent to you that the last modified date on this document, as it was produced to us, is July 27th, 2020, nearly two years before written direct testimony was due in this case. Is that consistent with your recollection?
> A. It is, yes.
> Q. And there are two tables in Exhibit 3049, correct?
> A. Correct.
> Q. And the bottom table is titled ''Weighted Bortz Survey Results By Year, 2014-'17 (After Conventional McLaughlin Adjustment).'' Correct?
> A. Correct.
> Q. And the bottom—and in this table, PBS is identified in the first column at the top—well, in the first row at the top of the table, row 25, correct?
> A. Correct.
> Q. And there are columns labeled, from left to right, 2014, 2015, 2016, 2017, and average 2014 to '17, correct?
> A. Correct.
> Q. And in this table, you calculated PBS's share as 8.4 percent in 2014, 43.6 percent in 2015, 48.4 percent in 2016, and 48.2 percent in 2017, with a 37.1 percent average from 2014 to 2017, correct?
> A. That's correct.
> Q. And then let's go down to the next row the Sports share. The Sports share is listed as 39 percent in 2014, 12.7 percent in 2015, 12.2 percent in 2016 and 14.8 percent in 2017, with an average 2014-to-'17 share of 19.7 percent; is that correct?
> A. Yes, it is.
> Q. Now, after Bortz prepared this document that we just looked at—and we can take that down. And let me, I guess, rephrase that. I mean, I don't know whether you used the term ''Bortz'' or you interchangeably. I'm happy—do you have a preference in that, Mr. Trautman?
> A. I really don't.
> Q. Okay. Well, after you prepared the document we just looked at, you prepared other documents regarding potential adjustments and weights that would alter those shares, correct?
> A. I recall that I did, yes. I don't recall a specific sequence or, you know, exactly which took place when in the sequence, but I did look at other ways of examining the issue.

4/4/2023 Tr. 3142–3145 (Trautman).

As seen from the preceding transcript portion, the witness's attention, and the attention of the Judges, was directed exclusively to Exhibit 3049. On redirect, JSC did not conduct any examination to show that there was any error in Exhibit 3049 as a calculation of the McLaughlin Adjustment, or that it had been in any way updated or superseded, for example, by Exhibit 3015 or the calculations contained therein. In neither JSC's pending motion nor its reply is there any such citation to the hearing record.

Given the hearing testimony concerning Exhibit 3049 and the McLaughlin Adjustment, it was not

[260] In the footnote, PTV argues, ''That said, the differences between Exhibit 3049 and Exhibit 3105 appear relatively small, although the record evidence does not explain the basis for those differences.'' PTV Response at 5 n.1.

[261] Exhibits 3049 and 3105 were received into evidence with no objection and no argument. *See* 4/4/23 Tr. 3099.

surprising that PTV relied on pertinent portions of Exhibit 3049 in its Proposed Finding of Fact (PTV PFF ¶ 208), The Judges expressly relied on this proposed factual finding in the Initial Determination. *See* ID at 177 (citing PTV PFF ¶ 208); *see also* PTV Post-Hearing Br. at 82. In its pending motion and reply, JSC has cited to no initial or reply filing in which it pointed out any particular error in Exhibit 3049.[262]

Not even in the pending motion and reply has JSC shown that any data point contained in Exhibit 3049 is erroneous. Although Exhibit 3015 is labeled ''UPDATED'' and the data were calculated after the tables in Exhibit 3049, it cannot be presumed that Exhibit 3049 contains error.

The closest JSC has come to explaining why Exhibit 3105 should be considered ''updated'' appears only in its pending motion, in which JSC argues,

> it takes an extensive period of time—well beyond when the surveys are fielded—for Bortz to obtain and evaluate the voluminous programming data presented in this proceeding. *See* Tr. at 2886:21–2887:9 (Trautman). That programming data is used in the Bortz results to project allocations to non-respondents according to programming carriage patterns. *See* Ex. 7101 (Corrected Bortz Report) at 29 (''Bortz projected non-respondent values based on signal carriage characteristics,'' including ''the carriage (or lack thereof) of JSC programming''). Thus, while the survey responses are not changed over time, the weighted results of the survey can be expected to become more accurate over time, as Bortz evaluates more comprehensive programming information.

JSC Motion at 2–3.

Consequently, only now after the hearing, JSC argues that Exhibit 3105 can be considered ''updated'' because when the tables in Exhibit 3105 were calculated, Bortz Media projected allocations for non-respondents differently than it had at the time that the tables in Exhibit 3049 were calculated. JSC refers to such differences as ''small but significant.'' *Id.* at 3. Yet, inasmuch as JSC's citation to a documentary exhibit is general in nature and does not reference Exhibit 3105 and the calculation contained herein, and further JSC did not examine Mr. Trautman about his McLaughlin Adjustment calculations at the hearing (even after the relevant cross-examination by PTV), there is no way to determine whether JSC's belated characterization of Exhibit 3105 is accurate, and that the data contained therein is accurate.

In its pending motion, JSC argues, ''the proposed findings of fact of Public Television Claimants ('PTV') cite to Exhibit 3105 (not Exhibit 3049) in presenting the 'Proposed Shares' of PTV and JSC 'Determined by Various Analyses of Relative Marketplace Value in 2014–17.' PTV Corrected PFF ¶ 12, Table 3 & ¶ 43, Table 5.'' JSC Motion at 3; *see* JSC Reply at 8. That argument does not portray the full picture. PTV cited expressly to Exhibit 3105 in its Proposed Finding of Fact ¶ 12, in a string cite showing support for a table it created to illustrate proposed share allocations resulting from seven proposed methodologies. *See* PTV PFF ¶ 12; *see also* PTV PFF ¶ 43 (table with citation to Ex. 3105). Yet, as already discussed, PTV cited, and reproduced a table from, Exhibit 3049 in its Proposed Finding of Fact. *See* PTV PFF ¶ 208. Furthermore, PTV cited to Exhibit 3049 (rather than Exhibit 3105) in a table found in the PTV initial post-hearing brief, and again cited to Exhibit 3049 (via PTV PFF ¶ 208) when making its substantive argument concerning a ''relative value floor'' for PTV. *See* PTV Post-Hearing Br. at 15, 42–43. None of the citations made by PTV in its post-hearing brief and proposed findings clarify or contextualize the content of Exhibit 3105, or, more importantly, diminish the weight the Judges were able to accord to Exhibit 3049.[263]

ii. Whether Use of the McLaughlin Adjustment Requires Base Plus 3.75 Weighting Rather Than Royalty-Based Weighting

1. Summary of the Parties' Arguments

a. The JSC Motion

In addition to the JSC arguments recounted above, specifically with respect to the use of base plus 3.75 weighting, JSC argues:

> There is a second, independent issue concerning the Judges' application of the McLaughlin adjustment. Both Exhibit 3049 (the outdated version) and Exhibit 3105 (the updated version) use royalty-based weighting. However, after creating these exhibits, Mr. Trautman determined that royalty-based weighting is not appropriate for 2015–17 due to the overwhelming number of minimum fees systems. Mr. Trautman subsequently ran the Bortz results with the McLaughlin adjustment using the revised base plus 3.75 weighting, as set forth at Exhibits 4001–4003. If the Judges are relying on the Bortz Survey with the McLaughlin adjustment, they should use this version that applies base plus 3.75 weighting rather than royalty-based weighting.
>
> As Mr. Trautman and Dr. Majure testified, use of royalty-based weighting improperly skews the survey calculations by giving inordinate weight to minimum fee systems that typically did not even use their full minimum fee budget. *See* JSC PFOF ¶ 302. The Judges similarly concluded that decisions by minimum fee systems during the 2015–17 period are not probative of relative market value. *See* Initial Determination at 129 & n.155 (''[T]hese [minimum-fee-paying] CSO decisions do not provide the Judges with any useful information regarding the relative value of the retransmittal of the various programming categories . . . .'').
>
> The Initial Determination explains that in ''2015–2017, the overwhelming percentage of CSOs pay only the minimum fee, and the vast majority of section 111 royalties are generated by those minimum-fee-paying CSOs.'' *Id.* at 134. The Initial Determination likewise discusses how both the regression and survey methodologies changed (or should have changed) to account for the ''dramatic increase in the number of minimum-fee only'' systems in these years. *See, e.g., id.* at 21–22, 167 n.206. As relevant here, the Bortz Survey methodology ''changed to weight the results based on the Base-plus-3.75 fees attributable to the actual signal carriage of the Form 3 systems, and to apply the results using signal carriage-based fee calculations rather than actual royalties paid.'' *Id.* at 167 n.206. This change in the weighting was necessary to avoid '' 'introduc[ing] a distortion, by giving excessive weight to systems with large Minimum Fee payments even when they have chosen to carry very little distant signal programming.' '' JSC Post-Hearing Br. at 56

[262] In the Initial Determination, the Judges stated, ''To see the figures obtained when the McLaughlin adjustment is applied to the Bortz Survey initial results at issue in this proceeding, the Judges are referred to a chart taken from a spreadsheet prepared by Mr. Trautman, originally for Bortz Media's internal use (Ex. 3049, duplicated above). Fortunately, no party has challenged the figures contained therein as accurately reflecting application of the McLaughlin adjustment to the Bortz Survey initial results . . . .'' ID at 178.

[263] The Judges also remain concerned by the fact that Mr. Trautman twice stated in his testimony in this proceeding that he initially generated a version of the original McLaughlin Adjustment ''to see what the outcome would be.'' 4/3/2023 Tr. 2881–2882 (Trautman). But an expert generating his prior preferred approach in order ''to see what the outcome would be'' (here, what the allocations would be) undermines his role as an objective expert, who should first identify the elements of his or her methodology and then disclose—for better or worse—the results of that action. Here, Mr. Trautman acknowledged that he ran his prior McLaughlin Adjustment ''to see what the outcome would be'' and then abandoned it in favor of making other adjustments (increasing the JSC share), which, as PTV stated, indicates that ''Mr. Trautman . . . embarked on a multi-year quest 'to conjure up' additional adjustments.'' Initial Determination at 176. Indeed, Mr. Trautman's sequential modeling of the McLaughlin Adjustment resembles the revisionary work of other experts, which the Judges criticized as evidencing improper ''searches'' for an allocation model that would increase the allocations of the parties by whom they were engaged. *See* Initial Determination at 39 & n.45 (''Also troubling was the fact that, over a prolonged period, successive testing by [the expert] was highly correlated with a steady rise in PTV's allocation shares'' . . . ''[T]he Judges are concerned with whether the evidence suggests that experts may have engaged in any inappropriate or questionable acts in the course of attempting to maximize the return to the party on whose behalf they give testimony.'').

(quoting testimony of Dr. Majure). No party disputed the propriety of Bortz's new weighting approach, nor is it questioned in the Initial Determination.

Bortz developed its revised base plus 3.75 weighting approach over time, after recognizing that there were many more CSOs paying the minimum fee in 2015–17. *See* Tr. at 3149:11–3151:11 (Trautman). The first calculation in the record using an early version of the revised weighting approach (initially only applied to PTV-only systems) was performed in June 2021. *See* Ex. 3048; Tr. at 3147:19–3149:5 (Trautman). The ''conventional McLaughlin adjustment'' calculations in Exhibits 3105 and 3049 predate that change, *see supra* at pp. 2–3, instead applying the historical, royalty-based weighting that undisputedly distorts the results, making them unreliable for 2015–17.

The record contains more recent calculations of the McLaughlin adjustment for the years 2015–17 applying the corrected, base plus 3.75 weighting. These calculations are part of the Bortz Survey data that JSC produced in connection with Mr. Trautman's written direct testimony. *See* Ex. 4001, ''2015 Data File'' at Rows 588–590, Columns W–AD (showing ''Adjusted Royalties'' after ''PTV/Canadian Adjustment'' for 2015); Ex. 4002, ''2016 Data File'' at Rows 573–575, Columns W–AD (same for 2016); Ex. 4003, ''2017 Data File'' at Rows 571–573, Columns W–AD (same for 2017); *see also* Tr. at 4792:7–4793:20 (Carbert) (identifying and admitting Exhibits 4000–4003). These calculations are the most accurate and reliable version of the McLaughlin adjustment in the record, on which the Judges should rely to the extent they give weight to the adjustment. A table setting forth the relevant results from Exhibits 4001–4003 is attached as Exhibit 2 hereto.

If the Judges conclude that identifying the correctly weighted McLaughlin adjustment calculation requires further information, JSC respectfully requests that the Judges grant rehearing to present additional evidence on the issue. In the post-hearing briefing, JSC raised the problem of royalty-based weighting in the ''conventional McLaughlin adjustment'' calculation in response to PTV's citation to Exhibits 3049 and 3105. *See* JSC Post-Hearing Reply Br. at 62 (''[B]lindly applying the McLaughlin adjustment as it was proposed in prior proceedings, PTV argues that it should be attributed . . . 100% of all of those royalties, massively inflating its share . . . . PTV overlooks that almost all PTV Only CSOs were paying the Minimum Fee in 2015–17, so their substantial royalty payments have nothing to do with their distant signal usage.''). However, because PTV first embraced this calculation in its post-trial briefing, without having previously offered any witness who endorsed it, JSC did not have an opportunity to directly address the reliability of the calculation through its own witnesses.

JSC Motion at 4–6 (footnote omitted).[264]

b. The CCG, PS, and SDC Joint Response

As discussed above, CCG, Program Suppliers, and SDC argue that ''coming up with a different calculation or weighting system later does not by itself render the original version outdated or incorrect.'' Joint Response at 4–5. Furthermore, they argue, JSC was on notice that the McLaughlin Adjustment was relevant to the hearing, ''and cannot use rehearing as a vehicle to present arguments or evidence that it could have raised prior to issuance of the *Initial Determination*.'' *Id.*

c. The PTV Response

PTV argues:

In a transparent overreach that is plainly improper on a motion for rehearing, JSC now argues for yet another alternative weighting methodology for the Bortz Survey that purportedly uses a ''base plus 3.75'' weighting scheme. JSC never presented this calculation on its own as a potential allocation methodology during the proceeding. The two Bortz adjustments that JSC actually did choose to advocate in the hearing were fully vetted in written testimony, at the hearing, and in post-hearing submissions, and the Judges ultimately rejected them. JSC had every opportunity to also present this calculation of the McLaughlin adjustment with ''base plus 3.75'' weighting, and chose not to do so. JSC's request accordingly must be denied. *See* 2018 Rehearing Order at 7.

PTV Resp. at 5–6.

PTV argues that while JSC acknowledges that Mr. Trautman originally focused on the conventional McLaughlin-adjusted Bortz Survey results, he

argues that he later preferred alternative weighting methods, including various versions of a ''base plus 3.75 weighting'' for which JSC now belatedly advocates. JSC Motion for Reh'g at 4. In fact, Mr. Trautman testified that, after initially calculating the conventional McLaughlin adjustment, he spent years testing multiple adjustments and weights, including those that specifically singled out Public Television, to reduce Public Television's shares from those that result from the conventional McLaughlin Adjustment.

Id. at 6 (citing PTV PFF ¶ 209; Tr. 3142–3154 (Trautman); Exs. 3048, 3049) (footnote omitted).[265] PTV argues that,

''[c]ontrary to JSC's suggestion, there is no reason to believe that Mr. Trautman's weighting innovations became more reliable over time, as they appear to have been focused instead on achieving his results-oriented purpose of reducing Public Television's shares as generated by the conventional McLaughlin adjustment.'' *Id.* (citing PTV PFF ¶¶ 208–13).

Moreover, PTV argues,

[t]he ''base plus 3.75'' weighting is inconsistent with the weighting principles that undergirded the McLaughlin-adjusted Bortz Survey in prior proceedings. The Bortz Surveys ask respondents to value only the signals that their CSOs actually distantly carried, and instruct that the sum of the values must equal 100%. As a result, the conventional McLaughlin Adjustment reflects the only possible response when a CSO distantly carried only Public Television signals: 100% to Public Television.

Id. at 6–7. Further, specifically with regard to the weighting of the McLaughlin-adjusted Bortz Survey results, it is argued,

Mr. Trautman testified unequivocally in the 2010–13 proceeding that weighting by total royalties was the correct approach—even as to PTV-only systems, which by definition were almost always ''minimum-fee systems.'' When asked, ''But in your view . . . , the McLaughlin-Blackburn augmentation of the Bortz survey assures that an appropriate weight is applied to the PTV-only systems; correct[?],'' Mr. Trautman said, ''Yes, it considers the systems in the context of royalties, the total royalties that they pay.''

Id. at 7 (citing Ex. 7043 at 551 (2010–13 Trautman Oral Testimony)). Accordingly, PTV observes,

the Initial Determination rejected JSC's proposed adjustment that would have assigned less than 100% of the value to Public Television. Initial Determination at 180; *see also id.* at 178–79 (''Inasmuch as PTV-only systems are still not surveyed by Bortz Media, and there is no empirical evidence to show how PTV-only systems value PTV distant signals, there is no cause now to discard the McLaughlin adjustment . . . . The McLaughlin adjustment has always been presented as a 100-percent or nothing approach, and the Judges can take that characteristic into consideration.'').

Id. at 7.

d. The JSC Reply

In its reply, JSC argues against using Exhibit 3049 or Exhibit 3105 ''because they use incorrect, royalty-based weighting.'' JSC Reply at 6. JSC further argues that its ''witnesses explained at the hearing that royalty-based weighting

[264] JSC argues, ''With proper weighting, the Bortz Survey results with the McLaughlin adjustment estimate shares for PTV that are within 4 percentage points of the Judges' final award to PTV in each year 2015–17.'' JSC Motion at 6 n.1.

[265] In the omitted footnote, PTV's response directs the reader to representative portions of the hearing transcript. *See* PTV Response at 6 n.2 (''Tr. 3150:15–20 (Q. '[T]he analysis there would have applied the McLaughlin adjustment but then would have weighted systems that carried only Public Television distant signals differently from all the other systems? Is that Right?' A. 'My recollection is that's correct.'); Tr. 3153:4–14 (Q. 'So you then considered other adjustments that could be combined with the new weighting approach, correct?' A. 'Broadly, I think that's correct.' Q. 'Those included assigning various values of less than 100 percent to Public Television for systems that carried only Public Television distant signals, right?' A. 'Well, certainly my two adjustments do employ that approach based on the particular characteristics of some of the PTV-only systems.')'').

would improperly skew the survey calculations in the 2015–17 period due to the overwhelming number of minimum fee systems.'' *Id.* (citing JSC Motion at 4). JSC also seeks to analogize to the Judges' analysis of the regression evidence, arguing that,

in the context of the regression analyses, the Judges similarly recognized that the increase in minimum fee systems during the 2015–17 period required methodological changes. Initial Determination at 21–22. Accordingly, Bortz revised its methodology to use base plus 3.75 weighting. JSC Mot. at 4. Calculations of the McLaughlin adjustment for the years 2015–17 applying the corrected, base plus 3.75 weighting are in the record at Exhibits 4001–4003. *Id.* at 5–6.

