

Before the
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In re

**DISTRIBUTION OF CABLE ROYALTY
FUNDS**

Docket No. 16-CRB-0009-CD (2014-2017)

**SETTLING DEVOTIONAL CLAIMANTS'
POST-HEARING REPLY BRIEF
WITH AN ERRATA**

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I. Introduction

As the SDC explained in their opening brief, the Bortz survey is the methodology that best and most reliably reveals relative market value in this proceeding, while the fee-based and rate-based regressions proposed articulate no coherent economic theory and are fatally misspecified.

II. Regression Analyses

A. Proponents of fee-based and rate-based regressions have articulated no coherent theory.

As the SDC have shown, each of the regression models offered in this case suffers from a complete lack of any economic theory or causal inference as to how economic meaning can be gleaned from any observed correlation between the number of claimant category minutes and the calculated subscriber group fees or the subscriber group royalty percentage. [SDC Findings ¶ 7](#). None of the proponents of fee-based regressions have articulated a coherent theory.

To be sure, all parties in this case have described economic principles or assumptions about which there is little dispute. The SDC agree, for example, that “[t]o maximize profits, cable systems construct channel lineups by weighing the incremental revenue of channel offerings to different communities against the incremental cost of including particular channels in the bundled offerings.” [CCG Br. at 37](#). There may very well be information in the choices that cable systems make. The problem is that no coherent explanation has been proposed as to how a manufactured correlation between category minutes and subscriber group royalty fees calculated according to a statutory formula is supposed to capture that information. [SDC Findings ¶ 18](#).

1. Proponents of fee-based regressions cannot articulate a cogent theory.

As can be seen clearly in the briefs of other parties, a big part of the problem is that the parties proposing regression analysis do not understand the operation of the models that their own experts have proposed. CTV, the party responsible for inflicting Dr. Crawford's model on these proceedings, offered this garbled description: "Prof. Crawford's fee-based regression analysis relied upon in the [10-13 Determination](#) compares the royalties paid by CSOs to the total minutes of programming of each claimant group carried on distant signals that CSOs offer to subscriber groups." [CTV Br. at 20](#). This is wrong. Dr. Crawford's model was not based on "royalties paid by CSOs." It was based on calculated fees at the subscriber group level. [SDC Findings ¶ 34](#).

The distinction may seem subtle, but we are not just being persnickety. The dependent variable matters—a lot—as to what causal inferences can be drawn. Even setting aside the confounding factor of the minimum fee (an issue that applied to approximately 50% of all systems during the 2010-13 time period to which Dr. Crawford's model was applied ([id. ¶ 61](#))), there is a very big difference between a regression based on fees calculated at the subscriber group level and fees paid at the level of the CSO. "A subscriber group is simply a community of subscribers of the same cable system receiving the same signals on a distant basis The subscriber groups are not pre-existing (or exogenous) formations." [Id. ¶ 27](#) (quoting [7505 p. 36-37, Rubinfeld Reb. ¶¶ 76-79](#)). A CSO's decision to increase carriage of a signal or signals, and therefore to pay more fees, will not necessarily have a positive effect on fees calculated at the subscriber group level. [Id. ¶ 34](#). A more valuable signal might be sent to a larger subscriber group (resulting in an increase in the dependent variable) or to more, smaller subscriber groups (resulting in a decrease in the dependent variable). [Id.](#) In fact, the latter is more likely, as the

addition or increased reach of signals causes subscriber groups to splinter, as Dr. Erdem’s testing has shown. [Id. ¶¶ 35-36](#).

This is why the SDC have said consistently, “It is necessary to think about *what is correlating with what*, and *why*, applying economic reasoning and common sense.” [Id. ¶ 11](#). CTV’s botched (or, at best, imprecise) description of its own model fails this basic precept.

In another miss, CTV’s brief describes the fee-based regressions in these terms: “The fee-based regressions that PTV, PS, and CCG proffer were designed to measure the cost-benefit tradeoffs of the distant signal carriage decisions made by CSOs in the 2014 to 2017 timeframe.” [CTV Br. at 42](#). CCG makes a similar claim: “Even when signals have the same royalty cost, they will make different contributions to revenue based on overall program quality and differentiation from other offerings.” [CCG Findings ¶ 132](#). Again, this is not true, and it is another misunderstanding of what the fee-based regressions are measuring. The fee-based regressions measure, at best, only the cost side of the “cost-benefit tradeoff.” There is nothing in the dependent variable —whether based on subscriber group fees or royalty rates—that can tell us anything about any “benefit” received by the cable system. The “cost” is set by statute. All one can know from a cable system’s choice to retransmit a signal on a distant basis is that there was *something* on the signal that the cable system valued at least as much as the marginal cost (if any) of retransmission of the signal. Because variation of the marginal cost varies independently of the value of the content on the signal, no inference can be drawn as to the value of the content on the signal. [SDC Findings ¶ 26](#).

CCG’s description of the causal theory of a fee-based regression is even more garbled and less comprehensible than CTV’s: “[R]egression works well because it is based on CSO choices made under the regulatory framework and market conditions that exist and it can

estimate relative value assuming we just remove the pricing scheme. Regression does so by building a model around CSO behavior.” [CCG Br. at 37](#). This is a nonsensical claim. The proposed fee-based regression models do not “remove the pricing scheme.” The dependent variable of each of the regression models is explicitly a product of the pricing scheme. As Dr. Erdem has shown indisputably, the relationships measured by each of the Crawford-like regression models, including CCG’s model proposed by Dr. George, are based on “perversions” in the way the regression “reflects the royalty formula.” [SDC Findings ¶ 56](#).

2. The proposed fee-based regressions are specified on a hedonic framework, not a choice-based framework.

None of the regressions proposed is based on a theory of reach, as CTV’s brief seemingly presumes. [SDC Findings ¶¶ 33-38](#). Rather, each of the proposed regression models relates minutes to calculated fees or royalty rates, which the regression proponents use as a price proxy, in the framework of a “hedonic” regression. A hedonic regression is based on the assumption that market prices reflect market value. [Id. ¶ 21](#). Prices that are fixed according to a formula are not free to vary based on value. [Id. ¶ 24](#). The coefficients of a hedonic regression in such an environment cannot represent the “effect” on the bundle “value,” only the “correlation” with bundle “prices.” [Id.](#) So, while it presumably is true that cable systems make decisions to retransmit or not to retransmit distant signals based in part on their assessment of the value of the signals’ content, those decisions can have no effect on the *price* of distant carriage, which is, at best, what a fee-based regression measures. [Id. ¶ 25](#).

Clearly, regressions based on non-market prices cannot reveal market value. [Id. ¶¶ 18-30](#). Therefore, CCG and PTV seem to want to fall back on a choice-based theory:

- [I]f a system carries a Canadian distant signal, or a public television distant signal, and no others, the choice reveals that the value of programming on these signals is higher than programming on signals not carried.” [CCG Findings ¶ 130](#).

- “A CSO’s selection to distantly retransmit a particular signal and not another to each subscriber group reveals that CSO’s preference for the programming on the selected signal over the programming on the other, unselected signal.” [PTV Br. at 27](#).