Id.

JSC argues,

None of the Responding Parties opposed Bortz's change to base plus 3.75 weighting during the proceeding (indeed, SDC and PTV affirmatively bolstered it), and none of them can explain why the reliance on royalty-based weighting in Exhibit 3049 is anything but clear error. The Joint Respondents do not address the issue at all.

Id. (footnote omitted).

JSC argues that PTV,

lacking any evidence from *the 2014–17 proceeding,* attempts to rely on testimony from the *2010–13 proceeding* supporting royalty-based weighting. *See* PTV Resp. at 6–7. But the difference between this proceeding and the last one is critical: royalty-based weighting became a problem in 2015–17 when, as the Judges found, there was a 'dramatic increase in the number of minimum-fee only' systems. Initial Determination at 21. Testimony that royalty-based weighting was appropriate in 2010–13 does not support its use in the changed landscape of 2015–17.

Id. at 6–7.

In addition, JSC argues in its reply that it was diligent, and

promptly objected to PTV's belated embrace of the McLaughlin adjustment with royalty-based weighting when it first arose in post-hearing briefing. *See* JSC Post-Hearing Reply Br. at 62. Nothing in the rehearing standard, or common sense, justifies requiring a party to spend its limited hearing time and briefing space clarifying the most accurate version of each un-endorsed calculation that comes up, particularly where, as here, the alternative calculations presented for even a single base regression numbered in the hundreds.

Id. at 7.

JSC argues, with respect to the cross-examination of Mr. Trautman, that ''pointing a witness to his own alternative calculation is a common form of criticizing a methodology, not an affirmative endorsement of the alternative,'' and with respect to PTV's citations, JSC argues, *inter alia,* ''JSC had no reason to argue for the use of Exhibit 3105 over Exhibit 3049 because PTV's average share does not meaningfully differ between the two exhibits (only the shares of the other parties do).'' *Id.* at 7–8.

JSC argues,

The implausible degree of foresight that the Joint Respondents and PTV would demand of any party seeking rehearing is well beyond anything necessary to deter parties from ''re-litigat[ing] old matters'' or raising new arguments out of time. PTV Response at 2 & Joint Response at 2. Rather, denying rehearing on this record would incentivize parties to disguise their intent to rely on a specific calculation as long as possible, so as to immunize that calculation from the full adversarial vetting process.

Id. at 8–9.

2. Discussion

As an initial matter, the proposed adjustment contained in JSC's Motion Exhibit 2 (derived from Exs. 4001–4003) would, as indicated in the pending motion, apply only to the Bortz survey results for 2015 through 2017. Thus, the adoption of JSC's Motion Exhibit 2 would leave unanswered any questions pertaining to the McLaughlin Adjustment for 2014. In any event, the underlying problem that gives rise to the McLaughlin Adjustment, and all other adjustments advanced by the parties, is in the way that the Bortz surveys exclude certain PTV and Canadian signals. While the problem should not be overstated, the Bortz surveys contain downward biases with respect to relevant PTV and Canadian programming. *See* ID at 168. The McLaughlin Adjustment has been recognized as an adjustment, or augmentation, that helps to remedy bias in the Bortz methodology but may do so on an imprecise basis. *Id.* at 168, 179. There is no indication that any adjustment exists that compensates completely for weakness in the design of the Bortz surveys.

With respect to JSC's newly advanced adjustment, there is no indication in JSC's pending motion and reply that the adjustment derived from Exhibits 4001–4003 was the subject of hearing testimony. Indeed, the available details surrounding the calculations made therein, and condensed in JSC's Motion Exhibit 2, remain scant. JSC argues, ''because PTV first embraced this [McLaughlin] calculation in its post-trial briefing, without having previously offered any witness who endorsed it, JSC did not have an opportunity to directly address the reliability of the calculation through its own witnesses.'' JSC Motion at 6. Yet, this argument is unavailing for several reasons. As discussed above, all parties knew that the McLaughlin Adjustment would be at issue in the hearing. JSC even addressed the McLaughlin Adjustment in its opening argument, and later during the direct examination of its witness Mr. Trautman. As JSC expected, PTV cross-examined Mr. Trautman on the McLaughlin Adjustment, yet without corresponding redirect by JSC.

Moreover, JSC did not need to wait, nor did it wait, to find out what PTV would say in its post-hearing filings in order to set forth JSC arguments and evidence concerning adjustments to the Bortz survey results, including its own proposed adjustments. Indeed, during the hearing, JSC presented evidence with respect to its proposed ''Adjustment One'' and ''Adjustment Two,'' which were discussed at length in the Initial Determination.[266] *See, e.g.,* ID at 170–180. One feature of the adjustments proposed by JSC was that Bortz Media weighted the results based on base-plus-3.75 fees attributable to the distant signals actually carried by the PTV-only systems. *See id.* at 170, 171. Aside from the substantive deficiencies in this alternative adjustment, it is not appropriate for JSC to use the rehearing process to advance this argument, when it could have (and should have) been articulated during the hearing.

In addition, JSC's motion fails to adequately address the fact that in the Initial Determination, the Judges already recognized strengths and weaknesses of the Bortz surveys, particularly after application of the conventional McLaughlin Adjustment. *See, e.g., id.* at 178 (''The application of the McLaughlin adjustment to the initial Bortz results for the years now at issue, 2014 through 2017, is relevant, and the adjusted results . . . should be given varied weight, depending on whether one is considering the adjusted results for 2014, or for 2015 through 2017.''); *id.* at 179 (''To the extent that one would specifically exclude Must Carry signals, such as in a regression analysis, the fact that the McLaughlin adjustment is applied to Must Carry signals diminishes the value of such adjusted Bortz results when making a comparison to such other evidence that devalues Must Carry signals.''); *id.* at 180 (''no party, not even PTV, argues that the Bortz Survey with the McLaughlin adjustment is the best methodology of record for arriving at an allocation for 2015–2017''). Having reviewed all adjustments proposed by the parties during the hearing, the

[266] In view of the hearing that JSC has already received, PTV argues that ''the Judges should deny JSC's motion for rehearing, to the extent that the prospective rehearing would rehash which weighting methodology should be applied to the Bortz Surveys . . . .'' PTV Response at 10.

Judges determined, ''the McLaughlin adjustment, provided one understands its aforementioned limitations, is most helpful among the proposed adjustments in understanding the Bortz results.'' *Id.* at 181. Consequently, in allocating shares, the Judges made judicious use of the Bortz surveys (with the McLaughlin Adjustment), in some instances according the Bortz survey evidence no weight at all. *Id.* at 197–98.

iii. Conclusion Concerning the McLaughlin Adjustment and the Request for Rehearing [267]

For the reasons detailed above, the Judges find that it has not been shown that an exceptional case exists, and that an aspect of the Initial Determination is erroneous due to its reliance on Exhibit 3049 and data contained therein. The movant for rehearing, JSC, has not demonstrated that aspects of the determination relating to the McLaughlin Adjustment and Exhibit 3049 are without evidentiary support in the record or are contrary to legal requirements. In that regard, it has not been shown that there is a need to correct a clear error or to prevent manifest injustice with respect to the Initial Determination's cautious use of the Bortz surveys with the McLaughlin Adjustment. Rather, a review of the parties' filings and relevant portions of the hearing record shows that evidence concerning Exhibit 3049 went unrebutted during the hearing, and there is no reason to disturb the hearing record or the findings of the Initial Determination in favor of another exhibit or exhibits (and other calculations contained therein) as to which there is less evidentiary support, whether that be Exhibit 3015 or JSC's newly advanced adjustment as summarized in JSC's Motion Exhibit 2. Furthermore, other approaches to adjustment or augmentation of the Bortz Survey results were presented by JSC during the hearing. It has not been shown that it is necessary or appropriate to rehear any portion of the case with respect to yet another proposed adjustment. As the Judges noted *supra,* the rehearing process cannot be utilized to obtain a ''second bite at the apple,'' *i.e.,* to re-litigate old matters or to raise arguments or present evidence that could have been raised prior to the entry of judgment.

Consequently, JSC's motion for rehearing with respect to reliance on the McLaughlin Adjustment is denied.

[267] JSC's argument, noted *supra,* seeking to justify rehearing by analogy to the Judges' analysis of the impact of the Minimum Fee CSOs on the regression methodology, is discussed separately, *infra.*

c. Whether JSC's Share for 2014 Is Inconsistent With the Record Evidence and the Reasoning of the Initial Determination

i. Introduction

As explained above, it is clear that in the Initial Determination the Judges appropriately and sufficiently considered—and rejected—JSC's proffered alternative adjustments to the Bortz Survey. JSC's request for rehearing as to this issue is properly dismissed, as indicated *supra,* as an attempt to relitigate the issue, *i.e.,* a violation of the ''second bite at the-apple'' proscription.

However, JSC also argues something else—that rehearing is required because, according to JSC, the Judges erred in the Initial Determination by applying the Minimum Fee issue differently to the survey methodology than they did to the regression methodology.[268]

ii. The Parties' Positions

1. The JSC Motion

To put JSC's ''inconsistency'' argument in context, it is helpful to begin by taking note of the basic argument in JSC's Motion regarding the alleged effect of Minimum Fee royalty payments on the Bortz Survey results. In this regard, JSC maintains the following:

> [R]oyalty-based weighting is not appropriate for 2015–17 due to the overwhelming number of minimum fees systems. . . . [U]se of royalty-based weighting improperly skews the survey calculations by giving inordinate weight to minimum fee systems that typically did not even use their full minimum fee budget. . . . As relevant here, the Bortz Survey methodology changed to weight the results based on the Base-plus-3.75 fees attributable to the actual [269] signal carriage of the Form 3 systems, and to apply the results using signal carriage-based fee calculations rather than actual royalties paid.
>
> . . .
>
> This change in the weighting was necessary to avoid '' 'introduc[ing] a distortion, by giving excessive weight to systems with large Minimum Fee payments. . . .' ''

JSC Motion at 4–5 (citations omitted).

But, as noted *supra,* the JSC Motion also maintains something more than an error occurred in the Judges' adopting of this weighting. JSC asserts as well that the Judges acted inconsistently, because their ''[ ]use of royalty-based weighting for 2015–17 conflicts with the Judges' findings regarding minimum fee systems.'' JSC Motion at 2.[270]

2. The PTV Response [271]

Relating to this issue, PTV responded that it is *JSC* that is inconsistent as to this issue:

> [T]he ''base plus 3.75'' weighting is inconsistent with the weighting principles that undergirded the McLaughlin-adjusted Bortz Survey in prior proceedings. . . . Specifically . . . Mr. Trautman testified unequivocally in the 2010–13 proceeding that weighting by total royalties was the correct approach—even as to PTV-only systems, which by definition were almost always ''minimum-fee systems.'' When asked, ''But in your view . . ., the McLaughlin-Blackburn augmentation of the Bortz survey assures that an appropriate weight is applied to the PTV-only systems; correct[?],'' Mr. Trautman said, ''Yes, it considers the systems in the context of royalties, the total royalties that they pay.'' Ex. 7043 at 551:9–15 (2010–13 Trautman Oral Testimony).

PTV Response at 6–7.

3. The JSC Reply [272]

In Reply, JSC explained why the PTV Response fails to rebut JSC's argument as to this issue. Specifically with regard to the issue of inconsistency vis-à-vis the treatment of the Minimum Fee in the regression analyses, JSC argued:

> 1. The evidentiary weight the Judges gave to Minimum Fee royalty payments *in the Bortz Survey model* was *inconsistent* with the lesser evidentiary weight the Judges gave to Minimum Fee royalty payments *in the regression models.*
>
> 2. The Judges found that—*with regard to the regression models*—Minimum Fee royalty payments, standing alone, for the most part did not provide useful information regarding the ''relative value'' of the retransmitted

[268] This specific argument cannot be rejected under the ''second bite at the apple'' proscription because JSC's claim of inconsistency is based on a comparison of two aspects of the Initial Determination. However, as explained *infra,* this argument fails to support JSC's request for rehearing for other reasons.

[269] JSC's use of the word ''actual'' here is misleading, in the manner previously described by the Judges. *See* Initial Determination at 69 n.79 (''The word ''actual'' in this context is rather Orwellian. For the 2015–2017 period, a substantial majority of the CSOs in which the subscriber groups are situated ''actually'' paid the minimum fee. A Base Fee was ''actually'' calculated, as required by the regulations, but *not* ''*actually*'' *paid,* because the Minimum Fee bound. . . . [M]isleading semantic use of the adjective ''actual'' does not assist the Judges in deciding whether any or all of the Base Fee calculations have objective evidentiary weight. . . .'').

[270] The Judges discuss *infra* at footnote 28 JSC's problematic use of the word ''weighting'' to characterize its application of the Bortz Survey allocations. For clarity, the Judges defer that discussion until *after* they have explained the error in JSC's argument that the Judges should have treated the Bortz Survey results and the regression analyses in the same manner vis-à-vis the Minimum Fee royalties.

[271] The Joint Respondents did not address this issue and, as noted *supra,* CTV did not file a response to the JSC Motion.

[272] As noted *supra,* JSC described the Judges' finding as to this (and all other) rehearing issues as ''clear error'' for the first time in the JSC Reply.

programming, therefore requiring ''*methodological changes*'' *to the regression approach.*

3. Bortz revised its methodology used in prior allocation proceedings, substituting instead its new ''base plus 3.75 weighting,'' to account for Minimum Fee royalty payments as applied to the Bortz Survey model.

4. The adverse parties fail to rebut the argument that the Judges wrongly employed a royalty-based weighting approach which gives undue weight to Minimum Fee royalty payments during the 2015–17 period. Specifically, all the responding parties except PTV ignored the issue. And, as for PTV, it cites no evidence from the present proceeding, and instead relies on testimony from the 2010–13 proceeding supporting royalty-based weighting—ignoring the JSC's assertion that royalty-based weighting only became a problem in 2015–17, with the significant increase in the number of Minimum Fee-only CSOs.

JSC Reply at 1–2, 6–7.

iii. The Judges' Analysis

JSC Wrongly Maintains That the Judges Erred by Inconsistently Applying the Bortz Survey Results to the Royalties Actually Paid Inclusive of Minimum Fee Payments, While Declining To Similarly Rely on Minimum Fee Payments When Considering the Regression Results

The Judges categorically reject JSC's argument that they acted inconsistently, and thus committed ''clear error,'' by giving less evidentiary weight to Minimum Fee royalty payments in the regression models compared to the weight they gave to Minimum Fee royalties in the Bortz Survey model. Indeed, as explained *infra,* by comparing JSC's rehearing argument with the hearing testimony of its economic experts' and its post-hearing filings, it is clear that *it is the JSC analysis (incorrectly advanced in support of its motion for rehearing) that is inconsistent.*[273]

Specifically, JSC argues on rehearing that the Judges clearly erred because their ''use of royalty-based weighting improperly skews the *survey calculations* by giving inordinate weight to minimum fee systems'' which, JSC maintains, is inconsistent with the Judges' conclusion that in the *regression models* ''decisions by minimum fee systems during the 2015–17 period are not probative of relative market value.'' JSC Motion at 4 (citing Initial Determination at 129 n.155, 134). Moreover, in this regard JSC *claims* that ''[t]he Initial Determination likewise discusses how *both* the regression and survey methodologies changed (*or should have changed*) to account for the 'dramatic increase in the number of minimum-fee only' systems in these years.'' JSC Motion at 4–5 (emphasis added) (citing Initial Determination at 21–22, 167 n.206).

Before proceeding to discuss the substance of this argument, the Judges take note that JSC has misleadingly utilized the Initial Determination in the quote above from the JSC Motion. In the Initial Determination, the Judges explained how they apply the Minimum Fee problem *only in the context of a regression model. See* Initial Determination at 21–22, 129 n.155, 134. By contrast, when referring to the Bortz Survey, the Judges simply recited how *Bortz, not the Judges,* sought to insinuate the Minimum Fee issue into the survey approach. *See* Initial Determination at 167 n.206. In this regard, the Judges note that the emphasized parenthetical quote from the JSC Motion in the paragraph immediately above wrongly intimates that the Initial Determination expressly discusses how ''*both the regression and survey methodologies* . . . should have changed'' to address the Minimum Fee issue. JSC Motion at 4–5 (emphasis added). The Judges in fact made no such finding in the Initial Determination regarding how the Bortz Survey methodology should have changed.

Accordingly, the overt inconsistency that JSC suggests is set forth in the Initial Determination simply does not exist (and as explained *infra,* for good reason). With the foregoing misconstrual of the Initial Determination corrected, the Judges proceed *infra* to explain the s*ubstantive* error and inconsistency in JSC's argument that the Judges' erred in their consideration of the effect of the Minimum Fee on the regression approach compared to its non- effect on the Bortz Survey approach.

To make clear the fundamental error in JSC's argument, it is instructive to begin with certain first principles. The statutory scheme supplants marketplace pricing of distantly retransmitted local programming by CSOs. Thus, the parties proffer economic models that they claim to be sufficient to represent relative marketplace value.[274] Here, and as in prior proceedings, the Judges were presented with two starkly different types of models—the regression model and the survey model.[275] In the difference between how these two models approach the concept of relative marketplace lies the explanation why the Minimum Fee issue is a concern in the regression context, but not in the survey context.[276]

Broadly stated, the regression approach seeks to identify value from the expressions of the willingness-to-pay of CSOs, by analyzing their actual decisions (*i.e.,* their ''revealed preferences'') as to which local stations, and thus which program categories on those stations, they decide to retransmit. *See, e.g.,* Initial Determination at 78 (''the regressions identify market-based behavior among CSOs, in the form of revealed preferences for different program categories, and such behavior is relevant evidence useful for estimating relative marketplace value.''). The ''value'' element of this willingness-to-pay (the CSO's ''revealed preference'') is the royalty-based value of a minute of retransmittal of programming within the program categories. However, the presence (indeed, the prevalence) of Minimum Fee-only CSOs complicates this form of value analysis because such CSOs did not incur any royalty cost associated with their specific choices. Accordingly, the Judges needed to take into account this Minimum Fee factor in order to reasonably apply the regression approach. ID at 21 (''The Judges find that the dramatic increase in the number of minimum fee-only CSOs . . . renders regression analyses that include those

[273] To be clear, the Judges' analysis and findings as to this issue do not rely on PTV's argument, noted *supra,* that the testimony of the Bortz Survey witness, Mr. Trautman, in the prior 2010–13 proceeding, precluded or diminished JSC's ability to assert its ''inconsistency'' argument.