There could be something plausible in a choice-based theory (which received a surprising amount of airtime during the hearing, considering that no expert witness presented such a theory in written direct testimony). But none of the regressions offered in this proceeding is specified to implement a theory based on cable system choices between alternative programming bundles, which multiple experts (including CTV’s Dr. Marx) agreed would require a model that takes into account both the signals that are distantly retransmitted and the signals available for retransmission on a distant basis that are not retransmitted. [SDC Findings ¶¶ 40-41](#). The calculated royalty fees or rates that the regression models offered in this case cannot tell us anything about what a choice, rank, or probability-based model might be able to say because they were not designed and are not specified to do so. *Id.*

CCG, anticipating this obvious response, parries with a bizarre *whataboutism*, pointing out that the Bortz survey also does not take into account the choice set of signals that were available for retransmission. “The regressions operate by establishing value for the choices made by CSOs, that is the signals carried. ... Similarly, the survey respondents answer only about signals carried, not about alternatives.” [CCG Findings ¶ 132](#). But the proponents of the Bortz survey have never claimed that the survey results are based on a theory of choice. The surveys ask about *value*, not choice. The point is not that a choice-based theory is necessary to measure value; it is that none of the regression models offered, including CCG’s or PTV’s, is specified for a choice-based theory. Whatever information there may be in a cable system’s choice to carry one signal over another, the proposed regression models are blind to it.

3. “Minimum willingness to pay” is not an *economic* theory.

Program Suppliers, unlike CTV, CCG, and PTV, do not attempt to reinvent their causal theory on the fly. They continue to assert, as Dr. Tyler himself asserted, that Dr. Tyler’s model is based not on “choice” between signals but on a theory of “minimum willingness to pay.” [PS Findings ¶ 275](#). But even ignoring issues like the minimum fee or the must-carry regime, which obliterate any inferences based on “willingness,” “minimum willingness to pay” is not the same thing as market value. Dr. Tyler’s model can only identify the *quantity* of minutes retransmitted at a *given* price, and not the price that would have prevailed or the quantity that would have been retransmitted if the cable systems and stations had been free to negotiate. [SDC Findings ¶ 139](#). Nor can we know *which* minutes on a signal the cable systems were willing to pay for. [Id. ¶ 140](#). Dr. Tyler’s model is a glorified fee generation model. [Id. ¶ 138](#); *see also* [PTV Findings ¶ 159](#). It is devoid of any *economic* theory. [SDC Findings ¶¶ 140-41](#).

B. Data limitations further confound any possible conclusions from fee-based or rate-based regressions.

1. PTV inadvertently illuminates the high instability of regression coefficients for Devotional and JSC programming.

In an exercise not presented in any written testimony or on the stand, PTV offers a table of regression coefficients from the Crawford, Johnson, and George models, purporting to show that “Public Television programming had the same or greater value per minute in 2014 compared with 2013.” [PTV Findings ¶ 10](#). The same table shows that the SDC “value per minute” (if that is what the regression coefficients are thought to show) almost doubled in the same timeframe, and that the JSC “value per minute” dropped by half. [Id.](#) Nobody, including the SDC, contends that this is the case, nor is there any reason to believe that it is. PTV’s table illuminates the SDC’s point that “[u]nreliable regression methodologies will tend to produce widely varying

results that can be especially consequential for the smaller claimant groups.” [SDC Findings ¶ 58](#) ([quoting 7505 p. 34, Rubinfeld Reb. ¶ 67](#)).

2. The minimum fee obliterates any possible inferences based on correlations with calculated fees.

The regression proponents’ responses to the confounding effect that the minimum fee has on any potential causal inference fall into two categories.

First, CCG and PTV make the choice-based theory argument that even within the minimum fee systems, we can conclude that signals that were carried are more valuable than signals that were not carried. [CCG Findings ¶ 199](#); [PTV Findings ¶ 125](#). As shown above, that’s all well and good, but it has nothing to do with any of the regressions proposed, which are not specified to glean information from cable system choices between available signals. [SDC Findings ¶¶ 39-41](#).

Second, CCG concedes that the minimum fee “introduces measurement error,” because it prevents us from “pin[ning] down exact prices,” but argues that the “measurement error reduces precision but does not bias claimant shares.” [CCG Findings ¶ 198](#). This is a vast understatement. In the presence of minimum fees, the “prices” are not merely subject to “measurement error”—they are *missing* from the data. There is *no* “price” for carriage, and treating calculated subscriber group fees as a “price” is tantamount to making up the data. Moreover, Dr. Asker has demonstrated that the errors are in fact biased, because they correlate with parameters of interest. [JSC Findings ¶¶ 152-61](#).

The point is not that signals carried by minimum fee-paying systems have no value. The point is that regressions based on calculated fees, particularly in the context of a minimum fee that must be paid regardless of carriage decisions, allow no meaningful inferences about value. [SDC Findings ¶¶ 60-63](#). To be meaningful, a regression analysis in the context of fixed prices,

including minimum fees, needs to be specified based on something other than the calculated fees or rates. Nobody has offered such a specification.

3. No inferences can be drawn from calculated fees for must-carry PTV signals.

PTV argues, “it ‘makes no economic sense’ to conclude that because a cable operator was ‘legislatively compelled’ to retransmit a signal, that signal had *no value*. ... People are routinely required to purchase things, such as health insurance and seat belts, which they may value highly.” [PTV Br. at 16](#) (quoting 7303 at 37, [Johnson Reb. ¶ 57](#)). CCG argues similarly, “Prof. George concludes that to the extent that must-carry provisions apply to Public Television stations, they increase the value of Public Television stations.” [CCG Findings ¶ 224](#).

There is a very basic misconception underlying this argument. Neither PTV nor CCG contends with the fact that, in the absence of the Section 111 license, cable systems would be required to carry must-carry PTV signals *for free*. [SDC Findings ¶ 222](#). In other words, as “market value” is defined, there would be no “market value” for must-carry signals, because no money would change hands. [Id. ¶ 214](#) (defining fair market value). (This is not the case with other required purchases, like insurance or seatbelts, where there is a competitive market, consumers are not required to buy from a particular supplier, and suppliers are not required to sell. Prices are free to vary based on differences in value.)

But, again, the point has never been that programming on must-carry PTV signals has no value. The point is that no inferences about value can be drawn from carriage of a must-carry signal at a calculated fixed price. [Id. ¶ 64](#).

PTV makes the point itself: “[T]he sensitivity tests conducted by Dr. Johnson and Dr. Bennett 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 Br. at 17](#). What PTV forgets is that the regressions have no measure of “relative marketplace value”; they are based on fees calculated under a statutory formula. What Dr. Johnson and Dr. Bennett have shown is that, unsurprisingly, the calculated rate is about the same whether a PTV signal is must-carry or not.

C. The fee-based and rate-based regression models are fatally misspecified.

1. Crawford-like regression models (PTV, CCG, CTV).

a. No party seriously defends Dr. Crawford’s perjury and model searching.

As is now well-known by all,¹ Dr. Crawford lied on the stand and concealed his extensive model search. When asked if he had tried different models and changed variables, Dr. Crawford acknowledged only a single alternative specification, when in fact he had performed hundreds. [SDC Findings ¶¶ 88 & 244](#). He denied using Dr. Waldfogel’s regression as a starting point, even though it was literally the first specification he tried, and he found absurd results. [Id. ¶¶ 70 & 244](#). He claimed he could not recall attempting a level-level specification, when in fact he had run dozens. [Id.](#) He falsely described his reliance on a Box-Cox test in choosing his functional form, when in fact his Box-Cox test was an afterthought and rejected his functional form. [Id. ¶¶ 76 & 244](#). He falsely denied performing regressions without fixed effects and at other levels of fixed effects, even when confronted with evidence in his specification suggesting that it must have been tried at other levels of fixed effects. [Id. ¶¶ 90-91 & 244](#). He wrongly criticized Dr. Erdem’s sensitivity tests and denied that he had performed similar tests, even though he had performed the same tests, finding substantial drops in CTV’s shares. [Id. ¶¶ 93 & 244](#). He even lied directly in response to a question from one of the Judges. [Id. ¶¶ 90-91](#).

¹ See [PTV Br. at 37](#) (“The Devotional Claimants and their witnesses insist that they ‘know’ that Dr. Crawford and Dr. Johnson engaged in some improper model search – i.e., selective reporting of regression specifications so as to show only favorable or desired results.”).

No party has offered any defense of Dr. Crawford’s lies, either in their briefs or on the stand. Dr. Johnson took pains to distance himself from Dr. Crawford’s perjury. [Id. ¶ 92](#) ([quoting Tr. 814:3-9 \[Johnson\]](#) (“I would just draw the contrast, I did not say I did not run multiple regressions.”)). Even CTV’s own expert and Dr. Crawford’s Bates White colleague, Dr. Marx, grudgingly conceded, “I agree that there are statements that were made that seem in retrospect not accurate.” [Id. \(quoting Tr. 4332:14-15 \[Marx\]\)](#).

Nor is there any question that Dr. Crawford’s lies were in furtherance of concealing an improper model search based on results.² His work papers lay bare his intent, where his menus of model results put low CTV shares in red font and low JSC shares in yellow font. [Id. ¶ 89](#). CCG’s characterization that Dr. Crawford’s model searching is “an unproven accusation” is gaslighting. [CCG Findings ¶ 221](#). Everyone can see it. Program Suppliers, even after having submitted to the “if-you-can’t-beat-‘em-join-‘em” position on fee-based regression analyses, cannot stomach what Dr. Crawford has done. “[H]undreds of models were run, with an evolution in the results over time. ... These facts were concerning because they suggested that the modeling process was not driven by the underlying economics, but rather was a results-driven process.” [PS Br. 42](#). Short of a confession (which we will never get if Dr. Crawford does not show his face again), what more evidence could there possibly be? Experts engaged in appropriate research practices have no need to lie about it.

But CTV’s response to Dr. Crawford’s model searching is the one that really takes the cake: “Much of what Dr. Erdem described as experimentation is actually sensitivity analysis.” [CTV Findings ¶ 367](#). This is a false and outrageous claim—all the more so because it conflicts directly with Dr. Crawford’s own testimony *and CTV’s own prior arguments to the Judges, in*

² In light of Dr. Crawford’s penchant for model searching, it is interesting to note that he now works for Zalando, a European fashion company. <https://ch.linkedin.com/in/gregory-crawford-40580611>.

which Dr. Crawford and CTV specifically denied that any such “sensitivity analyses” had taken place!

After Dr. Crawford acknowledged on the stand performing a single regression analysis that he had not disclosed, in which he had not included MSO indicator variables interacted with lagged subscribers, the SDC moved to strike Dr. Crawford’s testimony on the ground that CTV had not complied with [37 C.F.R. § 351.10\(e\)](#), requiring expert witnesses to disclose “alternative courses of action considered.” [SDC’s Motion to Strike Testimony of Gregory S. Crawford, Ph.D., 14-CRB-0010-CD \(2010-13\) \(Mar. 1, 2018\)](#). In a detailed declaration in support of their motion, the SDC’s counsel pointed out that he had requested by email, following up on a phone call, “information regarding Dr. Bennett and Dr. Crawford’s successive attempts, if any, to arrive at their respective algorithms,” and that CTV’s counsel had responded, “[A]s we discussed by phone, no further documents exist that are responsive to your request.” [Id. at Declaration of Matthew J. MacLean ¶¶ 3-5](#) and [Ex. B](#).

CTV responded to the SDC’s motion in an opposition dated March 15, 2018. [Opposition of CTV to SDC’s Motion to Strike Testimony of Gregory S. Crawford, Ph.D., 14-CRB-0010-CD \(2010-13\) \(Mar. 15, 2018\)](#). CTV’s opposition argued at length, with extensive citations to Dr. Crawford’s false testimony, that Dr. Crawford had not changed any variables in the course of his sensitivity analyses:

During his oral testimony on February 28, 2018 (complete relevant excerpts of which are attached to this Opposition as Exhibit A), Dr. Crawford was attempting to answer Mr. MacLean’s persistent questions about whether he had “run any sensitivities” on his regression model. [Tr. 1633-34](#). Dr. Crawford answered, first, that he had done so “*in the sense of I considered – you know, . . . the variables that are included in the model.*” [Tr. 1634](#) (emphasis added). He explained that earlier he had not included any MSO Interaction variables in the model, but based on further analyses of the data, he saw “very different average receipts per cable system operator” and concluded that it would be appropriate to control for

that marketplace reality. [Tr. 1635](#). He explained that the addition of these variables “*built up to the final model.*” [Tr. 1635](#) (emphasis added).

Mr. MacLean then tried to mischaracterize his testimony by saying “[s]o you would regard that as a sensitivity because *you ran a regression to see what the results would be without that variable?*” [Tr. 1635](#) (emphasis added). But Dr. Crawford corrected him, saying “I went the other way. I started without it and then added it in.” [Tr. 1635-36](#). Mr. MacLean returned to his own question, and asked “what other *changes . . .* to your variables *did you attempt* in coming up with your model?” [Tr. 1639](#) (emphasis added). Dr. Crawford again made clear that he had not engaged in changes to variables to compare their possible effects on the regression’s results: “once I settled on the model, I was content with it.” [Tr. 1639](#).

Dr. Crawford then tried to discuss the sensitivity tests he had performed after seeing the rebuttal testimonies of other parties, to test whether their proposed changes in his variables produced any different results in his regression. [Tr. 1639](#). Mr. MacLean repeated his own question: “But I want to know what sensitivity tests you did, okay? . . . you’ve mentioned MSOs interactive with subscribers. Any others?” [Tr. 1640](#). Dr. Crawford answered “I think that was it,” but then, still attempting to answer Mr. MacLean’s question, mentioned evaluating his decision to use a log linear rather than a linear form of his equation, which was also explicitly discussed in his WDT. [Tr. 1640](#); see [Ex. 2004 at 32-33](#). After discussion of the test Dr. Crawford actually did run, Mr. MacLean returned to his theme: “So that’s not a sensitivity test, because *you didn’t do a regression to see what the results would be?*” [Tr. 1642](#) (emphasis added).

Dr. Crawford, still trying to answer questions about sensitivity tests that would evaluate the robustness of his regression, rather than Mr. MacLean’s suggestion that he had tried out different variables to see what their results might be, complained that Mr. MacLean was inappropriately “narrowly defining sensitivity” to include only the addition or exclusion of particular independent variables. [Tr. 1642](#). Undaunted, Mr. MacLean asked his question again: “Aside from the MSOs interactive with number of subscribers, . . . did you change any variables?” [Tr. 1642](#). Dr. Crawford responded “I don’t believe so.” [Tr. 1642](#).