[274] The models may be supported by the testimony of industry witnesses and industry documents. Parties who eschew formal modeling may elect to rely solely on industry-based evidence and testimony (as did CTV through the ''directional analysis'' undertaken by its expert witness, Dr. Leslie Marx, for the 2015–17 period. *See* Marx ACWDT ¶ 83).

[275] The existence of competing models in economic litigation is hardly uncommon. As the Judges have previously explained: ''Benchmarks, Shapley and Nash models, surveys and experiments are all models, in that a model is a representation of something beyond itself being used as a representative of that something, and in prompting questions of resemblance between the model . . . and their target systems.'' Initial Ruling after Remand at 87 n.125, *in* Final Determination after Remand at App. A, *Phonorecords III* (June 22, 2023).

[276] As the Judges noted in the Initial Determination, the D.C. Circuit has approvingly noted that there is no reason to require that assumptions or findings applicable to one type of economic model addressing an issue necessarily apply to a different type of economic model attempting to address the same issue. *See* Initial Determination at 48 (citing *NRBNLMC* v. *CRB,* 77 F.4th 949, 971 (D.C. Cir. 2023) (affirming the Judges' finding in their *Web V* Determination declining to apply the ''opportunity cost'' value in one economic model (a Shapley Value model) to an economic model (a benchmarking model) with different assumptions)). Of course, the assumptions in each economic model must be *internally* consistent. *See* J. Schlefer, *The Assumptions Economists Make* at 29 (2012) (an economic model ''provides a check on thinking: it restricts us to at least *consistent* economic worlds . . . .'') (emphasis added).

CSOs less reliable and thus can be accorded only very limited economic evidentiary weight.'').

By contrast, a constant-sum survey, such as the Bortz Survey, does not seek to estimate relative value by examining *actual* decision-making, in a regression or otherwise. Rather, the Bortz Survey seeks to estimate relative value by examining *hypothetical* decision-making by presumably informed CSO employees, who are asked to allocate a fixed but unspecified monetary budget by percentages across identified program categories, totaling 100%. *See* JSC PFF ¶ 296 (and record citations therein). But *at no point in the survey* are the respondents asked to consider whether the relative values are affected by the CSO's *payment* of the Minimum Fee for any programming.[277] Rather, the Bortz Survey is an attitudinal survey, asking respondents to state the relative *values they would hypothetically assign* to some program categories (but not to PTV-only and CCG-only categories as discussed elsewhere in this order and in the Initial Determination), whereas the regressions seek to reveal relative value based on how much CSOs *in fact paid* in royalties to retransmit programs within all the program categories.

Indeed, the JSC's own expert economic witnesses dismissed the very idea that any royalty-based valuation could be probative, characterizing *all* statutory royalty amounts as ''uninformative'' and as mere ''artifacts'' of the statutory system. Dr. Asker, on behalf of JSC, testified in this regard:

> [F]ollowing the WGNA conversion, the experts' price proxies, which are based on base rate (plus 3.75%) royalty fees and therefore ignore the minimum fee, were uninformative measures of the incremental cost cable system operators paid for distant signal content. . . . As a result, these price proxies became biased. . . .
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> . . .
>
> [V]ariation introduced *solely* due to this feature of the base rate (plus 3.75%) *royalty fee calculation* is an artifact of the computation of the fee. . . .''

Asker WRT ¶¶ 58, 98 (emphasis added).

In like manner, another JSC economic expert witness, Dr. Majure, testified that all the regression models merely reflect ''the statutory relationship [between DSEs, revenues, and royalties owed] parrot[ing] back the relative values of distant signals set by Congress.'' Majure WRT ¶ 8.[278]

Importantly for the issue at hand, *Dr. Majure explicitly opined that the Bortz Survey did not have share this defect:*

> By contrast with the regression models . . ., the Bortz [S]urvey method does not have the same problem of a *disconnect* between the data and the conceptual model that is *necessary to interpret the data* within a regression. . . . [T]he survey does not rely on the notion that a minute of each type of content has a specific incremental value. The Bortz survey only requires that respondents have *some experience* with different types of content available on distant signals, so that they will have formed *preferences* for these types of content. . . . The Bortz survey thus connects *directly* to *actual* market value.

Majure WRT ¶¶ 59, 61 (emphasis added).

The economic import of this point was emphasized in further testimony by Dr. Majure, explaining this distinction between the regression model and the survey model:

> [T]he *scarcity of valid observations* for the *regression* method due to the increase, post-WGNA conversion, in CSOs carrying fewer signals than they could without exceeding the minimum royalty fee . . . results in a *significant gap* between a CSO's distant carriage decisions and how much that system paid in royalties. This creates an issue *peculiar* to the regression method [which] depends on statistical *inferences* that are more powerful and reliable when applied to more independent observations that are derived from the same underlying model of economic choices. Unlike the *regression,* which *depends critically on the relationship* between these measures to identify the relative values of content, the survey does not . . . because the *survey* does *not* rely on the *incremental cost* of the content to identify value. Whether a survey respondent carried enough distant signals to be above or below the minimum royalty, their response can address *equally well* how that CSO would apportion a fixed sum between the content types that it did carry.
>
> A *survey* can reveal CSO preferences *reliably* because the survey does not rely upon inference but instead *directly poses the relative value question* to the buyers in the hypothetical market.
>
> * * *
>
> In summary, the *survey* method has the advantage of *not* suffering from any of the problems that make the regression method *unreliable* in the wake of WGNA's conversion.

Majure WDT ¶¶ 129–130, 133 (emphases added).

This expert testimony distinguishing the regression and survey approaches was foundational to JSC's economic theory of the case. *See* JSC PFF ¶ 236 (quoting Majure WDT ¶ 130 to distinguish the survey model from the regression model because the former model ''reveal[s] CSO preferences reliably because the survey does not rely upon inference but instead directly poses the relative value question to the buyers in the hypothetical market.''); JSC Post-Hearing Brief at 3 (''*Unlike the Bortz Survey,* the fee-based *regressions* are entirely *incapable* of estimating relative value in the post-WGNA world predominated by minimum fee systems.'') (emphasis added).

Likewise, in its Post-Hearing Reply Brief (responding to Program Suppliers argument), JSC expounded upon this fundamental difference between the regression approach and the survey approach to the Minimum Fee issue:

> Program Suppliers mistakenly conflate the manner in which the Bortz Surveys and the fee-based regressions treat Minimum Fee CSOs, arguing that ''like the regressions offered in this case, the Bortz Survey considers the stated preferences of survey respondents whose systems pay only the Minimum Fee—in this way, the Bortz Survey considers Minimum Fee systems the same way as the regressions do.'' Program Suppliers *misunderstand* a fundamental difference between the Bortz Surveys and the regressions.
>
> The fee-based regressions *attempt* to estimate relative marketplace value by *associating* minutes of programming with calculated royalty fees. For Minimum Fee CSOs, this presents an insurmountable issue, because Minimum Fee CSOs do *not* pay their calculated royalty fees but instead face an incremental royalty *cost of $0* for the distant signals they *choose* to retransmit. In contrast, the Bortz Surveys do not rely upon a nominal royalty fee *calculation* to draw *inferences* about CSO preferences. Instead, the Bortz Surveys avoid the problem . . . by *directly asking* knowledgeable CSO executives to *assign* relative values to the distant signal programming they carry.

JSC Post-Hearing Reply Brief at 26 (footnotes omitted) (emphases added).

And yet, having repeatedly claimed that the Bortz Survey avoided the alleged analytical vice of associating the statutory nature of the royalties with relative marketplace value, JSC nonetheless now seeks to *convert* that vice into virtue, by seeking to justify its use of a different *survey-weighting* approach because of the *problem* of the Minimum Fee. Not only is that argument self-contradictory, as explained *supra,* it is also lacking in substantive merit regarding the analysis of economic models, as discussed *infra*.[279] In more general economic terms, the regression approach and the survey approach each considers relative

[277] Also, there is no record evidence that survey respondents took into account—or even knew—whether their CSO employer had paid the Minimum Fee or the Base Fee for such programming.

[278] Dr. Majure offered the same opinion with regard to the 3.75% Fund as he did regarding the Basic Fund, testifying that ''the 3.75 royalty fee . . . after 2014 . . . explains only the Congressionally-mandated framework . . . .'' Majure WRT ¶ 80.

[279] PTV also argues that JSC's experts ''mined'' this and other ''weighting scheme[s]'' to ''increase[] JSC's allocation.'' PTV Response at 3. In rejecting this rehearing argument, the Judges need not and do not inquire into the motives of JSC's experts.

marketplace value from different modeling perspectives. The Bortz Survey approach does not seek to define value *a priori*—rather it surveys industry employees who, in response to Question 4 of the Bortz Survey, *assign their* relative value to the several program categories identified by the Bortz interviewer. That is, the respondent may, for example, be focused on demand-side concepts regarding subscriber growth or retention, or supply-side issues such as the hypothetical cost of acquiring the signals necessary to obtain the retransmitted programming, or both. But the *reasons* why survey respondents assign particular values are neither sought nor known by Bortz. In particular, the Bortz Survey respondents are not asked to address any potential impact on value arising from the statutory nature of the royalties actually paid, whether via the Minimum Fee, the Base Fee, the 3.75% fee, or otherwise.

Thus, for the Judges to make any adjustments to the Bortz Survey results based on how the respondents may or may not have incorporated concepts relating to the statutory royalty framework would be untenable, because the underlying economic reasons lurking in the minds of the respondents are not in the record.

Moreover, the thought processes of the survey respondents are irrelevant to what constitutes the probative value according to JSC and the Bortz Survey. That is, it is the status of the survey respondents as knowledgeable industry participants that makes the Bortz Survey responses probative and allows the Judges to give it an appropriate evidentiary weight. In this regard, the survey approach shares a characteristic of the benchmarking approach used by the Judges in their ratemaking cases, in which the underlying economic considerations of market participants are deemed to have been ''baked-in'' to the decisions of licensors and licensees, and their subjective reasons for establishing value are not relevant. *See* Web IV Determination, 86 FR 26316, 26326 (May 2, 2016) (''The Judges hold in this determination, as they have held consistently in the past, that the use of benchmarks ''bakes-in'' the contracting parties' expectations . . . .''), *aff'd SoundExchange, Inc.* v. *Copyright Royalty Bd.,* 904 F.3d 41 (2018). So understood, any *connection* between the Bortz Survey results and the statutory fees is both *unknowable and irrelevant.*

By contrast, as noted *supra,* the regression approach is based on an *a priori assumption* as to what constitutes value in this proceeding, positing that a CSO's relative valuation of the various program categories can be derived from their actual decision-making, *i.e.,* their revealed preferences, based upon the royalties associated with a minute of programming in each category. Thus, for the regression approach, the Judges found (rejecting the arguments of the regression proponents) that the existence of the Minimum Fee royalties was a matter to be addressed, because the evidentiary strength of this *a priori* assumption is compromised by the presence of the royalties paid by Minimum Fee-only CSOs, which are not associated with the cost of any programming (absent particular circumstances necessitating adjustments (such as discussed in the Initial Determination regarding PTV and CCG programming)).

iv. Conclusion

Simply put, whereas the *value* proposition in the regression model lies in the actual retransmission decisions by CSOs, the *value* proposition in the Bortz Survey approach lies in the responses to the survey instrument. Properly understood, the evidentiary weight of the Bortz Survey approach, compared to the regression modeling, lies in the fact that the survey model circumvents what JSC and its expert witnesses characterize as the economic irrelevancy of the Minimum Fee and other elements of the statutory royalty formula set forth in 17 U.S.C. 111. That is, rather than rely on what they claim to be economic ''artifacts,'' JSC and Bortz rely instead on the survey responses of CSO representatives as a *practical* way to value and allocate royalties that are paid according to statutory fiat rather than by revealed preference. However, by attempting to inject concerns regarding the Minimum Fee that apply to regression analyses—through its misconceived plea for consistency—JSC actually reveals its inconsistent understanding of its own survey model,[280] converting it into a tool that, so to speak, is neither fish nor fowl. The Judges appropriately declined to make this analytical error.

For the foregoing reasons, the Judges find that there is no inconsistency between the Judges' decision to address the Minimum Fee issue in connection with the regression model, but not with regard to the Bortz Survey model. Indeed, as explained *supra,* the inconsistency revealed by JSC's rehearing argument lies in JSC's own willingness to abandon its experts' testimonies regarding the fundamental economic modeling differences between the regression and survey approaches, and to pollute the survey approach with irrelevant aspects of the statutory fee.[281]

Accordingly, the Judges' decisions in these regards do not constitute error—let alone ''clear error,'' or otherwise serve as a basis for granting rehearing.[282]

[280] As noted *supra,* an economic model's assumptions need to be internally consistent. *See* Schlefer, *supra.*

[281] One might question why the Judges criticize JSC for making an inconsistent argument, when the Judges used Dr. Tyler's above-Minimum Fee data but found two instances in which it was necessary and appropriate to utilize his full set of calculated Base Fee royalty data. But the Judges did not engage in an inconsistent analysis. Rather, there were unique *fact-based* reasons, as described in this Order and in the Initial Determination, which made the above-Minimum Fee data an incomplete measure of regression-based value, to an extent, for PTV and CCG. The needed adjustments that followed did not demonstrate inconsistency, but rather a careful parsing of the record evidence. By contrast, JSC's position is inconsistent at the *conceptual* level—it first argues (as explained *supra*) that the statutory royalty fee structure does *not* provide evidence of value and that the survey method is the appropriate valuation tool—only to then alter course and adjust the royalty shares by relying on that *very* statutory fee structure it *discredits* as a value metric.

Alternately stated, it would be contrary to the evidence for the Judges to ignore the divergent marketplace impact of the WGNA conversion on Minimum Fee royalty payments. In this regard, the Judges are mindful of the aphorism that a ''*foolish* consistency is the hobgoblin of little minds.'' *See generally* R.W. Emerson, Self-Reliance and Other Essays 24 (Dover unabridged ed. 1993) (emphasis added).

Further, even if JSC's approach somehow could be construed, like the Judges' approach, as not internally inconsistent, it was hardly error, let alone ''clear error,'' for the Judges to exercise their fact-finding duty and their discretion by adopting the approach they found reflects the record evidence and the relative marketplace value standard—and reject one (JSC's approach) they found to be logically questionable and insufficiently probative of marketplace value. (That is, even if the general ''logic'' of JSC's argument were correct, the Judges were under no duty to adopt it.)

[282] As stated in footnote 16, *supra,* the Judges' foregoing analysis indicates why JSC's use of the word ''weighting'' can be misleading in the context of its shift away from its former weighting method. One common meaning of ''weighting'' is an ''allowance or adjustment made in order to . . . compensate for a distorting factor.'' *https://en.bab.la/dictionary/english/weighting.* (For example, weighting is often used to correct for perceived inaccuracies in ''unweighted'' values—as when an election survey has failed to poll a representative sample of voters from a political party or other sub-set of the population of voters.) Here, JSC/Bortz are not changing the weighting of the survey results to correct for a factor that, *in their own experts' opinions,* is not only non-distorting, but wholly irrelevant (as discussed in detail, *supra*). That is, JSC and its expert economic witnesses acknowledge that the Bortz Survey methodology, unlike the regression modeling, is *not* distorted by the nature of the statutory formula for royalty fees.

d. Whether the Judges Adopted a Version of the Tyler Model That No Witness Endorsed for the 2015–2017 Time Period, and Whether It Is at Odds With the Record Evidence

i. The Parties' Filings

1. The JSC Motion

In its Motion for Rehearing regarding the Judges' adoption of the Tyler Model and the adjustments thereto, JSC argues the following points:

1. The Initial Determination adopts a version of the Tyler Model that no witness endorsed for the 2015–17 time period. JSC Motion at 8–9.
2. The other experts opined that the Tyler Model merely ''parroted'' the statutory formula. JSC Motion at 9.
3. The Initial Determination makes ''arbitrary'' adjustments to the Judges' adopted Tyler Model contrary to record evidence. JSC Motion at 9–10.
4. The Initial Determination allocates shares to PTV and CCG that are beyond ''reasonable limits'' because for PTV they are greater than the unadjusted levels, and, for CCG, they are greater than levels from prior years. JSC Motion at 10.
5. The Initial Determination fails to credit allegedly unrebutted testimony of industry fact witnesses inconsistent with the allocations made by the Judges to PTV and CCG. JSC Motion at 10.

2. The Adverse Parties' Responses [283]

a. The Joint Response

In their Joint Response, CCG, Program Suppliers, and SDC respond as follows:

1. JSC does not satisfy any standard for rehearing because it is merely raising points as to which it did not meet its burden of persuasion. Joint Response at 3–4.
2. JSC's attempt to litigate issues already considered or which it failed to consider constitutes an improper attempt to obtain the so-called ''second bite at the apple'' that the Judges' reject as a proper basis for rehearing. Joint Response at 4.
3. The Judges adoption of and adjustment to a version of the Tyler Model based on record evidence is consistent with the D.C. Circuit's prior ruling that the Judges are ''not strictly limited to choosing from among proposals set forth by the parties,'' but, like agencies in general, ''have authority to modify proposals set forth by the parties, or to suggest models of their own.'' Joint Response at 4 n.2; *see also id.* at 6.
4. JSC fails to note that the higher shares for PTV and CCG were consistent with the regression evidence on which the Judges relied, and, by contrast, JSC asks the Judges instead to rely *fully* on the Bortz Survey evidence, an argument which the Judges expressly considered and rejected. Joint Response at 6.

The PTV Response

In its Response, PTV argues as follows:

1. JSC *correctly* asserts that the record contains no evidence to support the Judges' reliance on the Tyler above-Minimum Fee Model.
2. The record contains ''minimal'' yet ''disputed'' evidence—*i.e.,* the ''conventional McLaughlin-adjusted Survey'' and the Tyler Model inclusive of Minimum Fee-paying CSOs—to support a higher PTV share than determined by the Judges.
3. JSC incorrectly maintains that there is no record evidence to support what JSC characterizes as the ''large shares'' awarded to PTV in the Initial Determination for the 2015–17 period.

PTV Response at 1–2, 9–10.

JSC's Reply contains the following points:

1. JSC identifies the ''clear error'' standard as its specific standard for seeking rehearing. JSC Reply at 2.
2. JSC's arguments in its Motion regarding alleged methodological errors cannot be construed as a mere ''rehashing'' of arguments previously considered at the hearing and in the Initial Determination (a/k/a seeking a ''second bite at the apple'') because the above-Minimum Fee version of the Tyler Model was not ''endorsed'' by any witness. JSC Reply at 2, 9.
3. JSC minimizes the importance of its own motion argument that cited industry executive testimony supporting their request for rehearing. Rather, JSC states in their Reply that this is not the ''heart'' of their argument, but rather only reveals that the differences between the regression results and the cited industry witness testimonies ''are so at odds'' as to indicate problems with the regression evidence on which the Judges relied. JSC Reply at 9.

ii. The Judges' Analysis and Conclusion

1. The Judges' Adoption of a Version of the Tyler Model in the Record Does Not Warrant Rehearing

a. The Judges Did Not Err by Adopting the Above-Minimum Fee Tyler Model, Let Alone Commit ''Clear Error''

JSC maintains that the Judges wrongly adopted the above-Minimum Fee analysis undertaken by Program Supplier's expert economic witness, Dr. Tyler. As recounted in detail below, the Judges explained in the Initial Determination why regression modeling for 2015–17 that relied *only* on above-Minimum Fee CSOs was *more* useful and why, *by contrast,* modeling that relied on the Base Fees calculated by the subscriber groups of CSOs who actually paid only the Minimum Fee was of limited usefulness (as when used to adjust for economic value from the regressions uncaptured by the above-Minimum Fee modeling). *See* Initial Determination at 21 (''The Judges find that the dramatic increase in the number of minimum fee-only CSOs . . . renders regression analyses that include those CSOs less reliable and thus can be accorded only very limited economic evidentiary weight [and] the Judges accord significantly more evidentiary weight to regression modeling that focuses only on the CSOs that actually revealed their preferences by willingly paying above the minimum fee, *i.e.,* at the base fee level.''); *id.* at 142–144 (noting particular regression adjustments [284] to economic value necessitated by the evidence).

The Judges further recognized that, despite the evidentiary usefulness of the royalties paid by the above-Minimum Fee cohort in this proceeding, that group generated a smaller portion of the CSO market than in the prior (2010–13) allocation proceeding. Accordingly, the Judges did not accord this regression approach primary weight vis-à-vis the results of the Bortz Survey, as they had in that prior proceeding. *See* Initial Determination at 147 (''[T]he Judges are not giving any *primacy* to the regression evidence in this proceeding, given how the changes in the retransmission sector after the WGNA conversion have affected the available data.''); *id.* at 197 (''[T]he Judges accord evidentiary weight to the Bortz Survey, with the McLaughlin Adjustment—relatively equivalent with the weight given to the regression analysis . . . . [T]he Judges find that a synthesis of regression and survey results is necessary to arrive at the required allocations.'').

Turning to a more granular review, the record is *replete* with evidence, argument, and judicial colloquy regarding the use of above-Minimum Fee evidence as a building block for the ascertainment of relative value. *See* Initial Determination at 12–13. There, the Judges relied on the testimony of Dr. Tyler, who expressly found ''merit'' in a ''version of the model that includes only CSOs paying above the minimum fee [which] presents with the ''*highest degree of confidence*'' the CSO tradeoffs between different stations and categories of minutes.'' *Id.* at 12–13 (quoting Tyler ACWDT ¶ 155) (emphasis added). As a general matter, when the Judges have decided to rely, as here, on the specific opinion testimony of an expert whom they have credited and who himself has the ''highest degree of confidence'' in that specific opinion, under no standard could the Judges' ruling in that regard be subject to rehearing.

[283] CTV did not file a response to the JSC Motion for Rehearing or otherwise oppose it in any other filing.

[284] These are the three adjustments (Adjustments A through C) in the Initial Determination.

Moreover, further support exists in the record for the Judges' adoption of this above-Minimum Fee modeling. *See id.* at 15 (''for these CSOs which CTV accurately describes as 'above-capacity' . . . paying above the minimum fee, the base fee royalties reported by their subscriber groups are their actual royalty payments, revealing the CSO's perceived value of the distantly retransmitted stations and their constituent programs.'' (citing Bennett WRT ¶ 15 (a CTV *economic* expert)); CTV PFF ¶ 158 (For above capacity CSOs, ''the reported [Subscriber Group] royalties reflected the amount of royalties actually paid . . . [by CSOs] [that] decided to incur an increased marginal royalty cost[,] . . . revealing the CSO's perceived value of the distantly retransmitted stations.'').

Additionally, the Judges were persuaded by the following supportive argument of the SDC (no fan of the regression approach, to say the least) regarding the Tyler Model as applied to above-Minimum Fee-paying CSOs:

> Dr. Tyler, whose rate-based methodology is the most explicitly based on a ''minimum willingness to pay'' theory . . . offers a sensitivity test [the above-Minimum Fee modeling] of this issue. Tyler [ACWDT] ¶ 156. . . . Dr. Tyler's sensitivity test might provide some *rough guidance* as to the potential direction and magnitude of bias introduced by the presence of minimum fees. SDC PFF ¶ 156. *See also* 4/19/23 Tr. 5473 (SDC's counsel's statement to Dr. Tyler on cross-examination) (''I do want to point out to your credit that your first sensitivity test tries to address this issue.''). This argument is generally consistent with Dr. Tyler's response to SDC counsel on this point, agreeing that it was important to be ''cognizant'' of this minimum fee issue and that it be ''considered and addressed'' because there is ''reasonable disagreement about how to handle the issue.'' *Id.* at 5473–74. . . . [T]he Judges find . . . . the *variant of the Tyler Model* in Figure 6.3 of the Tyler ACWDT offers the Judges' ''*rough guidance*'' in the allocation of shares.

Initial Determination at 21–22 (quoting SDC and its counsel) (emphasis added).

Additionally, the Judges carefully considered this issue at the hearing, questioning witnesses from the bench. *See* 4/13/23 Tr. 4719 (Bennett) (CTV economic expert responding to Judge Strickler that ''the idea that you're relating carriage with the cost or willingness to pay for that carriage, I think, is an entirely reasonable modeling approach where the data exists to link the carriage to . . . those payments. And that is *certainly* true where you have *above-minimum-fee-paying systems* for which the incremental cost is apparent . . .'') (emphasis added); 4/18/23 Tr. 5125 (George) (CCG expert Dr. Lisa George responding to Judge Ruwe that ''the royalty payments are not exact measures of incremental cost. They are *more so* when we're *above minimum fees.*'') (emphasis added); *see also* 4/19 Tr. 5503 (Tyler) (agreeing on cross-examination that ''CSOs paying *above the minimum fee* [is]where you have *economic decision-making* because the costs that they're paying for each of those distant signals are actual binding costs . . . .'').

The Judges further noted at length multiple perspectives in which an above-Minimum Fee cohort of CSOs can be viewed:

> This cohort of CSOs can properly be viewed as essentially the only CSOs who provide revealed preference information as to the variation in relative values among the program categories (in contrast with CSOs who did not retransmit any distant local stations or those with ''excess capacity''), which in that sense is a cohort *unto itself,* rather than a sub-sample. On the other hand, this cohort can also reasonably be viewed as but a *small sample* of all the CSOs, which *reduces* the evidentiary weight of their preferences. Both perspectives on the revealed preferences of these above-minimum fee paying CSOs are properly considered in weighting the various strands of useful evidence in order to allocate royalty shares in this proceeding.
>
> . . .
>
> [I]t is misleading, to say the least, to categorize the base-fee-paying CSOs as merely a small cohort of the larger population of CSOs, when they are differentiated by the key marker for section 111 purposes: whether they assign a relative value to the retransmittals and thus relative values to the retransmitted programs. The Judges find it more accurate and appropriate to consider the base-fee-paying CSOs essentially as a separate cohort of CSOs whose decision-making is pertinent to a regression analysis in this statutory context.
>
> . . .
>
> Colloquially, the issue may be characterized as whether the Judges should let the perfect be the enemy of the good. Here, the ''perfect'' fact pattern would be where all or most of the data is generated by CSOs paying above the Minimum Fee. That is not the factual context here. But there is ''good'' evidence from the CSOs who did retransmit enough programming to trigger the base fees of their subscriber groups, and that the Judges do not ignore that data.
>
> Accordingly, the Judges will give due weight to the minority of CSOs that, in the 2015–2017 period, paid above the minimum fee and thus revealed their preferences by paying an additional royalty in order to retransmit one or more additional stations.

Initial Determination at 100, 130–131 (emphasis added).

The Judges made it clear that they found important economic evidence in the above-Minimum Fee version of the Tyler Model:

> [F]or those CSOs transmitting above 1.0 DSE, they have economic decisions to make regarding the mix of programming they will transmit via their signal decisions. Given the economics and reality of this retransmission market, as described above, only *then* will the relative value of program categories be of *material* economic importance. It is at this stage that the Tyler Model generates information as to relative value, through the Tyler model's coefficients.

Initial Determination at 136.

Relying on this abundant record, the Judges held as follows:

> [T]he Judges rely on the Tyler Model, as Dr. Tyler applied his model to the CSOs paying above the minimum fee. . . . [A]bove-minimum fee paying CSOs[']channel selections/programming preferences are . . . probative and useful, even if less so than in the 2010–2013 Determination because of the reduction in the number of such CSOs and in the percentage of royalties they represent.''

Initial Determination at 21, 66.

But, as indicated *supra,* the Judges did not ignore the fact that the above-Minimum Fee CSO cohort was substantially smaller than identified in the 2010–13 Determination. Specifically, the Judges stated:

> [H]ere the Judges are considering the regression evidence and the Bortz Survey evidence as essentially equally weighted and useful (but not flawless) evidence . . . . [T]he reconciliation will be different than in the 2010–13 proceeding, because the Judges are not giving any *primacy* to the regression evidence in this proceeding, given how the changes in the retransmission sector after the WGNA conversion have affected the available data.

Initial Determination at 147.

To be sure, in its Motion, JSC disagrees with the Judges' adoption of the above-Minimum Fee modeling undertaken by Dr. Tyler. But JSC made its disagreements known at the *hearing* stage of this proceeding, and supported those disagreements with expert testimony. *See* Initial Determination at 19–20.

In particular, one criticism, as described by the Judges, was levied by one of JSC's expert economic witnesses, Dr. Asker, who maintained that it was improper to ''use . . . the base fee as a price proxy *even for CSOs paying above the minimum fee.*'' *Id.* at 19.[285] The Judges declined to adopt Dr. Asker's analysis because: (1) it amounted to

[285] More specifically, Dr. Asker opined that a rational CSO would calculate the actual ''price'' of an above-Minimum Fee retransmission of a local station as the difference between: ''(1) the total fees that would bind, which may have been the minimum fee, without retransmitting that local station, and (2) the total base fees that would bind (the minimum fee having been exceeded) if that local station was distantly retransmitted.'' Initial Determination at 20.

mere ''blackboard economics,'' [286] in that there was ''no evidence'' that any CSO actually engages in the ''tunnel-vision sort of hyperrationality'' described by Dr. Asker; and (2) it was at odds with the testimony of a cable industry expert witness, Sue Ann Hamilton, who stated, in testimony credited by the Judges, that ''CSOs do not devote much attention to issues regarding distant retransmittals.'' *Id.* at 22 & n.29.

As a second criticism regarding this issue, JSC also relied—at the *hearing* stage of the proceeding—on what its statistical expert, Mr. Harvey opined was the lack of ''statistical significance'' in Dr. Tyler's above-Minimum Fee modeling. *See* JSC RPFF ¶¶ 29–30; Harvey WRT ¶¶ 45–46 & tbl.10 [287] (More specifically, JSC and Mr. Harvey maintained that Dr. Tyler's above-Minimum Fee modeling ''failed to obtain statistically significant results for JSC minutes in 2015, 2016 and 2017 . . . .''); *see also* JSC Post-Hearing Brief at 27; Harvey WRT ¶¶ 45–46.

In the Initial Determination, the Judges explained in detail why they disagreed, finding that the above-Minimum Fee Tyler Model was statistically sufficient to carry the level of evidentiary weight the Judges accorded to that model. *See* Initial Determination at 144–148. Accordingly, although JSC may disagree with the Judges' reasoning as to this issue (even though JSC does not in fact address the Judges' reasoning in their Motion seeking rehearing), their disagreement does not remotely suggest that *rehearing* is warranted as to this issue.

In their present Motion seeking rehearing, JSC makes a further criticism of the Judges' reliance on the above-Minimum Fee Tyler Model. Specifically, JSC relies on Dr. Tyler's recommendation at the hearing that the Judges rely on his preferred model in which he applies all the Base Fees calculated by the Subscriber Groups within CSOs, including those for whom the Minimum Fee would bind. But JSC's present post-hearing reliance on Dr. Tyler's preference is seriously misleading.

Although Dr. Tyler preferred one of his models over another, his preference does not dictate which of his analyses the Judges may credit. Here, the Judges declined to defer to his preference because regression models that included the royalty payments of CSOs paying only the Minimum Fee were less useful in reflecting economic decision-making (an argument advanced by JSC and other parties). Instead, the Judges relied heavily on the Tyler Model based on only above-Minimum Fee paying CSOs, for the reasons explained *supra,* as supported by abundant aspects of the record evidence. Initial Determination at 21 (''The Judges find that the dramatic increase in the number of minimum fee-only CSOs (*i.e.,* those with no distant retransmittals and those with some distant retransmittals but with 'excess capacity') renders regression analyses that include those CSOs less reliable and thus can be accorded only very limited economic evidentiary weight. Moreover, the Judges accord significantly more evidentiary weight to regression modeling that focuses only on the CSOs that actually revealed their preferences by willingly paying above the minimum fee, *i.e.,* at the base fee level.'').

JSC also overplays its hand. Dr. Tyler did not maintain that his above-Minimum Fee modeling lacked probative value. Quite the contrary, he testified (as noted *supra*) that his above-Minimum Fee modeling showed, with the ''*highest degree of confidence,*'' actual economic tradeoffs made by CSOs, even though he preferred his model inclusive of the Minimum Fee-paying CSOs. Initial Determination at 13 (quoting Tyler ACWDT ¶ 155).

Moreover, as a general matter, there is no doubt that the Judges may give greater weight to evidence that the proffering witnesses recommend should have less weight. Indeed, such an expert's disagreement in this regard ultimately is of little value, as it intrudes upon the Judges' exercise of their core judicial function to weigh evidence, and, for present purposes, cannot support a claim for rehearing under any of the available standards.

In a related criticism, JSC maintains that the Judges wrongly adopted the above-Minimum Fee Tyler Model because *other* experts supported their own models and approaches over the adoption of any version of Dr. Tyler's modeling. Motion at 9.[288] But again, because one of the Judges' core duties is to weigh competing testimony, including expert testimony, their decision to adopt an opinion proffered by one expert which clashes with opinions of others, is certainly not *ipso facto* erroneous.

More broadly, the Judges are not locked into the recommendations of the parties and the experts. This statutory process is not like ''final offer'' arbitration. As noted by the Joint Respondents, the D.C. Circuit has held that the Judges are ''not strictly limited to choosing from among proposals set forth by the parties,'' but, like agencies in general, ''have authority to modify proposals set forth by the parties, or to suggest models of their own.'' Joint Response at 4 n.2; *see also id.* at 6; *see also Johnson* v. *Copyright Royalty Bd.,* 969 F.3d 363, 381–82 (D.C. Cir. 2020) (citing *SoundExchange, Inc.* v. *Copyright Royalty Bd.,* 904 F.3d 41, 50–51, 57 (D.C. Cir. 2018); *Association of American Publishers, Inc.* v. *Governors of USPS,* 485 F.2d 768, 773 (D.C. Cir. 1973)).

b. JSC Is Improperly Seeking a ''Second Bite at the Apple'' by Asking To Submit Additional Evidence Regarding Dr. Tyler's Above-Minimum Fee Model

As discussed *supra,* JSC submitted testimony from two expert witnesses, Dr. Asker, an economist, and Mr. Harvey, a statistician, in unsuccessful attempts to undermine Dr. Tyler's above-Minimum Fee modeling. Thus, this issue has already been considered and, as Joint Respondents assert, JSC cannot obtain rehearing to introduce further evidence that JSC ''could have submitted at the hearing, but did not,'' and as to which JSC ''did not meet their burden of persuasion.'' Joint Response at 3–4.

Alternately stated, the JSC Motion fails to satisfy the ''negative'' standard for rehearing noted earlier in this order—a demonstration that the movant is not seeking the ''second bite at the apple'' that the Judges have ruled is insufficient to support a request for rehearing.

[286] *See id.* at 22 n.29 for the Judges' application of the economic criticism of unrealistic ''blackboard economics.''

[287] JSC premises its argument on the fact that far fewer CSOs paid royalties at above-Minimum Fee levels in the years 2015–17 than in the pre-WGNA conversion period of 2010–2014 (which straddles this and the prior allocation proceeding). *See* Initial Determination at 18–20. As explained in the Initial Determination, and recounted elsewhere in this Order, the Judges did not dispute this point, and therefore accorded Dr. Tyler's above-Minimum Fee results less evidentiary weight than when more CSOs paid above-Minimum Fee royalties, but they declined to adopt JSC's argument that the Judges therefore should give zero weight to the evidence of CSO decision-making by CSOs that did pay above-Minimum Fee royalties. *Id.* at 131 (''there is 'good' evidence from the CSOs who did retransmit enough programming to trigger the base fees of their subscriber groups, and the Judges do not ignore that data.

Accordingly, the Judges will give due weight to the minority of CSOs that, in the 2015–2017 period, paid above the Minimum Fee and thus revealed their preferences by paying an additional royalty in order to retransmit one or more additional stations.'').