[Id. at 4-5](#). How short a memory CTV must think the SDC’s counsel has.

If it were not so easily refutable, CTV’s assertion that Dr. Crawford’s extensive experimentation was “actually sensitivity analysis” should be stricken based on judicial estoppel.

See [New Hampshire v. Maine, 532 U.S. 742, 750 \(2001\)](#) (in applying judicial estoppel, “courts

regularly inquire whether the party has succeeded in persuading a court to accept that party's earlier position, so that judicial acceptance of an inconsistent position in a later proceeding would create ‘the perception that either the first or the second court was misled.’”) ([quoting *Edwards v. Aetna Life Ins. Co.*, 690 F.2d 595, 599 \(6th Cir. 1982\)](#)); [see also *Temple Univ. Hosp., Inc. v. NLRB*, 929 F.3d 729, 734 \(D.C. Cir. 2019\)](#) (same). However, under the circumstances of this case, the SDC would prefer the Judges to reach CTV’s contention and reject it—with extreme prejudice.

The winds unbagged by CTV’s conduct in the prior two proceedings have blown it between Scylla and Charybdis in the current proceeding, trying to thread the needle with its newfound opposition to the use of fee-based regression analyses while somehow steering clear of the stricture, “[W]here a party assumes a certain position in a legal proceeding, and succeeds in maintaining that position, he may not thereafter, simply because his interests have changed, assume a contrary position” [New Hampshire, 532 U.S. at 750](#). Although the SDC agree with CTV’s long-belated concession that the minimum fee confounds any causal inference from fee-based regressions ([SDC Findings ¶ 130](#)), it is impossible not to take all of Dr. Marx’s testimony with an enormous grain of salt. As Dr. Erdem observed in both the 2010-13 satellite case (where CTV’s expert testified that a Crawford-like regression was “infeasible” after performing such a regression and finding a 0% share for CTV) and again in this case: “[W]hen applying Professor Crawford’s model to a new dataset and finding results that do not favor CTV, Professor Crawford’s sponsoring party no longer agrees with the application of the model in these proceedings.” [SDC Findings ¶¶ 132-33 \(quoting 7503 p. 45, Erdem Reb. ¶ 129\)](#). Given that all of the proposed fee-based regressions are in truth based on perversions of royalty rates multiplied by measures of *volume* (as measured in the useless metric of “fee-weighted minutes”), and given

the substantial drop in CTV’s “fee-weighted minutes” volume with the exit of WGNA from the copyright royalty regime, Program Suppliers observe: “CTV ... abandoned regression for a much simpler reason: ... **any properly-specified regression would estimate a substantial decrease in CTV[’s] ... overall royalty share.**” [PS Br. 7-8](#) (emphasis in original). There are no “properly-specified” fee-based regressions in this proceeding, but the SDC are otherwise compelled to agree with Program Suppliers about CTV’s demonstrated motives over the course of three successive proceedings.

b. Model searching led to clear misspecifications in Dr. Crawford’s regression and those that followed it.

As abundant scholarship shows, extensive model searching invalidates statistical tests. [SDC Findings ¶¶ 16-17, 115](#). But the more obvious and visible fingerprints of Dr. Crawford’s model search are the clear, manipulative misspecifications that his model and those that follow it contain. [Id. ¶ 86](#). Two misspecifications in particular, retained by both Dr. Johnson and Dr. George, stand out:

- The functional form misspecification between the log form of the variable for subscriber group fees and the covariate for the number of subscribers ([id. ¶¶ 76-77](#)); and
- The misspecification of category minute coefficients “relative” to an omitted category of network and off-air minutes, rendering all coefficient values “indeterminate” ([id. ¶¶ 79-82](#)).

In Dr. Erdem’s 8-step build of a model, Dr. Erdem showed that these two misspecifications were the principal levers used by the Crawford-like fee-based regressions to fabricate relationships between variables and to manipulate results. [Id. ¶¶ 44-56](#). “[M]uch of the variations between fees and minutes measured by Professor Crawford’s regression is due to perversions in the way his regression reflects the royalty formula” [Id. ¶ 56](#).

According to CTV: “Dr. Erdem’s criticisms regarding model misspecification reflect his misunderstanding of how the selection of control variables in a regression model affect the estimates values and economic interpretation of coefficient estimates.” [CTV Findings ¶ 368](#). No, Dr. Erdem has not misunderstood, as he and multiple other experts have thoroughly explained. It was these misspecifications and the lack of any plausible econometric basis for them that convinced Dr. Erdem, even in the face of Dr. Crawford’s persistent denials, that a model search had taken place. [SDC Findings ¶ 86](#).

(i) *Functional form misspecification*

As to the misspecification between the log of subscriber group fees and the level number of subscribers, CTV argues, “Prof. Crawford’s goal was to control for the effect of the number of subscribers on royalties using the lagged value to control for bias arising from reverse causality. Dr. Erdem criticized this variable as inappropriate, but due to apparent misunderstandings of the Crawford model problematically suggests to relate the natural logarithm of royalty payments to the natural logarithm of the number of subscribers.” [CTV Findings ¶ 375](#). Parroting Dr. Crawford’s claim from the 2010-13 proceeding, CCG argues, “Transforming the subscriber variable to a log form would effectively replicate the royalty formula and undermine the interpretation of coefficients as the value of additional claimant minutes.” [CCG Findings ¶ 162](#).

Dr. Erdem agrees that the purpose of the control for the number of subscribers is to “control for the effect of the number of subscribers on royalties.” That is the purpose of a control variable, and it is clearly an essential control in any regression based on subscriber group fees, because the number of subscribers in a subscriber group varies independently of the value of the programming retransmitted. [SDC Findings ¶ 38](#). As CCG likewise explains, “[The

distant subscribers variable] establishes an ‘all else equal’ framework for evaluating the impact of program minutes on royalty expenditures.” [CCG Findings ¶ 162](#).

But “replicat[ing] the royalty formula” is the only way to remove the influence of the number of subscribers on fees that are calculated according to a formula. There is only one functional form that correctly captures the true relationship between fees and subscribers; there are an infinite number that do not, every one of which injects some greater or lesser degree of distortion and bias into the equation. “[I]f Dr. Crawford’s purpose was to ‘control’ for the effect of subscribers on fees paid, he should have used the natural logarithm of the distant subscribers. On the other hand, if his theory was based on a proposed relationship between fees paid and value (implicit in his response that a control for the logged number of subscribers merely ‘replicates’ the formula for calculation of fees), then he should not have controlled for the number of subscribers at all.” [SDC Findings ¶ 78](#) (quoting 7054 pp. 24-25, [Erdem 2010-13 Reb. ¶ 73](#)). Dr. Crawford’s explanation is gobbledygook. It is not “convincing or even readily understandable as a matter of economics.” *Id.* (quoting Tr. 2433:5-2435:5 [Asker]).

CTV claims, “Prof. Crawford conducted a Box-Cox test and determined that the log-linear model was the most appropriate specification.” [CTV Findings ¶ 375](#). But this was simply a continuation of another of Dr. Crawford’s lies, in which he claimed he did not experiment with the transformation of the subscribers variable:

- Q. ... [Y]ou didn’t test a transformation like this [of the number of subscribers variable] to see what effect it would have?
- A. No, because I strongly feel that including log subscribers is not an appropriate specification as an explanatory variable.