[288] Imagine that—the other experts preferred their own models over another expert's opinion: *Quelle surprise.*

2. The Judges' Adjustments to the Version of the Tyler Model They Adopted Do Not Support JSC's Motion for Rehearing

a. Introduction

JSC also argues that rehearing is warranted because the Judges made two ''adjustments'' via the Initial Determination that were improper.[289] JSC's argument is deficient for several reasons. At a high level, JSC simply *ignores* the Judges' explanations in the Initial Determination for why the above-Minimum Fee version of the Tyler Model—albeit a highly useful lens for broadly identifying relative value—generated certain results that required the Judges to make relative value adjustments for CCG and PTV programming. It is quite simple, but also simply wrong, for JSC to argue that the Judges erred in their reasoning, *by omitting any reference to the Judges' actual reasoning.*

To highlight the importance of these omissions, the Judges recapitulate the reasoning in the Initial Determination which JSC ignores.

b. The CCG Share Adjustment (Adjustment A) [290]

First, with regard to the CCG share (Adjustment A) the Judges reasoned as follows in the Initial Determination:

1. The above-Minimum Fee Tyler Model generates ''an anomalous increase'' in the share allocated to the CCG claimants.

2. This anomaly arose because ''CCG programming is unique among the program categories in this proceeding [in that] it is limited in geographic scope to CSOs located within a 150-mile belt below the U.S./Canadian border'' (known as the ''Canada Zone'').

3. Thus, the above-Minimum Fee Tyler Model ''reflect[s] the unique value of Canadian programming in the Canada Zone, including the uniquely valuable . . . French language programming, a niche sub-category.''

4. Accordingly, in *addition* to the demand for the usual complement of distantly retransmitted programming that exists throughout the wider United States, in the Canada Zone there exists this additional demand. Such greater demand means that CSOs would choose to pay more than the Minimum Fee by adding CCG stations, and thus Canadian claimant programming, to their channel lineup.

5. Therefore, CSOs in the Canada Zone would very likely be overrepresented in the above-Minimum Fee Tyler Model.

6. This phenomenon creates a problem because the Judges are allocating a royalty pool for which, over the period 2015–2017, more than 90% of the funding came from Minimum Fee-only CSOs. Accordingly, although the data from the above-Minimum Fee Tyler Model provides useful economic evidence of CSOs' revealed preferences for other claimant categories, with regard to CCG content and value, this data is distortionary.

7. Confirming this anomaly, CCG itself did not propose receiving the high allocations suggested by the above-Minimum Fee Tyler Model (23.2% in 2015; 31.1% in 2016; and 34.6% in 2017). Rather, CCG proposed that it receive 14.8% for 2015, 13.7% for 2016, and 13.6% for 2017.[291]

8. Accordingly, in their 2015–2017 allocations, the Judges utilize the lower CCG shares reported by Dr. Tyler for all CSOs, rather than only the above-Minimum Fee Tyler Model.

Initial Determination at 142–143.

As noted *supra,* JSC studiously ignores this substantial downward adjustment of CCG's 2015–17 share, which benefited JSC and the other claimants by raising their share allocations, *ceteris paribus.* Rather, as noted *supra,* JSC focuses on a comparison of the CCG shares for 2015–17 with the CCG shares for 2010 through 2014 and claims error sufficient to warrant rehearing based on the increase in CCG shares in this proceeding. Simply put, JSC does not object to the Judges' adoption of adjustments to its above-Minimum Fee approach, but rather only to those adjustments that reduce its inter-year allocations. That argument, now in proper context, is addressed in the subsection below.

1. JSC Misapprehends the Process for Ascertaining Relative Value in Allocation Proceedings

JSC argues that the sheer increase in the size of the Judges' allocation for PTV and CCG are ''arbitrary.'' Motion at 8. More particularly, JSC calculates that ''after the Judges made multiple adjustments to the results, PTV's share in the adjusted regression increased by 51% in 2015, by 69% in 2016, and by 105% in 2017. JSC Motion at 9. With regard to CCG, JSC makes an inter-period argument, asserting that CCG's shares more than doubled in the 2015–17 period compared to the pre-WGNA conversion years of 2010–13 (in the prior allocation proceeding) and 2014 (in the present proceeding). JSC Motion at 10. As explained *infra,* JSC's argument in these regards fundamentally misapprehends the statutory process by which relative values and shares are determined.[292]

Addressing first the CCG inter-period share increase, the Judges note that they do not begin with some pre-determined allocation of shares and then make certain that they can ''back into'' that ''pre-determination'' by conjuring up a comporting analysis. That would not only, to put it colloquially, ''place the cart-before-the horse,'' but would also be antithetical to the Judges' fact-finding duty. In this regard, as the Judges proceed through their analysis, as here, by applying the probative facts—they do not decide *ex ante* that their factual findings cannot exceed (or fall below) some arbitrary level (whether an interim pre-adjusted level or a level from a prior proceeding). Indeed, that too would be an improper exercise by the Judges of their duty to weigh the facts. Alternately stated, when the Judges weight the evidence, they are agnostic as to the share percentages that would ultimately result.

Nonetheless, as noted *supra,* JSC complains that CCG's shares are higher than the shares CCG received in the 2010–13 Final Allocation Determination and in 2014 in the present proceeding. But JSC cites no authority to suggest that allocations should equal or approximate allocations in prior years or from prior proceedings. Indeed, there is no authority in that regard because in each allocation proceeding the Judges consider the allocation issues *de novo,* based on the record developed in that proceeding. To be sure, a party can argue that the underlying facts in the latter proceeding mirror those of the prior proceeding, suggesting it would be correct for the Judges not to deviate from the allocations in the prior

[289] JSC's ''adjustment'' argument comes in two varieties. First, JSC objects to ''Adjustment C'' *in* the Initial Determination which increased PTV shares. Second, JSC objects to the adjustment of the shares allocated *by* the Initial Determination to CCG and PTV for 2015–17, in comparison to their share percentages in the prior years of 2010–13 (in the prior allocation proceeding) and 2014 (in this proceeding.) JSC does not object to ''Adjustment A'' in this proceeding that *lowered* CCG's allocation share, or to ''Adjustment B'' in this proceeding that *lowered* PTV's share. Alternately stated, JSC claims error by the Judges in the adjustments that *reduced* their royalty allocation, but assert no error in adjustments that *increased* JSC's royalty allocation. (JSC's argument pertaining to Adjustment B does identify a computational error in the Initial Determination that the Judges acknowledge and correct *infra.*)

[290] Although JSC does not seek rehearing on Adjustment A regarding CCG, that adjustment is relevant to this discussion because it is part and parcel of the Judges' derivation of the CCG share that JSC claims to be too high relative to prior years. The deficiency in JSC's argument in that regard is best understood by including in the text following this footnote a summary of the reasoning for Adjustment A.

[291] It is also noteworthy that CCG has not sought rehearing to challenge this significant downward adjustment in its 2015–17 share of the royalty pool nor to criticize the wider application of the above-Minimum Fee Tyler Model.

[292] In addition to the specific points discussed infra regarding the CCG and PTV adjustments, it is important to remain mindful that the Judges are ascertaining *relative* values, not *absolute* values. That is, the WGNA conversion significantly scrambled CSOs' retransmission decisions, which the record reflects changed the *relative* value of program categories. This does not necessarily indicate that, in an absolute sense, any one program category became more or less valuable.

proceeding. And because factual patterns may remain relatively stable across years *within* a given proceeding, a party may argue that the annual years at issue should all reflect similar allocations.

Of course, the converse is true as well: If the facts reveal substantial differences between the years in different proceedings, or across years within a proceeding, the allocations made by the Judges should reflect those facts. Indeed, the Judges have described their consideration of this issue as a ''Changed Circumstances'' analysis.

In the present case, the Judges addressed this very issue in section XVI of the Initial Determination:

XVI. Changed Circumstances

The Judges may vary from prior decisions when there are (1) changed circumstances from a prior proceeding; or (2) evidence on the record before the Judges that requires prior conclusions to be modified regardless of whether there are changed circumstances.

In the 2014–2017 period, several widely agreed upon changed circumstances have taken place including 1) WGNA's conversion to a cable network, the reclassification of PTV signals from exempt to non-exempt, and 3) the rise in streaming on alternative platforms. . . . Based on the agreed upon record and Judges' findings here and throughout the determination, the Judges find that significant changed circumstances occurred across the relevant period.

Initial Determination at 159–160 (citing the testimonial consensus regarding these changed circumstances.).

Thus, not only was it permissible for the Judges to deviate from allocation shares in prior years and/or proceedings, the facts of the case *required* the Judges to adjust the share allocations. Quite clearly, therefore, the Judges did not make any findings that—under any standard—would support rehearing based on changes in the Judges' share adjustments.

Second, with regard to the upward adjustment for PTV's relative value (Adjustment C), the Judges reasoned as follows in the Initial Determination:

1. PTV argued that, when WGNA was a local station retransmitted by CSOs pursuant to section 111, a significant number of PTV's stations were retransmitted by CSOs together with WGNA.

2. Thus, prior to the WGNA conversion, a CSO's decision to retransmit PTV and WGNA jointly generated a Base Fee royalty and revealed that CSO's revealed preference and willingness-to-pay.

3. PTV further noted that post the WGNA conversion, many of these CSOs continued to retransmit the same PTV station, but this did not trigger the Base Fee because the Minimum Fee applied (with WGNA gone).

4. PTV maintained that the pre-WGNA conversion carriage is probative of the fact that the PTV carriage post-WGNA conversion demonstrates economic value.

The Judges agreed with this analysis, increasing PTV's 2015–17 share of royalties as calculated in Adjustment C.[293]

But JSC objects to this Adjustment C on the same general basis that it objects to the CCG increase—it is simply too large an increase. As to this issue, JSC compares the Judges' interim work-in-progress (*i.e.,* pre-adjustment) PTV shares with the Judges' final post-adjustment analysis. But its argument hinges on the same mistaken assumption made by JSC regarding the CCG share increase across the relevant years—that the Judges are somehow precluded from increasing a party's shares by too great a percentage, regardless of where the Judges' factual findings lead.

3. JSC's Proposal That the Judges Disregard the Regression Evidence on Which They Relied—and Instead ''Fully Rely'' on JSC's Industry Witnesses by Adopting the Bortz Survey—Is a Blatantly Impermissible Request for a ''Second Bite at the Apple''

Further, JSC's proposed alternative to the Judges' approach underscores the paucity of its argument. JSC argues that the Judges should ''fully rely'' on their version of the Bortz Survey approach, which the Judges rejected in the Initial Determination. JSC Motion at 8.

But this argument, like other JSC arguments discussed *supra,* constitutes a request for the proverbial ''second bite at the apple'' that is an insufficient basis for granting rehearing. The Judges agree with the Joint Respondents that because ''JSC forcefully advocated for reliance on the Bortz Survey before, during and after the 5-week hearing,'' this argument is '''nothing more than a recapitulation of arguments that the Judges fully considered in fashioning their [*Initial Determination*] and therefore do[es] not present the type of exceptional case that would warrant a rehearing or reconsideration.''' Joint Response at 6. See also PTV Response at 2. More particularly as explained below, in the Initial Determination, the Judges credited industry witness testimony from JSC witnesses by significantly increasing the JSC shares above the small shares arising from the above-Minimum Fee Tyler Model (and all other regression modeling).

To place JSC's present argument—and the Judges' rejection of same—in appropriate context, it is necessary to begin with the Judges' factual finding that, in the 2015–17 period, ''[t]he WGNA conversion . . . drastically reduced the number of JSC subscriber-minutes distantly retransmitted.'' Initial Determination at 122 n.147. *There was no dispute as to this fact. See generally* JSC PFF ¶ 101 (stating, without denying, that ''[a]ccording to multiple non-JSC witnesses [citing Dr. Tyler and multiple other expert and fact witnesses], the absolute and relative volume of JSC programming declined significantly following the WGNA conversion when measured in subscriber-weighted minutes.''); *id.* at ¶ 111 (citing JSC's own expert witness, Dr. Majure, who did not deny the drastic reduction in the number of JSC subscriber-minutes, but instead argued ''that it would be wrong to infer a drop in JSC value from a drop in subscriber-weighted minutes . . . .''). In like manner, JSC relied on the testimony of three industry witnesses who, while not denying the drastic reduction in JSC subscriber-weighted minutes, testified that, from a CSO's perspective, ''the value and volume of different categories of programming are not correlated.'' JSC PFF ¶ 112. *See also* Program Suppliers RPFF ¶ 26 (''JSC's witnesses did not dispute that JSC's relative subscriber-weighted volume share declined by 91 to 92 percent between 2014 and 2015, and [] JSC's relative volume share fell from approximately 7% in 2014 to 0.6% in 2015, and by 2017, it had fallen to 0.4%, representing a 94% decline.'').

This background is pertinent to JSC's present argument because the Judges (1) in fact *did* credit the testimony by JSC industry witnesses that subscriber-weighted minutes alone were insufficient to determine relative value for JSC programming; and (2) therefore *substantially increased the relative value of JSC shares* above the levels generated by the above-Minimum Fee Tyler Model and other regression modeling. However, the Judges declined to ignore the significant impact on relative value of the substantial reduction in the volume of subscriber-weighted JSC minutes distantly retransmitted. See Initial Determination at 122 n.147.

The following portions of the Initial Determination make this point in detail:

[293] As explained in the section of this order denying PTV's request for rehearing, to adjust for this increase in PTV's relative value, the Judges found probative the analysis and testimony by a JSC expert statistical witness, Mr. Harvey. His analysis and testimony indicated that 44% of the PTV stations that were identified as being retransmitted by Minimum Fee-paying CSOs after the WGNA conversion had also been transmitted pre-conversion jointly with WGNA and thus generated Base Fee (above-Minimum Fee) royalties. The Judges adopted this testimony via Adjustment C, increasing PTV's share of the royalties.

Based on the entirety of the record, the Judges are not persuaded by industry expert testimony that the value and volume of programming are not correlated. The industry expert evidence is set against the more well-established sound economic reasoning underlying the regression analyses in this proceeding.

. . .

That is not to say that regressions correlating program category minutes and a measure of royalties is necessarily the only way to determine value. . . . [A]s confirmed by some of the industry testimony, the Judges recognize that . . . JSC programming, bundled together with programming from other claimant categories, can have a value (in terms of retaining or adding subscribers) . . . that is not well-correlated with overall program minutes.

. . .

The Judges find [JSC witnesses] to be particularly credible . . . regarding the unique value of JSC content . . . . Based on the entirety of the record, the Judges are persuaded that evidence of the unique value of . . . JSC content . . . serves *as a limitation on the applicability of certain proposed regression analyses and their proposed allocation results.* These [findings] do not negate valid application of regression analyses as a basis for allocation. However, *these factors are taken into account within the Judges' weighting of the allocation methodologies, including application of the Bortz survey* . . . .

Initial Determination at 151–152 (emphasis added).

Consequently, the Judges set the 2015–17 post-WGNA conversion allocation shares for JSC substantially above the shares proposed by the above-Minimum Fee Tyler Model, as can be seen in the comparison of the two tables below:

SHARES AWARDED TO JSC IN INITIAL DETERMINATION

2015	2016	2017
11.44%	10.76%	11.91%

Initial Determination at 2 tbl.1.[294]

SHARES ALLOCATED TO JSC BY ABOVE-MINIMUM FEE TYLER MODEL

2015	2016	2017
2.1%	1.3%	0.5%

Initial Determination at 13.

As a comparison of these two tables shows, by departing from the above-Minimum Fee Tyler Model, and giving due weight to the Bortz Survey, as suggested by JSC's industry witnesses, the Judges increased JSC's shares by 445% for 2015, 728% for 2016, and by 2,282% for 2017. To be sure, these higher shares are still well below what the Bortz Survey proposed, and what JSC sought, both at the hearing and again via rehearing. But, as noted above, the JSC share of subscriber-weighted minutes declined by over 90% during this period, which is reflected in the effect of the regression analysis in the above-Minimum Fee Tyler Model, and which the Judges found highly relevant.

Thus, JSC's claim of purported error regarding this issue is not premised on any failure by the Judges to ignore its expert witnesses or the Bortz Survey. Rather, JSC's complaint is that the Judges did not give zero weight to the regression model and 100% weight to the Bortz Survey (based on the survey itself and the industry witnesses JSC proffered). Of course, as noted *supra,* a party's disagreement as to the Judges' weighing of record evidence, including expert testimony, does not satisfy any grounds for granting a motion for rehearing.[295]

4. JSC's Argument—That Rehearing Is Necessary Because the Tyler Modeling Simply ''Parrots'' the Statutory Formula—Cannot Be Grounds for Rehearing Because This Argument Was Made at the Hearing, and Because JSC Fails to Note in Its Motion the Judges' Detailed Explanation for Rejecting that Argument

JSC argues that the Tyler modeling (in its several varieties) should have been rejected because it simply ''parrots'' the statutory formula. JSC Motion at 9. Ironically, this basis for rehearing must be denied because *it* ''parrots'' the argument made by JSC and other parties at the hearing. *See* Initial Determination at 74 (''Dr. Majure maintains that the Tyler Model . . . essentially estimates only 'the equation given by the statutory formula . . . .' ''); *id.* at 75 (noting that CCG's expert economic witness, Dr. Lisa George, likewise criticized the Tyler modeling because it ''effectively replicates the regulatory formula . . . .'' and noting that PTV's expert, Dr. John Johnson, likewise maintained that the Tyler modeling ''essentially replicates the statutory formula . . . .'').

However, the Judges comprehensively analyzed and then rejected this argument, in all its iterations. *See id.* Section XIB at 131–136. Nonetheless, JSC simply ignores the Judges' detailed explanation why this ''statutory formula''/''fee generation'' criticism lacks merit.

In sum, JSC once again asks for that improper ''second bite at the apple'' by seeking to reargue an issue. Moreover, JSC does not even claim that the Judges' extended discussion and findings as to this issue were incorrect. Accordingly, this JSC point is insufficient to justify rehearing.

5. Conclusion

Accordingly, JSC's Motion for Rehearing as to these issues is denied.[296]

III. PTV'S Motion for Rehearing

a. Whether ''Adjustment B'' in the Judges' Initial Determination Is Premised on Clear Error That Must Be Corrected

The PTV Motion seeks rehearing with regard to the Judges' application of ''Adjustment B'' in the Initial Determination, which is a downward adjustment of the PTV shares derived from the Tyler Model for above-Minimum Fee CSOs. This adjustment was made by the Judges to reflect the presence of must-carry PTV signals, whose value had not been adequately demonstrated to be included as part of the relative marketplace value generated by regression approaches. However,

[294] These final totals are changed marginally via the correction of a mathematical error in the Initial Determination, as discussed *infra.*

[295] Implicit in JSC's argument is that JSC should not suffer such a loss in royalty revenues compared to past years. But no implied assumptions regarding a JSC loss in royalty revenues arising from these lower shares is warranted by the record. Rather, the record indicates that ''JSC sports content has been migrating from broadcast stations to other platforms, including cable networks like TNT, TBS, and ESPN, regional sports networks, and pay-TV platforms.'' *See* Program Suppliers PFF ¶ 237 (citing witness testimony, including the testimony of JSC expert Allan Singer). Further, the record reflects that such migration ''has increased significantly for the past several years, resulting in corresponding decreases of distantly retransmitted JSC programming volume'' [indicating that] [t]he significantly low 2014 through 2017 JSC programming volumes are consistent with a continuing migratory pattern. *Id.* ¶¶ 239–40.

Thus, as the Judges explained in their Initial Determination, there is no reason to assume that the reduction in JSC shares caused JSC to lose revenue realized from the transmission of JSC content formerly on WGNA. That is, there is no record evidence to support an assumption that JSC had irrationally sought out less profitable distribution outlets than distantly retransmitted local stations after the conversion of WGNA to cable station status. *See* Initial Determination at 135 n.161 (''[T]he JSC is simply a representative of the major professional sports leagues and the NCAA, and the record does not reflect that they suffered any economic loss because of the reduction of subscriber minutes distantly retransmitted.'')

[296] The Judges also do not credit PTV's invitation for the Judges to ''amend[] the Initial Determination to award [PTV] shares for the 2015–2017 royalty years based on or adjusted upward from either the conventional McLaughlin-adjusted Bortz Surveys or Dr. Tyler's primary regression model . . . .'' PTV Response at 10. PTV's representation that it would be amenable to this alternative is little more than the statement by a party that it supports an approach that increases its allocation. Obviously, such argument based on naked self-interest does not support a rehearing or amendment of the Initial Determination.

PTV maintains that the adjustment is incompatible with the record evidence and amounts to an erroneous double-counting of the Judges' intended adjustment. PTV Motion at 1.

PTV alleges that it is clearly erroneous for the Judges to derive its shares from the Tyler above-Minimum Fee Model for the 2015–17 period and also apply a downward adjustment based on Bennett Figure 52. PTV notes that the Tyler above-Minimum Fee Model excludes CSOs that paid the Minimum Fee, whereas Dr. Bennett (Figure 52) carried out the analysis applied by the Judges only based on CSOs that paid the Minimum Fee. PTV Motion at 3.

In their Joint Response, CCG, Program Suppliers, and SDC clarify that the Judges explained Adjustment B as weighting Dr. Bennett's Figure 52 analysis in order to avoid the double counting that is alleged in PTV's motion. Joint Response at 7, citing ID at 143 (note to Adjustment B Table). The Joint Response adds that the applied adjustment is likely a conservative one, understating the bias from must-carry PTV signals, because must-carry signals were also retransmitted by *above*-Minimum Fee cable systems. Joint Response at 7, citing ID at 45.

Similarly, JSC's response to PTV's proposed elimination of Adjustment B notes the Judges' recognition of the need to lower the Tyler Model's estimates for PTV to correct the issue of fee-based regressions falsely associating must-carry signals with additional royalties. JSC Response at 2. JSC challenges PTV's view that excluding Minimum Fee systems from the Tyler Model somehow accounts for must-carry carriage within the Tyler regression. JSC argues that the Judges were correct to conclude that all must-carry signals are being falsely interpreted by the regressions. Furthermore, JSC observes that reliance on the Tyler above-Minimum Fee Model without adopting Adjustment B, would incorporate the false inferences from must-carry signals, because the regression would ''see'' systems carrying those stations and making royalty payments, but would not ''see'' indemnification payments made by the PTV stations back to the CSO. *Id.*

CTV asserts that PTV's motion regarding Adjustment B reflects a fundamental misunderstanding of the evidence. CTV notes that the Tyler Model does not exclude any PTV stations that were retransmitted pursuant to must-carry requirements. CTV Response at 3, citing Ex. 7207 (Bennett WRT) at 63–64 and 4/12/23 Tr. 4608 (Bennett); Ex. 7600 (Tyler ACWDT) at 37, 64. And, for that reason, Dr. Bennett developed a must-carry sensitivity analysis to measure the impact of must-carry signals on share allocations, which is reflected in Figure 52. *Id.* CTV also notes that the Judges' weighting methodology effectively decreases the downward adjustment to PTV's share determination based on the ratio of the PTV shares reflected in Dr. Tyler's baseline regression model, Figure 3.2 (including all CSO royalties), and the PTV shares reflected in Dr. Tyler's Figure 6.3 (including only above-Minimum Fee-paying CSO royalties), as explained by the Judges note accompanying Adjustment Table B on page 143 of the Initial Determination. *Id.*

PTV's Reply reiterates its initial arguments regarding Adjustment B and argues that any weighting contained within the adjustment is also unsupported. PTV asserts that in order for the applied weighting to be appropriate, the proportion of Public Television value derived from must-carry signals estimated by Dr. Bennett must have been the same within the above-Minimum Fee CSOs as within the Minimum Fee-paying CSOs. PTV Reply at 1–2.

PTV asserts that Dr. Bennett's analysis only examined the value of must-carry signals carried by Minimum-Fee-paying CSOs. PTV maintains that the values estimated by Dr. Bennett are not proportionally distributed among Minimum Fee and above Minimum Fee CSOs. PTV argues that that such estimates do not reflect carriage among above-Minimum Fee CSOs, and that there is no basis for using the numbers calculated by Dr. Bennett to attempt to estimate that value. *Id.* at 3.

PTV asserts that the CSOs paying more than the Minimum Fee could have chosen to decline to carry any distant PTV signals. PTV argues that, under the relevant must-carry regulations, for the above-Minimum Fee CSOs, distant retransmission of a must-carry signal necessarily incurs an incremental royalty cost. PTV notes that under those regulations above-Minimum Fee CSOs thus have the right to demand indemnification from the originating station for that incremental royalty burden. If a station refuses indemnification, then the CSO is not obligated to carry the signal under the must-carry rules. Therefore, PTV argues, a CSO's decision to carry the signal without indemnification necessarily demonstrates value of the programs on that signal. PTV adds that the record indicates that no indemnification payments were made. *Id.* at 4.

i. The Judges' Analysis and Conclusion Regarding PTV's Adjustment B Rehearing Motion Arguments

The Initial Determination clearly explains the finding that must-carry signals are problematic when fee-based regressions are used to establish relative value, and thus require an adjustment. More particularly, this need for adjustment exists for Dr. Tyler's allocation share calculations pertaining only to the CSOs who paid more than the Minimum Fee. The Tyler Model does not exclude any PTV stations that were retransmitted pursuant to must-carry requirements. PTV proposes to ignore the effect of must-carry signals on the Tyler Model. PTV takes the position that the must-carry issue is addressed because the adopted Tyler Model excluded Minimum Fee systems. But excluding Minimum Fee systems from the Tyler Model does not account for PTV must-carry signals that are carried by *above*-Minimum Fee CSOs. Therefore, the Judges' determination on this proceeding record makes clear that the *absence of an adjustment,* rather than the adjustment itself, would more likely impose a clear error and manifest injustice.

PTV asserts that the Judges cannot apply an adjustment based on Dr. Bennett's analysis because Dr. Bennett examined only the value of must-carry signals carried by Minimum Fee paying CSOs. This argument does not undermine the need for an adjustment. It simply attacks the applied Adjustment B as supposedly having inadequate precision or basis in the record. There is a reason that the record evidence does not provide for greater precision, and that is *the noted evidentiary failure of PTV regarding which stations were subject to the must-carry provisions and which were not. See* ID at 47. However, the application of Adjustment B is reasonable, and is clearly based on evidence in the record and the Judges' assessment of the entirety of the record.[297]

Further, Adjustment B, which is properly weighted, does not amount to an erroneous double-counting of the intended adjustment. While employing the best evidence available to determine a necessary adjustment, the Judges weighted the Bennett analysis, for 2015–2017, prior to applying it to the Tyler regression allocations. This is a reasonable approach, with sufficient

[297] Dr. Bennett's adjustments are based upon Mr. Harvey's identification of stations likely carried pursuant to the must-carry provision. See Bennett WRT at 57. Furthermore, as the Judges observed, ''Mr. Harvey engaged in a reasonable attempt to estimate this number, which PTV could have set forth in its submissions, but did not.'' ID at 47.

evidentiary support, consistent with the relevant legal requirements.

As explained in the Initial Determination:

> The Must Carry adjustment in Bennett WRT fig. 52 was based on the PTV shares of all CSO royalties, whereas the Judges are applying this adjustment to the shares of CSO royalties attributable to shares generated by CSOs paying above the minimum fee (subject to the prior adjustment for CCG, discussed *supra*). So, for [2014], the percentage point adjustment to the PTV share is the percentage point adjustment in Bennett WRT Fig 52. For 2015–2017, the percentage point adjustment to the PTV share is calculated for each year by: (1) finding the percentage of PTV shares reflected by the PTV shares from Tyler/WRT fig. 6.3 ÷ PTV's shares from Tyler WRT fig. 3.2; (2) multiplying that percentage by the percentage point adjustment in Bennett WRT fig 52; and (3) subtracting that product from the PTV share from the table above.

ID at 143 (note to Adjustment B Table).

The weighting described above, for 2015–2017, serves to discount the Bennett downward adjustment by ratios derived from PTV allocations of above-Minimum Fee CSOs divided by the PTV allocations of all CSOs. As the Joint Response notes, these ratios and the resulting downward adjustments are conservative in that they may tend to understate the bias introduced by Dr. Tyler's inclusion of must-carry PTV signals, precisely because they do not exclude must-carry signals retransmitted by above-Minimum Fee systems. At the same time, the approach remains based in record evidence and is a reflection of reasonable and conservative judgments derived from the entirety of the record. The Judges appropriately employed the thusly discounted Bennett adjustments (derived for Minimum Fee-paying systems) when applied to the Tyler model allocations for above-Minimum Fee CSOs.

For the reasons explained herein, and based on the entirety of the record, PTV has not shown that an exceptional case exists, or that the Initial Determination is erroneous in relation to Adjustment B. Further, PTV has not demonstrated that aspects of the determination relating to Adjustment B are without evidentiary support in the record or are contrary to legal requirements. In that latter regard, PTV has not shown that, with respect to the Initial Determination's application of Adjustment B, there exists either clear error or manifest injustice that would support granting of PTV's request for rehearing.[298]

b. Whether ''Adjustment C'' in the Judges' Initial Determination Reflects a Clear Error That Must Be Corrected

The PTV Motion also seeks rehearing with regard to the Judges' application of what the Judges identified as ''Adjustment C'' in the Initial Determination. By this Adjustment, the Judges *substantially increased* the value of certain PTV stations, and thus PTV's share of royalties. However, PTV maintains now that the Judges should have used ''Adjustment C'' to increase its share even more. PTV Motion at 1–2.

By way of background, the Judges found in the Initial Determination that ''the dramatic increase in the number of minimum fee-only CSOs (*i.e.,* those with no distant retransmittals and those with some distant retransmittals but with 'excess capacity') renders regression analyses that include those CSOs less reliable and thus can be accorded only very limited economic evidentiary weight.'' Initial Determination at 21. In so holding, the Judges rejected PTV's argument (proffered through the testimony of its economic expert, Dr. John Johnson) that the Judges should find predominant ''economic significance in the choices of a CSO 'to retransmit a distant signal to particular subscriber groups' *despite the fact that the CSO pays the minimum fee* . . . .'' Initial Determination at 13 (emphasis added) (explicitly *rejecting* the argument in PTV PFF ¶ 58 that ''[t]he decision of a CSO paying the minimum fee to retransmit a distant signal to particular subscriber groups shows the CSO's preference for distantly retransmitted programming without the effect of the statutory royalty, which is an economic context that more closely resembles the hypothetical marketplace.'' (citing, *inter alios,* at n.83 therein, Dr. Johnson's hearing testimony)).[299]

In contrast with the Judges' misgivings as to Dr. Johnson's regression testimony, they agreed with his argument that, *ceteris paribus,* the record contained sufficient evidence to increase PTV's allocation. In this regard, the Judges found that—although certain PTV stations were only retransmitted by Minimum Fee-paying CSOs—these CSOs had previously retransmitted PTV stations when such retransmissions had been combined with retransmissions of WGNA, the most retransmitted local station, thereby triggering a CSO royalty obligation *above the Minimum Fee.* As Dr. Johnson testified, there was evidence that CSOs' immediately prior retransmissions of PTV stations that triggered an incremental royalty cost revealed an incremental value in those retransmissions and that it was reasonable to conclude that the PTV stations continued to have incremental value when they were uncoupled from WGNA (and thus generated only the Minimum Fee). PTV made this specific argument in its post-hearing PFF and post-hearing brief. *See* PTV PFF ¶ 60 (and record citations therein); PTV Post-Hearing Brief at 27–28. The Judges were persuaded that this WGNA-related evidence reflected ''ongoing marketplace value,'' notwithstanding the general principle that Minimum Fee royalty payments did not otherwise disclose actual economic decision making or reveal the preferences of CSOs. Initial Determination at 143–144.

To calculate PTV's upward adjustment based on this point, the Judges identified evidence and testimony proffered by a JSC statistical expert, Mr. R. Garrison Harvey. Mr. Harvey testified as follows: ''[T]he number of PTV Only systems increased after the WGNA conversion from 44 at the end of 2014 to 173 by the end of 2017. PTV Only Systems that had carried WGNA and PTV in 2014 account for three-fifths of that increase.'' Harvey WDT ¶ 106.

The Judges found that that Mr. Harvey demonstrated that 44% of the PTV stations that were identified as retransmitted by Minimum Fee-paying CSOs after the WGNA conversion had been transmitted pre-conversion and generated Base Fee royalties. That is sufficient evidence of ongoing marketplace value. Moreover, Mr. Harvey supported this testimony with reference to specific data, citing to his underlying workpapers, which were not called into question or contradicted at the hearing. Harvey WDT ¶ 106 n.86. Accordingly, the Judges used that factual finding to increase by 44% the PTV share modification, as set forth in the table for Adjustment C. Initial Determination at 144.

This adjustment substantially increased PTV's allocation of the royalties. *Compare* Adjustment B Table *with* Adjustment C Table, Initial Determination at 143–144. The PTV Motion does not challenge the accuracy

[298] PTV's Reply raises concerns regarding indemnification, in relation to value of must-carry signals. The Judges point to section VII.A.5. of the Initial Determination ''The Judges' Analysis & Conclusions regarding the 'Must-Carry' Issue'' and the Judges' undisturbed and valid analysis and conclusions as to why must-carry signals lack objective and measurable value. *See* Initial Determination at 47–49.

[299] The Judges also declined to rely on Dr. Johnson's analysis (including his broad Minimum Fee and above-Minimum Fee arguments) and PTV's case, because of certain decisions regarding methodological approaches and decisions which the Judges found troubling, as discussed *infra.*

or the credibility of this evidence or Mr. Harvey's testimony in this regard.

But PTV maintains that other testimony indicates that this increased adjustment was insufficient. In this regard, PTV avers that the Judges erred by limiting their adjustment to evidence concerning the specific combination of Public Television signals with WGNA. That is, PTV claims that testimony it had proffered showed that PTV's upward adjustment should have been 55% rather than 44%. PTV Motion at 5.

In support of this argument, PTV points to a single one-paragraph statement in Dr. Johnson's Written Rebuttal Testimony, wherein he claimed, without identifying any underlying workpapers or other evidence:

> There were 1,115 CSO-Public Television distant signal combinations in the 2015–2017 period where the CSO paid a minimum fee during those years. For 609 (or *55 percent*) of these combinations, the same CSO also carried the same Public Television distant signal, at a different point in time, when it paid section 111 royalties greater than the minimum fee. In those instances, the CSOs elected to pay incremental royalties for these signals (because they generated more than one DSE). Put differently, the CSOs' carriage decisions indicate that these Public Television signals did have value.

PTV Motion at 6 (quoting Ex. 7303 ¶ 79 (Johnson WRT)) (emphasis added).[300]

PTV also maintains that Mr. Harvey's testimony, quoted above, refers to the number of CSOs (*systems*) that continued to retransmit PTV stations after WGNA was unavailable, rather than the number of PTV *stations* retransmitted after the WGNA conversion. PTV Motion at 5 n.4.

On these bases, PTV invokes two aspects of the standard for rehearing. Specifically, PTV contends that ''the Judges' 'Adjustment C' reflects a *clear error* that must be corrected to prevent *manifest injustice.*'' PTV Motion at 5 (emphasis added).

In their Joint Response, CCG, Program Suppliers, and SDC assert that PTV's argument regarding this rehearing issue, like the others, fails to satisfy the requisites for granting a rehearing, particularly the assertions of ''clear error'' and ''manifest injustice'' levied by PTV with regard to ''Adjustment C.'' Joint Response at 1–3. More particularly, these parties assert that:

1. The WGNA conversion was a ''supply-side phenomenon'' inapplicable to PTV + non-WGNA commercial station combinations.
2. Record evidence suggests that CSOs retransmitting PTV stations may have been indemnified by the latter for any royalties paid above the Minimum Fee.
3. PTV acknowledges that it presented these very facts and arguments at the hearing (citing PTV Motion at 6), and PTV's failure to persuade the Judges to apply these facts and adopt this argument at the hearing preclude PTV from using the rehearing process to get a ''second bite at the apple.'' (citing *2010–2013 Rehearing Order* at 2.).

Joint Response at 4, 7–8.

In its Reply to the Joint Response, PTV argues:

1. The Joint Response wrongly concludes, without explanation, that the issues relating to, *inter alia,* Adjustment C, ''could have been 'address[ed] . . . during the hearing' '', despite the fact that ''it was impossible to anticipate that the Judges would apply [*inter alia*] their Adjustment[ ] C to Dr. Tyler's sensitivity limited to Above Minimum Fee CSOs.'' Thus, PTV maintains, the rehearing process constituted the first occasion for it to litigate this issue, and the rehearing motion thus is not an impermissible attempt to ''re-litigate'' a matter considered at the hearing. PTV Reply at 1–2.
2. The Joint Response wrongly maintains that the Judges acted ''well within their discretion by limiting Adjustment C to ''PTV + WGNA'' combinations, because the Judges did not account for their differentiation of ''PTV + non-WGNA combinations that also generated a base fee royalty . . . .'' PTV Reply at 10–11 (quoting 17 U.S.C. 803(c)(3) (''A determination of the Copyright Royalty Judges shall be supported by the written record and shall set forth the findings of fact relied on by the Copyright Royalty Judges.''). PTV Reply at 10.