[7033 pp. 183-84, Crawford Tr. 1548-49](#). In explaining why he supposedly did not experiment with other functional forms, Dr. Crawford claimed to have chosen the log-linear functional form

based on a Box-Cox test (which estimates the transformation that best fits a variable to the data), and that he “stuck with” the log-linear form on the basis of the test. [SDC Findings ¶ 76 \(citing 7033 pp. 276-77, Crawford Tr. 1641:11-1642:2\)](#).

But as Dr. Erdem later discovered, Dr. Crawford did test the log transformation of the subscribers variable, finding an approximately 10-point (\$80 million) drop in CTV’s shares. [Id. ¶ 93](#). Dr. Crawford also tested many other functional forms, and he only performed his Box-Cox test after he had already settled on the log-linear form. [Id. ¶ 76](#). The Box-Cox test performed by Dr. Crawford tested only the functional form of the dependent variable, and not the covariates (like the lagged subscribers variable), and it specifically rejected the log-linear form. [Id.](#) The Box-Cox test is a red herring. It was not the basis for Dr. Crawford’s choice of functional form, it rejected the functional form that Dr. Crawford chose, and it says nothing about the proper transformation of any covariate. [Id.](#)

Like Dr. Crawford, Dr. Johnson’s team also tested the log transformation of the subscribers variable in Dr. Johnson’s model, finding, similar to Dr. Crawford, an approximately 11-point (\$90 million) drop in PTV’s shares. [Id. ¶ 107](#). Dr. Crawford and Dr. Johnson’s “sensitivity tests” (if this is what CTV now wants to call them) clearly show that their misspecification introduces bias in favor of the architects of the models that adopt it.

Other experts agree with Dr. Erdem’s recognition of the misspecification of functional form, including Professor Asker and Mr. Harvey. [Id. ¶ 77 \(citing 7114 p. 42, Asker Reb. ¶¶ 98-9; 7106 pp. 109, 111, 116, & 147, Harvey Reb. ¶¶ 194, 197, 202 & Ex. H\)](#). Dr. Tyler similarly observes correlated errors in a “hammer shape” in Dr. Crawford’s, Dr. Johnson’s, and Dr. George’s results, suggesting a misspecification. [PS Br. at 53](#) and [55](#). Scholarly authority firmly establishes that “[i]f the functional form is misspecified, then the estimator of the partial effect of

a change in one of the variables will, in general, be biased” and that a misspecification like Dr. Crawford’s, incorrectly specifying a non-linear relationship as a linear relationship, is “clearly unsatisfactory.” [SDC Findings ¶ 77](#) (quoting J. Stock & M. Watson, *Introduction to Econometrics* (updated 3rd Ed.), 368 (8510 p. 2) and P. Kennedy, *A Guide to Econometrics* (6th Ed.), 95 (8504 p. 5)).³

(ii) *Misspecification of coefficients “relative” to omitted category*

The other major misspecification in Dr. Crawford’s model is more difficult to spot, because it requires thinking about a category of programming—network programming—that is not at issue in this proceeding and was not included in Dr. Crawford’s regression model. But once seen, it cannot be unseen. It is just as obvious a misspecification as the functional form misspecification addressed above.

The omission of variables for network minutes and off-air minutes, combined with the inclusion of a variable for the number of distant signals (which scales with the total number of minutes), has the effect of rendering all category minute coefficients “relative” to the combined omitted category of network and off-air minutes. [Id. ¶ 79](#). As Dr. Erdem demonstrated in his 8-step model, network minutes (which appear only on network stations, with a 0.25 DSE, alongside other programming that also appears on 1.0 DSE stations) have a strongly negative

³ Seemingly in an attempt to address Mr. Harvey’s residual plots, CCG quotes Andrew Gelman and Jennifer Hill, *Data Analysis Using Regression and Multilevel/Hierarchical Models* (2007) as saying, “The regression assumption that is generally least important is that the errors are normally distributed. ...” [CCG Findings ¶ 167](#) (quoting [Gelman and Hill \(2007\) p. 46](#)). But in referring to non-normal distribution of errors, Gelman and Hill are not referring to non-linear relationships or correlation of errors. See [7503 pp. 11-12, 18-19, Erdem Reb. ¶¶ 37-40, 55-56](#), for a discussion of non-normal distribution in the form of heteroscedasticity.

The same page that CCG cites to says, “The most important mathematical assumption of the regression model is that its deterministic component [i.e., the dependent variable] is a linear function of the separate predictors ...” [Gelman and Hill \(2007\) p. 46](#). It also says, “The simple regression model assumes that the errors from the prediction line are independent.” [Id.](#) These are the issues characterizing the misspecification of functional form, not non-normal distribution of errors.

regression coefficient. [Id. ¶¶ 51-54, 82](#). By specifying coefficients to be relative to the negative coefficient of network minutes, proponents of Crawford-like regressions can lift the coefficient values of other category minutes, manufacturing positive and statistically significant relationships that otherwise do not exist. [Id.](#) But in so doing, by rendering all coefficients “relative” to the unknown coefficient of an omitted category, the specification renders all coefficients “indeterminate” in value. [Id. ¶ 79](#).

All of the regression models treat category minute coefficients as measures of “value-per-minute,” and they use those “values” in calculating each category’s share relative to other categories. To be consistent with the apparent intent of the model, “relative value isn’t enough. It needs to be – there needs to be some notion of absolute value imported. The problem here is that you don’t know what it’s relative to” [Id. ¶ 79](#) (quoting Tr. 2427:8-16 [Asker]).

Dr. Crawford himself was stumped when confronted with this issue on the stand, and he was forced to admit that he did not know if his coefficients were correctly calculated. [Id. ¶ 80](#). He did not reveal, however, that he had tested specifications to render coefficients in absolute terms, and he had found a massive drop in CTV shares (down to 0%, at some levels of fixed effects). [Id. ¶ 94](#). Dr. Johnson’s team performed similar tests (53 of them) and found statistically insignificant coefficients in all but two, confirming Dr. Erdem’s finding that the true reason for the misspecification is to lift category minute coefficients into positive and statistically significant territory. [Id. ¶ 107](#).

The proponents of Crawford-like regressions in this case have no real response to the issue. CCG refers to network programming as a “reference category” ([CCG Findings ¶ 189](#)) but offers no understandable explanation as to why a combined category of network and off-air minutes would be a relevant “reference category,” why a “reference category” is even necessary,

or what we are supposed to do with a supposed “value-per-minute” metric that is relative to an unknown number. Dr. Johnson just plays silly word games, suggesting absurdly that the Judges’ use of the term “relative market value” means “relative to network programming.” [SDC Findings ¶ 100](#).

c. Dr. Johnson continues Dr. Crawford’s tradition of model searching.

According to PTV, “Economists routinely analyze the actual behavior of market participants to infer their ‘revealed preferences.’” [PTV Br. at 24](#). This is true. And because economists themselves are market participants, their behavior is susceptible to econometric modeling to infer their “revealed preferences.” As Dr. Erdem showed with a simple, comprehensible, and cogent econometric model, Dr. Johnson’s team’s experimentation with as many as 500 runs of 419 unique specifications led to a steady and statistically significant increase in implied PTV shares, demonstrating a “revealed preference” for high PTV shares while maintaining positive and statistically significant coefficients for other claimant categories. [SDC Findings ¶¶ 106-09](#). Dr. Johnson’s team’s notes, including “ideally PBS ↑,” corroborate Dr. Erdem’s finding of “revealed preference.” [Id. ¶¶ 113-16](#).