In its separate response, JSC argues that PTV's request for rehearing regarding ''Adjustment C'' should be denied because:

1. Any initial royalty obligation for the CSO above the Minimum Fee is subject to offset via indemnification; [301]
2. Adjustment C ''fails to account for the must-carry issue,'' an issue which uncouples continuing carriage of PTV signals after 2014 from any finding of ''CSO's revealed willingness to pay for those signals;''
3. More broadly, Adjustment C wrongly relies on data from Minimum Fee-only CSOs; and
4. Adjustment C treats similarly situated parties differently because some Minimum Fee-only CSOs in 2017 also carried *commercial* signals that ''generated base fee royalties'' in 2014.

JSC Response at 4–7.

In its Reply to the JSC Response, PTV argues:

1. JSC's criticism of Adjustment C as arbitrary is wrong, because this adjustment is ''necessary to mitigate the unreasonably low estimates of [PTV's] shares'' as set forth in the Tyler Model's analysis of only ''Above Minimum Fee CSOs.'' PTV Reply at 6.
2. JSC's criticism of Adjustment C for supposedly treating different parties differently is an incorrect criticism because the Judges explained that the ''Above Minimum Fee-Only'' version of the Tyler Model disproportionately ignored circumstantial evidence demonstrating post-2014 PTV value through the continuation of PTV retransmittals in that period after the retransmittal of a combination of ''WGNA + PTV'' signals became moot (with the WGNA conversion to a cable system). By contrast, no other program category suffered from a similar loss of share value because of the WGNA conversion. PTV Reply at 9–10.

In its separate response to the PTV Motion, CTV maintains that there is no basis to find that the Judges' adoption of Adjustment C was incorrect or incomplete—let alone ''clearly erroneous'' or that it caused PTV ''manifest injustice''. CTV Response at 5–6. In support, CTV argues the following points:

1. PTV wrongly asserts that the Judges committed clear error in the way they applied Adjustment C to the share allocations, because the Judges articulated in the Initial Determination a proper rationale for applying Adjustment C; and
2. The Judges were within their authority to adopt Mr. Harvey's record testimony and evidence, rather than Dr. Johnson's record testimony, to calculate Adjustment C, particularly because Adjustment C focused on PTV's specific argument ''regarding demonstrated willingness to pay'' by CSOs for a PTV signal after the WGNA conversion.

CTV Response at 2, 5–6.

In Reply to the CTV Response, PTV maintains:

1. Instead of offering a substantive argument, CTV incorrectly argues that, as a matter of law, the Judges may adopt whichever percentage (Mr. Harvey's or Dr. Johnson's) they deem ''most appropriate''; and
2. The Judges do not have such discretion; rather, their findings ''may not be arbitrary[,] must be supported by substantial evidence'' and shall be the product of a ''reasoned decision.''

PTV Reply at 10.

[300] In their Motion, PTV also cites to Johnson WRT ¶¶ 76–78 as attribution for this quote. PTV Motion at 6. However, no portion of the quote is contained in those paragraphs, and none of those paragraphs support this rehearing argument. Moreover, paragraph 78 sets forth as an example a PTV station that had been retransmitted by an Arizona CSO together with WGNA and continued to be retransmitted after WGNA was no longer a broadcast station that could be distantly retransmitted. This example supports the Judges' increase in PTV's share for the reason set forth in Adjustment C in the Initial Determination, and in no way supports PTV's rehearing argument for a more lucrative adjustment.

[301] This argument echoes the argument made in the Joint Response, as noted *supra.*

i. The Judges' Analysis and Conclusion Regarding PTV's Adjustment C Rehearing Motion Arguments

1. Application of the Rehearing Bases on Which PTV Relies for Adjustment C: ''Manifest Injustice'' and ''Clear Error''

a. PTV Has Not Satisfied the ''Manifest Injustice'' Standard

As an initial matter, the Judges find that—for several reasons—PTV's basis for a requested rehearing regarding the Adjustment C issue fails to satisfy the ''manifest injustice'' standard. First, the Judges agree with the Joint Respondents that the concept of ''manifest injustice'' is ''exceptionally narrow,'' requiring a showing of not only ''clear and certain prejudice'' to the movant, but also a harm to the movant that is ''fundamentally unfair.'' Joint Response at 3 (citing *Leidos, Inc.* v. *Hellenic Republic,* 881 F.3d 213, 217 (D.C. Cir. 2018); *Mohammadi* v. *Islamic Republic of Iran,* 947 F.Supp.2d 48, 78 (D.D.C. 2013). Here, PTV maintains that even though the Judges recognized that their primary regression model (the Tyler Model for above-Minimum Fee CSOs) failed to adequately reflect a revealed preference for PTV signals—and accordingly increased PTV's share substantially—other evidence indicated that the PTV share should have been increased *even more.* The Judges detect neither ''fundamental unfairness'' nor ''prejudice'' (let alone ''clear and certain prejudice'') arising from the fact that PTV's increase was not as great under the evidence relied upon by the Judges (44%, pursuant to Mr. Harvey's calculations) as it would have been had the Judges instead relied on PTV's witness, Dr. Johnson.

In applying the above D.C. Circuit test for ''manifest injustice,'' a district court noted that ''a dollar-and-cents comparison'' serves to ''undercut[ ] the significance of the ''manifest injustice standard.'' *Fraenkel* v. *Islamic Republic of Iran,* 326 FRD. 341, 345 (D.D.C. 2018), *rev'd on other grounds* 892 F.3d 348 (D.C. Cir.). (abuse of discretion in applying a statute).[302] The Judges agree, especially where, as here, the movant is complaining of ''manifest injustice'' because a substantial upward adjustment in its favor should have been even greater.[303]

With regard to a specific point made by JSC, the Judges reject JSC's argument for eliminating Adjustment C *en toto* on the basis that this adjustment is itself erroneous because it purportedly treats similarly situated parties differently. JSC Response at 6–7. Although the Judges address this argument, and the opposition thereto, in the section of this order denying JSC's Motion seeking to eliminate Adjustment C *en toto,* the Judges here take specific note of an important concession by JSC in its Response. Although JSC claims that categories of programming other than PTV might have benefitted from the same pre- and post-WGNA conversion analysis of CSO retransmissions, JSC concedes, in a footnote, that, no witness, including its witness, Mr. Harvey, ''analyze[d] whether these CSOs were carrying the same non-WGNA signals in 2017 as they were in 2014.'' JSC Response at 7 n.2. So, not only did no party other than PTV make the argument that this analysis might favor its particular programming, the evidence cited does not permit an allocation among other program categories based on this argument.

b. PTV Has Not Satisfied the ''Clear Error'' Standard

Pursuant to the Judges' rules, the statutory ''exceptional case'' requirement for rehearing—based on an allegedly ''erroneous'' factual aspect of a determination—is satisfied only if that factual finding is ''without evidentiary support in the record.'' 17 U.S.C. 803(c)(2); 37 CFR 353.1–.2; *see also* Order Denying Motion for Rehearing at 1, *In re Distribution of 2000–03 Cable Royalty Funds,* Docket No. 2008–02 CRB CD 2000–2003 (Phase II), (Aug. 7, 2013). Further, pursuant to D.C. Circuit precedent, when the movant's asserted factual predicate for the assertion of ''clear error'' relies on the uncredited testimony of its expert, a Rule 59(e) motion [304] must be denied if the expert's testimony does not provide sufficient ''factual . . . reasons for [the expert's] conclusion.'' *Martin* v. *Omni Hotels Mgmt. Corp.,* 321 FRD. 35, 40 (D.D.C. 2017) (citing *New York State Ophthalmological Soc.* v. *Bowen,* 854 F.2d 1379, 1391 (D.C. Cir. 1988)), *aff'd,* 409 F. A'ppx 362 (D.C. Cir. 2011).

Moreover, a request for rehearing based on a judge's reliance on a ''specific factual determination[ ]'' does not satisfy the ''clear error'' test if (1) the evidence which the motion challenges is ''sufficiently reliable to credit'' or (2) if the evidence on which the movant relies is inconsistent with ''the *entire* evidence,'' and thus the court is ''left with the definite and firm conviction that a mistake has been committed.'' *Obaydullah* v. *Obama,* 688 F.3d 784, 792 (D.C. Cir. 2012) (emphasis added).

Applying these standards, PTV's motion for rehearing with regard to Adjustment C must be denied. First, the Judges' Adjustment C is based on evidence in the record, *i.e.,* the testimony of JSC's statistical expert witness, Mr. Harvey, and the documentation on which he relied. Moreover, this testimony and evidence was not challenged, either at the hearing or on rehearing. On this basis alone PTV's motion for rehearing fails to demonstrate any error, let alone clear error.

Second, PTV relies upon the testimony of its own economic expert, Dr. Johnson, which PTV maintains is superior to the testimony of Mr. Harvey on this issue. However, this argument fails the second ''clear error'' standard cited above, because Dr. Johnson's testimony, on which PTV relies to seek, via rehearing, a 55% Adjustment C increase in its royalty share (instead of the 44% Adjustment C increase provided by the Judges) does not provide sufficient factual reasons for his conclusion. Specifically, Dr. Johnson's opinion regarding the 55% increase sought by PTV is not supported by any record evidence cited by PTV. *See* PTV Rehearing Motion at 6; Johnson WRT ¶ 79.[305]

[302] The D.C. Circuit reversed because the district court misconstrued a statute by finding that relatives of a person with American citizenship murdered by terrorists should be lower if the murder victim had dual Israeli citizenship and was targeted for death because of his latter citizenship. *Fraenkel,* 892 F.3d 348 (D.C. Cir. 2018). That holding is clearly not analogous to the present issue of ''manifest injustice.''

[303] PTV's reliance on the Judges' order on rehearing in *SDARS III* is misplaced. There, the Judges found that ''it would be manifestly unjust to maintain a royalty rate . . . not based on the . . . calculation that prevailed at the time the record was closed,'' and the alternative methodology could change the royalty obligation by $150 million. *SDARS III* Order at 7–8. The Judges' reference to the potential royalty dollars at issue, standing alone, was not the dispositive basis for finding potential manifest injustice; rather manifest injustice would be the consequence of the use of a calculation methodology not prevailing according to the extant record. The reference to the $150 million disparity underscored the importance of the manifest injustice of using an improper methodology. By contrast, in the present case, the differing methodologies for calculating PTV's upward adjustment (Mr. Harvey's or Dr. Johnson's) *both are in the record,* and they are discussed *infra.*

[304] As noted *supra,* the Judges pattern their rehearing analysis pursuant to the standards applicable to motions under Fed. R. Civ. P. 59(e).

[305] Although PTV also cites to Johnson WRT ¶¶ 76–78, which are irrelevant as to the Adjustment C rehearing issue, the Judges note that those paragraphs likewise do not cite to or provide any documentary support for Dr. Johnson's opinion. (By contrast, Mr. Harvey's testimony, on which the Judges relied, was supported by documentary evidence, in the form of Mr. Harvey's cited workpapers. Harvey WDT ¶ 106 n.86. Moreover, Mr. Harvey's testimony was not subject to challenges that the Judges found sufficient to call into question his testimony, unlike the case with Dr. Johnson's

Additionally, PTV does not maintain that Mr. Harvey's analysis that led to the Judges' 44% upward adjustment in favor of PTV was erroneous; rather PTV argues that it is Dr. Johnson's opinion which would favor a 55% adjustment which ''best comports'' with the Initial Determination. PTV Motion at 10. However, the Judges' exercise of their discretion in deciding which of two (or more) alternative factual approaches to follow cannot constitute ''clear error'' (or any error at all) when the party seeking rehearing itself simply maintains merely that its preference is better. Moreover, for the reasons articulated below, the Judges had good cause to rely on Mr. Harvey's testimony over that of Dr. Johnson.

2. PTV's Claims of ''Manifest Injustice'' and ''Clear Error'' Also Fail Because PTV Is Seeking To Relitigate an Issue Raised and Determined in the Initial Determination

As the Judges have noted previously, a motion seeking rehearing based on, *inter alia,* assertions of ''manifest injustice'' or ''clear error,'' shall be rejected if the movant has ''merely restate[d] . . . evidence that was presented during the proceeding.'' Order Denying Motions for Rehearing at 2, *In re Digital Performance Right in Sound Recordings and Ephemeral Recordings,* Docket No. 2005–1 CRB DTRA (*Webcasting II*) (Apr. 16, 2007). It is in such context that the movant seeks rehearing—over an issue that was raised and determined in the Initial Determination. This principle has been aptly described by the Judges, and other tribunals, as an improper attempt to seek ''a second bite at the apple'':

> [When] the Judges consider whether there exists . . . a need to correct a clear error or prevent manifest injustice[] . . . the Judges must subject the rehearing arguments to a strict standard, in order ''to dissuade repetitive arguments on issues that have already been fully considered . . . .'' *Order Denying Motions for Reh'g,* Docket No. 2005–1 CRB DTRA, at 1–2 (Apr. 16, 2007). Under this strict standard, a rehearing motion does not provide a litigant with a ''second bite at the apple,'' allowing it ''to re-litigate old matters, or to raise arguments or present evidence that could have been raised prior to the entry of judgment.'' *Exxon Shipping Co.* v. *Baker,* 554 U.S. 471, 485 n.5 (2008) (quoting C. Wright & A. Miller, *Federal Practice and Procedure* § 2810.1 (2d ed. 1995)).
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> Order Denying Program Suppliers' Motion for Rehearing . . . at 1, *Distribution of Cable Royalty Funds,* Consolidated Proceeding Docket No. 14–CRB–0010–CD (2010–13) (Dec. 13, 2018).

Here, PTV is seeking the metaphorical ''second bite at the apple.'' In this regard, it has not escaped the Judges' notice that PTV does not meaningfully attempt to counter the ''second bite'' problem—but rather simply avoids it. Perhaps that is because the Judges explicitly *did* take note in the Initial Determination that Dr. Johnson had made this precise claim. *See* Initial Determination at 13–14 (citing and quoting Johnson WRT ¶ 79). Clearly, PTV's rehearing argument regarding Adjustment C is—to say the least—complicated by the fact that the Judges were fully aware of Dr. Johnson's relevant testimony—yet did not adopt that testimony in the Initial Determination.[306]

As made clear in the Initial Determination, the Judges had substantial problems with regard to Dr. Johnson's testimony and analyses, which should have made obvious their unwillingness to credit his testimony on which PTV relies for its objection that the Judges' 44% Adjustment C in favor of PTV is too low. To make this point explicit, the Judges recount their difficulties in connection with Dr. Johnson's hearing testimony, as expressed in the Initial Determination.

First, the Judges were troubled by Dr. Johnson's reliance on the modeling of a witness in a prior proceeding because the testimony and modeling of that witness had been called into serious question. Initial Determination at 36.[307] Second, and relatedly, the Judges were stunned when Dr. Johnson claimed at the hearing that he had ''never received'' the satellite case documents calling into question the modeling and testimony on which Dr. Johnson had relied, which SDC's counsel had produced (as voluntary discovery) to PTV's counsel (and to all counsel).[308] Third, and also relatedly, PTV's counsel never volunteered whether it had in fact transmitted that important discovery to Dr. Johnson, or whether PTV's counsel had (intentionally or otherwise) not transmitted that material. Initial Determination at 36 n.39. Thus, the Judges were unable to determine whether the failure to consider and address this important evidence was the fault of Dr. Johnson, PTV's counsel, or

testimony, as discussed in the text immediately following this footnote.)

[306] The Judges recalled Dr. Johnson's testimony in this regard, even though it was not set forth expressly in PTV's Proposed Findings of Fact or Conclusions of Law (or PTV's replies to other parties' post-hearing submissions). In fact, in both of its post-hearing filings regarding proposed factual findings, PTV only expressly referenced this issue in connection with CSOs retransmitting PTV + *WGNA,* and failed to argue for the wider application it now seeks via rehearing. *See* PTV PFF ¶¶ 60, 126; PTV RPFF 136 & n.188. That failure on PTV's part alone would have sufficed for the Judges to have disregarded PTV's argument. *See* 37 CFR 351.14 (''A party waives any objection to a provision in the determination unless the provision conflicts with a proposed finding of fact or conclusion of law filed by the party.''). Although PTV claims that ''it was impossible to anticipate that the Judges would apply their Adjustment[] . . . C to Dr. Tyler's sensitivity limited to Above Minimum Fee CSOs,'' PTV Reply at 1, a crucial theme of Dr. Johnson's testimony was that the Minimum Fee data should have been used *en toto* to establish value. Thus, it was incumbent upon PTV to make this point by including it explicitly in its post-hearing submission.

But nonetheless the Judges, *sua sponte,* recalled, referenced, and quoted testimony as to this issue, rather than deem PTV's upward adjustment argument to have been waived. However, the Judges did decline to credit Dr. Johnson's testimony (as discussed in the following text), adopting instead the substantial 44% upward adjustment indicated by the testimony of JSC's statistical expert, Mr. Harvey. PTV's argument strikes the Judges as a fine example of *chutzpah,* or as Joint Respondents' put it, ''looking a gift horse in the mouth,'' by characterizing *only* a 44% upward adjustment as ''manifest injustice'' and ''clear error.'' *See* Joint Response at 7.

In this vein, PTV also takes issue (when assuming arguendo the correctness of Mr. Harvey's analysis) with the Judges setting of PTV's Adjustment C share percentage increase by 44%, rather than setting the adjustment at 44.5%. PTV Motion at 5 n.4. The Judges disagree with PTV's argument as to this issue. An agency has the discretion to truncate a value expressed in decimal form. *See North Carolina* v. *E.P.A.,* 531 F.3d 896, 915–916 (D.C. Cir. 2008 (''[W]e cannot say that EPA's decision to truncate rather than round . . . was arbitrary. . . . Without a rule mandating any particular method, EPA is free to round or truncate the numbers it is comparing . . . as long as its choice is reasonable.''). Here, there was no regulation guiding the Judges. Moreover, given the uncertainties generated by PTV's failures, as discussed elsewhere in this order, to proffer sufficiently credible evidence and to meet its evidentiary burdens regarding which PTV signals among the CSO systems were must-carry, multicast or subject to royalty indemnification—truncating the percentage to 44% continues to strike the Judges as a reasonable decision, and certainly not one that generated ''manifest injustice'' or ''clear error,'' as those standards are described in this order. (It should be noted that PTV has not argued on rehearing that the Judges should have rounded the percentage increase to 45%, rather than truncate the increase to 44%, nor did PTV argue that the Judges are bound by a mathematical convention to do so.)