The claim that Dr. Johnson’s model search was “transparent” is breathtaking. [CCG Br. at 39](#); [PTV Findings ¶ 137](#). Dr. Johnson’s team structured their behavior explicitly to avoid transparency and to evade discovery obligations. [SDC Findings ¶¶ 117-18](#). Their extensive testing was not revealed until after the SDC filed their motion to compel, and even then PTV continued to claim (truthfully, by all appearances) that Dr. Johnson had reviewed no models other than the ones that were dropped into his report. [Id. ¶¶ 119-20](#). Even now, who can say with any confidence what Dr. Johnson reviewed and who chose his models for him? [Id.](#) That’s how “transparent” he has been.

PTV's alternative explanation for the steady trend over the course of Dr. Johnson's team's testing, that "many of the regression specifications in the log were run for the purpose of testing the data and needed to be re-run to incorporate corrections and updates to the data" ([PTV Br. 37-38](#) (emphasis added)), does not hold water. How "many"? Five? Ten? Twenty? Dr. Johnson has not even begun to account for the 419 unique regression specifications that were run, including 44 different dependent variables.

Moreover, Dr. Johnson offers no explanation other than "coincidence" as to why good faith "corrections" and "updates" to the data would consistently benefit PTV, and only PTV, with a highly positive trendline having a reported p-value of 0.000 (a p-value too low to measure, and within the regression's rounding error). [SDC Findings ¶ 109](#). "That is practically saying there is no chance that this – this is a random distribution." *Id.* ([quoting 7504 p. 38, Erdem Supp. Reb. App. C; Tr. 765:17-766:11 \[Johnson\]; Tr. 3403:21-3404:17 \[Erdem\]](#)).

Indeed, it is clear that Dr. Johnson's team's model search went hand-in-hand with experimentation with different datasets. [SDC Findings ¶ 110](#). Optimizing the PTV share was not just a matter of finding the "best" model, but of finding the "best" model with a particular version of the data. *Id.* As Dr. Johnson was forced to admit on cross-examination, his team favored a completely different baseline model, using base fees per subscriber as the dependent variable, when that model was producing the highest shares for PTV. *Id.* After a change in the dataset, a Crawford-like log-linear specification resulted in an even higher PTV share. Dr. Johnson's team then changed their tune, and they favored the Crawford-like log-linear specification instead of their earlier chosen "baseline." *Id.*

Even before seeing Dr. Johnson's test results, Dr. Erdem recognized what was going on based on references in code files to multiple different datasets, suggestive of experimentation.

Id. To test his hypothesis, he ran Dr. Johnson’s chosen model using Dr. George’s similar but not identical dataset. Exactly as Dr. Erdem suspected, Dr. Johnson’s chosen model, when run on an alternative dataset, produced higher shares in every claimant category except for PTV, and the PTV share dropped by 8 points. *Id.*⁴

d. Dr. George’s model is infected by Dr. Crawford’s manipulations, regardless of her own intent.

CCG argues, “[T]o the extent that Prof. Crawford cherry-picked a model favoring CTV for the 2010-2013 proceeding – an unproven accusation – the model did not favor the CCG. ... There is no relationship between CTV and CCG programming.” [CCG Findings ¶ 221](#).

The accusation is proven and there is a relationship between how fee-based regression models see CTV and CCG programming. [SDC Findings ¶ 125](#). Because CTV and CCG programming minutes are mutually exclusive—there is no U.S. commercial television programming on Canadian stations and there is no Canadian programming on U.S. commercial stations—a fee-based regression model tends to see CTV and CCG minutes as substitutes for each other. *Id.* This is why CTV and CCG shares tend to move together with changes in regression models, and why CCG is benefited by the manipulations of Dr. Crawford’s model, which Dr. George’s model adopted. *Id.*

4 CCG’s counsel points out, as shown in Dr. Erdem’s written rebuttal statement, that in adapting Dr. George’s dataset to be run by Dr. Johnson’s model, Dr. Erdem was forced to drop observations that failed to merge. The point is off the mark, for two reasons:

First, the reason that some observations failed to merge is because Dr. Johnson’s specification included a variable that did not appear in Dr. George’s dataset, meaning that Dr. Erdem had to use Dr. Johnson’s dataset to fill in the missing variable. [7503 p. 35, Erdem Reb. ¶ 98 n. 49](#). If an observation was dropped, it was because the observation was already missing in Dr. Johnson’s own dataset. *Id.* The observations dropped from Dr. George’s dataset cannot account for the difference in results, because the observations were already missing in Dr. Johnson’s dataset.

Second, the point is not that Dr. George’s or Dr. Johnson’s data is “better” or “worse.” The point is that random differences in datasets should produce random differences in results. [Tr. 3550:25-3555:16 \[Erdem\]](#). The fact that only PTV’s share went down, and by a very large amount, is not suggestive of a coincidence. It is another vindication of Dr. Erdem’s consistently accurate instinct that Dr. Johnson’s team, like Dr. Crawford’s team, engaged in a results-oriented model search, experimenting with changes in models to fit a particular dataset. *Id.*

But even if CCG were not benefited, what difference would it make? The model is manipulated; the deck is stacked. It does not matter who stood to benefit. Dr. Crawford's model and the models that follow it, including Dr. George's model, cannot reveal value in any claimant category.

e. Dr. Marx's Bayesian regression is worth exactly what Dr. Crawford's regression is worth—nothing.

"A Bayesian regression would use Prof. Crawford's 2010 to 2013 coefficients estimates as a starting point and then statistical[ly] update those estimates with the 2014 data." [CTV Findings ¶ 221](#). As Dr. Marx acknowledges, her Bayesian regression is unreliable if Dr. Crawford's results were unreliable. [SDC Findings ¶ 129](#). Nothing more needs to be said.

2. The Tyler model (Program Suppliers)

PTV and CCG both point out, correctly, that Dr. Tyler's model (using "subscriber group royalty percentage," or "SGRP," as its dependent variable) is specified merely to reflect the statutory royalty rates. [PTV Findings ¶ 159](#) ("Dr. Tyler's regression model reflects the statutory royalty rate, rather than measuring the relative marketplace value of the programming types at issue. ... Dr. Tyler's regression resembles the fee generation methodology."); [CCG Findings ¶ 186](#) ("Rather than linking programming minutes to value, his specification replicates the regulatory pricing framework."). Multiple experts have presented testimony to this effect. [SDC Findings ¶ 138](#). And Dr. Tyler appears to agree: "But if I understand what you're saying correctly, that's actually not a flaw in your view; that's showing that your model is doing what it is intended to do, which is to model the actual choices that are made based on the actual rates, correct? A. ... I think that's -- that's fair." [Tr. 5479:17-5480:9 \[Tyler\]](#).

But before the other regression proponents gloat over throwing Dr. Tyler off the ship, they should look down and see that their own destinies are anchored to his. As Program

Suppliers fairly point out, “the George, Johnson, and Marx Models (and the Crawford Model) use royalty payments as the dependent variable, and those royalty payments are the SGRP multiplied by gross receipts.” [PS Br. at 48](#). All fee-based regression models reflect the statutory royalty rates. The Crawford-like models simply do so through a mirror, darkly, through so many “perversions” that the true relationship, having nothing to do with value, is difficult to see. [SDC Findings ¶ 56](#). Dr. Tyler’s mistake was to hold up a mirror clear enough to reveal what other models had hidden.

PTV points out, dismissively, “Only one claimant group in this proceeding—the Devotional Claimants—has posited that the fee-based regression methodology is entirely unfit for the purpose of estimating relative marketplace value of distantly retransmitted programming. ... All claimant groups other than the Devotional Claimants have presented regression analyses as evidence of relative marketplace value in the present or prior cable distribution proceedings.” [PTV Br. at 36](#). The SDC are proud that they alone have resisted the siren song of fee-based regressions, through which any party who adventures long enough can hope to live out its wildest copyright royalty fantasies.

This is not to say that the SDC have never felt lust in their own hearts. Even we can appreciate that Dr. Tyler’s reported sensitivity tests sing a very alluring song:

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%				

FIGURE 6.7
Unweighted Regression Model

Year	Program Suppliers	JSC	CTV	PTV	SDC	CCG
2014	27.3% (6.9%)	43.7% (12.3%)	7.3% (4.4%)	10.1% (2.1%)	6.3% (1.4%)	5.2% (1.2%)
2015	37.6% (2.6%)	8.2% (2.0%)	5.9% (2.8%)	26.4% (1.2%)	11.1% (1.2%)	10.8% (0.9%)
2016	32.0% (2.0%)	6.7% (1.8%)	8.3% (2.7%)	36.0% (1.3%)	5.4% (0.4%)	11.7% (1.1%)
2017	30.4% (1.7%)	4.1% (1.1%)	7.6% (2.4%)	39.6% (1.4%)	4.5% (0.3%)	13.9% (1.1%)
Adjusted R2:		80.7%				

[7600 pp. 61 & 64](#), [Tyler Dir. ¶¶ 156 & 168](#). But CTV has shown what happens to sailors who “cast about” for regression results, casting themselves onto the sirens’ rocky shores in the process.

Program Suppliers were the principal victims of Dr. Crawford’s fraud in the 2010-13 cable proceeding. In comparison to what they would have received under the adjusted Horowitz and Bortz surveys—the other two methodologies that the Judges credited in that proceeding—Program Suppliers lost something in the neighborhood of \$50 million to \$100 million, ill-gotten spoils that were divided among the comparatively inflated shares for CTV, PTV, and CCG. Compare Table 19 (Basic Fund Allocations) with Tables 11 (adjusted Bortz survey results) and 15 (adjusted Horowitz survey results), *Distribution of 2010-2013 Cable Royalty Funds*, [Distribution Order, Docket No. Consolidated 14-CRB-0010-CD \(2010-13\)](#), 84 Fed. Reg. 3552,

3591, [3611 \(Feb. 12, 2019\) \(“2010-13 Final Determination”\)](#).⁵ Program Suppliers (who took a bullet intended for the SDC’s head) can be forgiven for their moment of weakness in the face of despair, abandoning their heretofore stalwart resistance to fee-based regressions. As Dr. Jeffrey Gray, Program Suppliers’ long-time expert economist and one-time fee-based regression opponent, testified in response to counsel for the SDC, “I would love to have another crack at Dr. Crawford’s analysis. ... I did not expect it to be given such weight. And that’s why all the parties -- or most of the parties, respectfully, are following the Judges’ decision” See [Tr. 4903:1-17 \[Gray\]](#). The SDC reciprocate the respect of their former comrade-in-arms, and they salute him for his candor.

But even if the Judges credit Dr. Tyler’s seemingly honest but manifestly useless model, Program Suppliers very well might find in the future, as CTV is finding now, that they would have been wiser, like clever Ulysses and Dr. Erdem, to have bound themselves to the mast, rather than surrendering to the siren song. [Tr. 3462:2-6](#) (“Are you sure, Dr. Erdem, that you can’t bring yourself around to supporting Dr. Tyler’s model in this proceeding? A. ... You may have to find a different expert for that.”).

⁵ On Program Suppliers’ appeal from the [2010-13 Final Determination](#), in which the SDC and all other parties intervened to oppose, Program Suppliers moved the Court of Appeals to remand the case to the Judges for consideration of newly discovered evidence of Dr. Crawford’s undisclosed model search. In opposition to Program Suppliers’ motion, all parties other than the SDC argued that Dr. Crawford’s model search results “merely reflect preliminary statistical tests conducted by Dr. Crawford.” [Intervenors’ Opposition to Motion to Remand for Consideration of New Evidence, Program Suppliers v. Copyright Royalty Board, No. 19-1063 \(D.C. Cir. Sep. 12, 2019\) at 2-3](#). The SDC alone refused to join in this argument, and they opposed Program Suppliers’ motion solely on the procedural grounds that the Judges had not sought a remand and Program Suppliers had not moved them to do so. “The Settling Devotional Claimants do not believe Program Suppliers mischaracterize the nature and import of the new documents, or that the documents ‘merely’ reflect preliminary statistical tests conducted by Dr. Crawford.” [Id. at 3 n. 2](#).

III. Survey Methodology

A. The Judges' precedents, including the 2010-2013 Final Allocation Determination, support the use of the Bortz survey, especially for smaller, niche categories like Devotional programming.

In the SDC's Post-hearing Brief, the SDC assert that the 2010-2013 Cable Allocation Determination recognized that the constant sum methodology "provides relevant information relating to the relative value for each of the six categories remaining at issue" and that Judges' past reliance on constant sum surveys "served as precedent." See [2010-13 Final Allocation Determination](#), 84 Fed. Reg. at 3591; [SDC Br. at 65-66](#). Moreover, in light of the "'niche' value of devotional programming" and the unreliability of regression results, the Judges applied an upward adjustment to the Devotional category "based on the Horowitz survey results and the Augmented Bortz survey results." See [2010-13 Final Allocation Determination](#), 84 Fed. Reg. at 3610-3611; [SDC Br. at 65-66](#).