[307] To recount, these materials revealed ''compelling'' evidence of ''potential specification searching and [of] dissembling'' by the expert econometric witness on whose testimony the Judges had relied in the 2010–13 cable allocation proceeding (before serious questions were raised in the companion satellite proceeding). Initial Determination at 33. That prior testimony and modeling served as a starting point for Dr. Johnson's econometric work in the present proceeding. *Id.* at 27. The Judges thus found in this proceeding that, *inter alios,* Dr. Johnson—in order to support his testimony—was ''obligated,'' yet failed, ''to adequately address the impact of Dr. Crawford's workpapers, as well as the assertion that they demonstrated he lied in his testimony in the prior proceeding.''); *Id.* at 36.

[308] *Id.* (''[S]tartlingly, Dr. Johnson testified that he never received the satellite case documents that SDC's counsel produced to PTV's counsel . . . or the [relevant] testimony . . . [from] the satellite proceeding that was designated as evidence [in the present proceeding . . . .'']).

both. For these three related reasons, the Judges gave ''diminished weight'' to Dr. Johnson's testimony. *Id.* at 38.

Fourth, as explained in the Initial Determination, the Judges were also ''troubled'' that PTV appeared to have created two different ''teams'' within Dr. Johnson's firm, Edgeworth Economics (''Edgeworth''), in order to allow Edgeworth to use a so-called ''consulting team'' which excluded Dr. Johnson, in order for PTV to provide him with deniability about specification searching and to withhold discovery of such dubious activity.[309] More particularly, the Judges explained that, ''when the 'consulting team' is created *within[ ] the same firm of economists who are also preparing testimony and actually testifying,* there is the risk that work by the 'consulting' team will be utilized as a screening device for work that should have been undertaken by the 'testifying' team . . . [and] the use of a 'consulting' team can allow a party to also cloak from discovery expert work by claiming the protection of the work-product rule.'' *Id.* In this regard, the Judges took particular note that

> an email that was withheld from Dr. Johnson as ''consulting'' team material contained a link to CDC distant signals with the caveat: ''these data files are being shared for consulting purposes only and should not be shared with John''). It is difficult to fathom why raw data regarding distant signals would be withheld from the testifying expert.
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> Initial Determination at 39 n.43.

Additional detailed facts only further undermined the credibility of PTV and Dr. Johnson:

> Moreover, the soundness of the ''wall'' between the ''consulting'' team and the ''testifying'' team was questionable, given that the ''consulting'' team was led by Drs. Michael Kheyfets and David Colino, but they also were the senior members of the ''testifying'' team that reported to Dr. Johnson, along with dual team members Dr. Stephanie Cheng and Esther Yan. . . . . Additionally, when PTV first produced documents to SDC, it did not also provide a privilege log describing the Edgeworth documents otherwise withheld because of an assertion of a privilege relating to a consulting team. (After SDC'[s] motion to compel, PTV provided a privilege log, but, after [ordered to produce the documents,] PTV produced virtually all of the previously withheld material.)
>
> Initial Determination at 39. The Judges thus determined that not only was there evidence that PTV attempted to avoid discovery of its alleged specification searching, but that this attempted concealment ''*serves to diminish the Judges' reliance on the Johnson Model* . . . .'' *Id.*

Fifth, when evaluating the *substance* of the work undertaken by Dr. Johnson, the Judges were further concerned by the absence of ''any sufficient basis in the record to explain [the] correlation between sequential regression runs and the growth of PTV's allocation share,'' and PTV's failure to present a ''sufficient basis to rebut SDC's charge that data changes should not consistently be correlated with the growth of PTV's share allocation, as opposed to a randomized effect on share percentages.'' *Id.* Thus, the Judges agreed with SDC's economic expert, Dr. Daniel Rubinfeld, finding that Dr. Johnson's work demonstrated ''an appearance . . . of practices that ran counter to sound empirical research practice . . . .'' Initial Determination at 39–40. For these reasons alone, the Judges decided to ''give reduced weight'' to the work undertaken by Dr. Johnson on behalf of PTV. Initial Determination at 40.

Sixth, the Judges were frustrated by PTV's failure to produce important evidence with regard to another issue. Although PTV claimed royalties for multicast programming and must-carry stations, PTV failed to produce sufficient proof in that regard.[310] As the Initial Determination explains:

> [T]here was evidence available to be produced by PTV, namely the PBS–NCTA agreement as well as the number of entities it represents that would provide significant *marketplace evidence* . . . . But . . . PTV did not produce either this agreement or the number of entities bound by it as evidence, although its own expert witness testified as to some of the agreement's contents.
>
> Thus, the Judges were deprived of full knowledge of the terms of the agreement, the parties' fulsome testimony as to the meaning of its provisions and the number of entities signing on to the agreement. Moreover, PTV opposed the admission of that agreement into evidence. . . . Accordingly, the Judges . . . find that PTV bore, but failed to discharge, the burdens of production and persuasion with regard to the details of the agreement and the extent of its coverage.
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> Initial Determination at 53.

Regarding the ''Must Carry'' issue, PTV's failure to carry its burdens of production and persuasion are especially instructive, because they are juxtaposed against the testimony of Mr. Harvey, as in the rehearing issue pertaining to Adjustment C. Mr. Harvey identified 15.5% of PTV distant signals as having been retransmitted in compliance with these must-carry rules. Initial Determination at 40. But, as the Judges noted, ''PTV takes issue with the entirety of Mr. Harvey's approach to designating 'must-carry' stations.'' *Id.* The Judges rejected PTV's argument, chastising PTV for failing to satisfy its burden of proof to provide affirmative evidence and for instead attempting to cast doubt on Mr. Harvey's otherwise credible testimony and analysis. As the Initial Determination states:

> The Judges agree with JSC and CTV, based on the case law cited by JSC, that PTV, whose clients include the public television stations that are *in fact* subject to must-carry requirements, bore the twin burdens of proof—the burden of *producing evidence* and the burden of *persuasion*—regarding which stations were subject to the must-carry provisions and which were not. Further, because PTV is seeking a determination including must-carry station data in the regression, those burdens are apportioned to PTV as a matter of statute. *See* 5 U.S.C. 556(d).
>
> But rather than produce such evidence or prove its significance, PTV elected to attack Mr. Harvey's attempt to estimate the number of must-carry stations. Those attacks are insufficient. . . . Mr. Harvey engaged in a reasonable attempt to estimate this number, which PTV could have set forth in its submissions, but did not.
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> Initial Determination at 47 (emphases in original).[311]

Seventh, and finally, as noted at the outset of this discussion of PTV's rehearing request vis-à-vis Adjustment C, Dr. Johnson's rebuttal testimony on

[309] A bona fide '''consulting team' of experts can be utilized by a party's law firm, to allow for work product confidentiality in connection with the law firm's evaluation of the facts.'' Initial Determination at 38.

[310] ''Must Carry'' stations were those PTV stations which CSOs were legally obligated to transmit, potentially belying any assertion that the value of such stations was demonstrated by their carriage. *See* Initial Determination at 47–49; *see also id.* at 40, 42–43.

[311] PTV also questions the use of Mr. Harvey's analysis because it identifies the number of ''systems'' (*i.e.,* CSOs) that continued to retransmit a PTV signal after the WGNA conversion, rather than the total number of PTV stations retransmitted by these CSOs. PTV Motion at 5 n.4. The Judges do not agree with this criticism. Recall the problems (discussed *supra*) related to PTV's failure to meet its evidentiary burdens related to ''must carry'' and multicast signals, as well as to indemnified transmissions. The Judges find it prudent to rely on Mr. Harvey's ''system'' calculation, which is equivalent to establishing one PTV signal per CSO as retaining in the 2015–2017 post-WGNA era its pre-2014 value, as evidenced by its above-Minimum Fee carriage in that year. Utilizing PTV's per station approach would require the Judges to *assume* that the retransmission of all PTV stations in 2015–2017 were generating royalties, regardless of whether they were ''must carry'' or multicast signals, or whether they were subject to indemnification of any royalties due. As noted *supra,* the Judges declined to adopt PTV's arguments regarding the number or percent of ''must carry'' stations (for which no net royalty obligation exists), because of PTV's failure to meet its evidentiary burdens in those regards (a point unaddressed in the PTV Motion). As the D.C. Circuit has noted, the daunting factual nature of the statutory task of allocating royalties necessitates a measure of ''rough justice,'' which the Judges find to be well-administered as to this issue by making allocation decisions dependent in part on whether a party had met its evidentiary burden. *See* Initial Determination at 9 (and citations therein).

which PTV relies does not include a reference to documentation on which he relied to support that testimony. The Judges are hesitant (to say the least) to grant rehearing based upon an expert's testimony when the party relying on that testimony fails to cite to any underlying documentation of factual analysis or support for that opinion. Moreover, when the Judges consider the absence of such documentation in the cumulative context of the assorted problems with PTV's failures to meet its evidentiary burdens and Dr. Johnson's lack of knowledge of critical facts and evidence (as cataloged *supra*), their reluctance to grant the ''exceptional'' section 803 relief of rehearing is reinforced.

The foregoing analysis makes it clear that the Judges had—and continue to have—serious questions regarding the credibility, reliability, and sufficiency of the evidence and testimony put forth by PTV and Dr. Johnson. *Each* of the Judges' findings and conclusions in these multiple areas is sufficient grounds for the Judges' election to rely on the testimony and evidence provided by JSC's expert statistician, Mr. Harvey, rather than PTV's Dr. Johnson, regarding the basis for, and size of, Adjustment C. Moreover, when the foregoing seven points calling into question the testimony of Dr. Johnson and PTV's position are considered *as a whole,* the Judges' decision to rely on Mr. Harvey's testimony instead of that of Dr. Johnson, most certainly did not constitute an error, let alone clear error that could serve as a basis for rehearing.

For these reasons, the Judges agree with the Joint Respondents that the Judges acted within their discretion in making Adjustment C as set forth in the Initial Determination.[312] [313]

IV. Correction of Typographical and Arithmetic Errors

The PTV Motion noted errors in the Adjustment B Table for 2014, observing that ''typographical errors result in total 2014 shares that do not equal 100%.'' PTV Motion at 4 n.2. PTV argued that, in order to correct the 2014 shares, ''Program Suppliers' share should be changed from 28.8% to 26.8%, JSC's share should be changed from 37.5% to 37.48%, and CTV's share should be changed from 11.39% to 11.38%.'' *Id.*[314]

The Judges have reviewed the Adjustment B calculations questioned by PTV and agree that they are erroneous as a consequence of a typographical error. PTV's proposed correct shares adjust for this error. The Judges grant the motion for rehearing regarding the identified typographical errors, finding that there is a need to correct a clear error or prevent manifest injustice. Having found the Motions for rehearing and related filings a sufficient rehearing record from the participants, the Judges correct the typographical errors for 2014.

Further, the Judges correct mathematical errors, not only in 2014 but in all years, that affected the shares reported in the Adjustment B Table. PTV, JSC, and CTV note that PTV's share of 19.09% reported in the Adjustment B table for 2017 is in error.[315] PTV Motion at 4 n.3; JSC Motion at 9 n.4; CTV Response to PTV Motion at 6. The Judges grant the motion for rehearing regarding these arithmetic errors, finding that there is a need to correct a clear error or prevent manifest injustice. Having found the Motions for rehearing and related filings a sufficient rehearing record from the participants, the Judges correct the arithmetic errors.[316]

All of these corrections are applied in Adjustment B Table below: [317]

ADJUSTMENT B TABLE

Year	Program suppliers (%)	JSC (%)	CTV (%)	PTV (%)	SDC (%)	CCG (%)
2014	26.80	37.48	11.38	13.36	4.33	6.55
2015	47.67	2.44	13.14	11.78	11.28	13.70
2016	40.75	1.69	17.32	15.32	10.81	14.12
2017	44.07	0.67	13.23	15.96	10.41	15.66

The Must Carry adjustment in Bennett WRT fig. 52 was based on the PTV shares of all CSO royalties, whereas the Judges are applying this adjustment to the shares of CSO royalties attributable to shares generated by CSOs paying above the Minimum Fee (subject to the prior adjustment for CCG, discussed *supra*). So, for 2014, the percentage point adjustment to the PTV share is the percentage point adjustment in Bennett WRT Fig 52. For 2015–2017, the percentage point adjustment to the PTV share is calculated for each year by: (1) finding the percentage of PTV shares reflected by the PTV shares from Tyler/WRT fig. 6.3 ÷ PTV's shares from Tyler WRT fig. 3.2; (2) multiplying that percentage by the percentage point adjustment in Bennett WRT fig 52; and (3) subtracting that product from the PTV share from the table above.

[312] PTV appears to implicitly argue that the ''second bite at the apple'' argument is not applicable because it did not know that the Judges would apply Dr. Johnson's opinion in favor of applying the Minimum Fee royalty data as an adjustment (Adjustment C). PTV Motion at 1 (arguing it was ''impossible to anticipate that the Judges would apply their Adjustment[ ] C to Dr. Tyler's sensitivity limited to Above Minimum Fee CSOs.''). This argument is meritless. PTV argued emphatically for the Judges to utilize Minimum Fee royalty data to establish program values and allocation shares in this proceeding. The Judges *did* use Minimum Fee evidence in making Adjustment C in PTV's *favor*—just not the Minimum Fee evidence that PTV prefers, nor as extensively as PTV had sought. As noted *supra,* the D.C. Circuit has held, the Judges are ''not . . . strictly limited to choosing from among the proposals set forth by the parties'' and, like all agencies, ''have the authority to modify proposals set forth by the parties, or to suggest models of their own.'' *Johnson* v. *Copyright Royalty Bd.,* 969 F.3d 363, 381–82 (D.C. Cir. 2020). *See also SoundExchange, Inc.* v. *Copyright Royalty Bd.,* 904 F.3d 41, 50–51, 57 (D.C. Cir. 2018) (upholding the Judges' decision to modify a party's proposed rates in light of the Judges' application of the relevant statute); *Ass'n of American Publishers, Inc.* v. *Governors of USPS,* 485 F.2d 768, 773 (D.C. Cir. 1973) (when a rate-setting agency partially disregards two experts in connection with ''suggested adjustments . . . [the] rate-making body may fashion its own adjustments within reasonable limits.'').

[313] The Joint Respondents' argument that the PTV Motion as it relates to Adjustment C should be denied because the analysis of WGNA + PTV transmissions is a ''supply-side'' scenario and thus differentiated from PTV pairing with other signals is moot in light of this order.

[314] When computing the allocation shares in the adjustment tables, the Judges necessarily rounded figures. When such rounding was applied it was done consistently across parties and years. Due to rounding, the sum of allocation shares may not equal exactly 100% for a given year.

[315] PTV and CTV describe the error as an arithmetic error.

[316] The first arithmetic error corrected was in the calculation of the proportional increase to other claimants' shares relating to the reduction in the PTV share due to the presence of ''must-carry'' stations. The second arithmetic error corrected was in the calculation of the PTV share for 2017 to account for this ''must-carry'' issue.

[317] To the extent that corrections set forth in this Order might be construed to reach beyond those identified in the Motions for rehearing or the rehearing authority in 17 U.S.C. 803(c)(2), the Judges also make such corrections under their authority to correct technical or clerical errors in 17 U.S.C. 803(c)(4). For this reason, the Judges set forth the analysis herein also as a written addendum to the Initial Determination, which is distributed to the participants of the proceeding via this Order and will be published as part of the Final Determination, pursuant to 17 U.S.C. 803(c)(4).

The shares of the other claimants are adjusted upward by: (1) calculating the percentage each category represents of all the categories' shares except PTV; (2) multiplying each percentage by the Bennett Must Carry adjustment (reduced as set forth above); and (3) adding that product to the shares of each claimant category.

The Judges recalculate the Adjustment C Table to reflect the corrections to the Adjustment B Table:

ADJUSTMENT C TABLE

Year	Program suppliers (%)	JSC (%)	CTV (%)	PTV (%)	SDC (%)	CCG (%)
2015	44.87	2.30	12.37	16.96	10.62	12.90
2016	37.51	1.56	15.94	22.06	9.95	13.00
2017	40.39	0.61	12.12	22.98	9.54	14.35

The Judges recalculated the shares of the other five claimant categories by: (1) calculating the percentage each category represents of all the categories' shares except PTV; (2) multiplying each percentage by the increase in the PTV share generated by adjusting to reflect WTP of CSOs that maintained PTV carriage after WGNA conversion; and (3) subtracting that product from the shares of each claimant category.

As discussed in the Initial Determination, the Judges allocated shares of the Basic Fund to each party based on their review and weighting of the record evidence. ID at 197–198. The corrected Basic Fund and 3.75% Fund allocations incorporate the corrections discussed above.

For each year, the aggregate sum of the share allocations did not sum to 100% for the Basic Fund. In 2014, the allocations summed to marginally greater than 100 percent and, in 2015–2017, marginally less than 100 percent. The Judges therefore adjusted the allocated shares proportionally to achieve an aggregate allocation of 100%; in 2014 shares this process required a modest downward adjustment and, in 2015–2017, this process required a modest upward adjustment in shares. The resulting corrected Basic Fund and 3.75% Fund [318] allocations are as follows:

BASIC FUND ROYALTY ALLOCATIONS

	2014 (%)	2015 (%)	2016 (%)	2017 (%)
CCG	6.19	14.59	14.60	15.77
CTV	20.55	19.78	17.36	17.50
JSC	36.13	11.42	10.72	12.36
Program Suppliers	21.21	28.29	25.53	23.29
PTV	11.07	19.18	24.78	25.25
SDC	4.85	6.74	7.01	5.83

3.75% FUND ROYALTY ALLOCATIONS

	2014 (%)	2015 (%)	2016 (%)	2017 (%)
CCG	6.96	18.05	19.41	21.10
CTV	23.11	24.48	23.08	23.41
JSC	40.63	14.13	14.25	16.53
Program Suppliers	23.85	35.00	33.94	31.16
SDC	5.45	8.34	9.32	7.80

V. Ruling and Order

For the foregoing reasons, PTV's motion for rehearing is *granted in part* and *denied in part* and JSC's motion for rehearing is *denied*.

The affected parties shall file a joint proposed redacted public version of this Order for public viewing within *ten days*.

So ordered.

Dated: March 21, 2024.

David P. Shaw,

Chief Copyright Royalty Judge.

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[318] For years 2015 and 2017, the calculated allocation shares did not equal 100%. In the case of 2015, the total calculated shares were just below 100%. To achieve the full 100%, the Judges reviewed the results and provided an increase to the claimant whose share was the closest to being rounded up at the second decimal place. In 2017, the total calculated shares were just above 100% and the Judges did not round up the claimant whose share was the closest to not being rounded up at the second decimal place to achieve a 100% allocation.