No party's post-hearing brief challenges the Judges' finding that both the Bortz and Horowitz surveys were particularly probative in valuing "niche" programming. Nor does any party offer evidence or argument that contests the "niche" appeal of Devotional programming or the D.C. Circuit's finding that it was appropriate to use the Bortz and Horowitz surveys to value smaller categories with "a significant amount of 'niche' programming." See [Program Suppliers v. Copyright Royalty Bd.](#), 807 Fed. Appx. 10, 15 (D.C. Cir. 2020).⁶

The parties' post-hearing briefs also fail to proffer any factual basis for setting aside the Judges' holding regarding the valuation of "niche" content. All of the television industry participants who testified in this proceeding agreed that CSOs seek to retain customers by

⁶ Although several parties broadly argue that the Judges "did not rely on the Bortz Survey as the starting point for their royalty allocations," they do not address the Judges' holding respecting the niche value of Devotional programming. See, e.g., [PS Findings ¶ 31](#).

carrying differentiated, niche programming that viewers are passionate about. *See, e.g., SDC Findings ¶¶ 171-172.* And no party has contended that niche programming has become less important to CSO decisionmakers during the 2014-2017 period than in the past proceeding or refuted the substantial testimony indicating that CSOs became increasingly concerned with retaining niche subscribers as the proliferation of internet streaming services led to a more competitive marketplace during the 2014-2017 timeframe. *See SDC Findings ¶¶ 229-233.*

Likewise, no party's post-hearing brief challenged the Devotional category's "niche" status or pointed to any testimony from cable industry experts that undermined the SDC's contention that Devotional content was the type of niche programming that CSOs look for when identifying bundles of signals for their audiences. *See SDC Findings ¶¶ 170-174, 232-235.* Accordingly, the Judges should once again find that "the testimony concerning the 'niche' value of devotional programming" supports an allocation that is predominantly based on the constant sum survey results in the record. *2010-13 Final Allocation Determination, 84 Fed. Reg. at 3610-11; see also Program Suppliers, 807 Fed. Appx. at 15.*

In fact, there is an even stronger precedential basis for using the Bortz survey to assess the relative value of the Devotional category than in the past. In proceedings prior to the 2010-2013 proceeding, the Judges criticized the Bortz survey for failing to inform respondents that a portion of syndicated Devotional and Program Suppliers programming on WGNA was non-compensable in these proceedings because it was substituted programming and not simultaneously present on its corresponding local feed. *See Distribution of the 2004 and 2005 Cable Royalty Funds, Distribution Order, Docket No. 2007-3 CRB CD 2004-2005 (Phase I), 75 Fed. Reg. 57063, 57067-68 (Sep. 17, 2010) ("2004-05 Distribution Order").* This "acknowledged problem"—which was the basis for halving the Devotional category's allocation

in the 2004-2005 Cable Allocation Determination—was effectively eliminated in 2015 when WGNA converted from a distantly transmitted “superstation” to an *entirely* non-compensable basic cable channel. [See id.](#); [SDC Br. at 67-68](#).

No party’s brief contends otherwise or argues that the WGNA issue spills over from 2014 to the 2015-2017 period. In addition, no party’s post-hearing briefing contends WGNA compensability issue causes the 2014 Bortz survey to overcompensate the Devotional category. *See, e.g.*, [CCG Br. at 24-25](#). On the contrary, the record is clear that the amount of compensable and non-compensable Devotional programming on WGNA in 2014 “was quite minor” and that there is no basis for a WGNA adjustment to the Devotional share in 2014. *See* [SDC Findings ¶ 154](#); [7605 p. 33 Gray Am. Dir. Table 9](#) (stating that the Devotional category’s share of noncompensable WGNA minutes in 2014 was 6.84%); [CCG Br. at 24-25](#) (noting that the SDC’s share of compensable subscriber weighted minutes on WGNA in 2014 was 4.6%). In short, it is uncontroverted that the Bortz results are especially relevant to the Devotional category and that it is a more precise measure of the Devotional category’s relative value than ever before.

B. The survey opponents’ criticisms of potential measurement errors in the Bortz survey are ill-founded and go to the precision, and not the validity, of the Bortz survey’s results.

Each of the survey opponents in this proceeding has offered or supported constant sum surveys in connection with prior proceedings. *See* [JSC Findings ¶¶ 241-244](#). Nevertheless, the survey opponents level a multitude of criticisms at the Bortz survey and now argue that the constant sum approach should be rejected and given no weight by the Judges. As discussed below in Section B.1, most of the arguments raised by the survey opponents relate to

measurement error⁷ (as opposed sampling or coverage error) and none of the arguments provide a basis for reversing the Judges' past findings that the Bortz survey's confidence intervals are well-suited to revealing the Devotional category's relative marketplace value.

1. Most of the survey opponents' criticisms relate to measurement error, and all are invalid or overstated.

Measurement errors occur as part of data collection—as opposed to sampling—and typically relate to the questionnaire, data collection method, interviewer, or respondent. *See, e.g., [Federal Committee on Statistical Methodology, OMB Statistical Policy Working Paper 31: Measuring and Reporting Sources of Error in Surveys, 6-1 \(June 2001\)](#)*. Apart from the argument that Bortz improperly excluded PTV and CCG-only systems from its sample (*see infra* at III.C), all of the survey opponents' arguments relate to measurement error or Bortz's alleged failure to employ adequate protocol to minimize such error.

While the survey opponents could have engaged in their own randomized experiments, cognitive testing, and record check studies to detect and correct for the various measurement errors they claim to have identified, they did not do so or introduce any meaningful empirical evidence establishing that the alleged measurement errors were likely produce anything other than random errors (that are likely to cancel each other out). Instead, the survey opponents seek to revisit past arguments and criticize the Bortz survey for failing to employ additional tactics to detect and minimize measurement error. The principal arguments raised in the survey opponents' briefs have already been addressed in the SDC's Post-hearing Brief but are again discussed *seriatim* in the below subsections:

⁷ Measurement error in surveys refers to the discrepancy between the true (but unknown) value of a variable of interest and the value that is obtained through measurement or observation in the survey, and it represents the imprecision that can occur when collecting data from survey respondents. *See [Federal Committee on Statistical Methodology, OMB Statistical Policy Working Paper 31: Measuring and Reporting Sources of Error in Surveys, 6-1 \(June 2001\)](#)*.

Pretesting. CCG and PTV’s pretesting critique⁸ has been raised in past proceedings to no effect and is not a valid criticism. *See, e.g.,* [2010-13 Final Determination, 84 Fed. Reg. at 3591 n.12](#). Bortz has performed the Bortz survey for decades and monitored approximately 20% of the survey interviews conducted each year without encountering any “issues” with respondent comprehension or the constant sum valuation question. *See* [SDC Br. at 75-76](#). Moreover, Bortz conducted a pilot study in 2009 to “make sure...that the respondents could understand the questionnaire.” [JSC Findings ¶¶ 307](#). There was ample opportunity to discover and root out any issues in the Bortz survey. But Bortz found “[n]o issues.” [SDC Br. at 75-76 \(citing Bortz Report\)](#). And no survey expert opposing Bortz has undertaken any cognitive interviewing, counter-surveys, or other testing to examine what further issues pretesting could have uncovered or contradict the testimony of cable industry executives who confirmed that respondents would have been capable of answering the Bortz survey’s constant sum question. *See* [SDC Br. at 75-77; JSC Findings ¶ 308](#).

Interview training and experience. PTV, PS, and CCG’s contention that Bortz interviewers were inadequately trained⁹ is untrue. Bortz’s interviewers were given the Bortz survey questionnaire and trained annually for over an hour by reading questions and conducting mock interviews. *See, e.g.,* [JSC Findings ¶¶ 267-269; CCG Br. at 54](#). In addition, all interviewers had at least 5 years of experience in surveying managerial personnel and had field experience conducting Bortz surveys in prior time periods. *See* [JSC Findings ¶¶ 267-269](#). Such in-field experience—which would have involved thousands of discrete CSO interviewers and over 17 cable operator surveys in the case of the principal Bortz interviewer (Ms. Grossman)—

⁸ *See* [CCG Brief at 51-52; PTV Brief at 57-58](#).

⁹ *See* [PTV’s Br. at 43-45, 52-57; PS Br. at 62-65; CCG Br. at 54](#)

was also subject to the oversight of Bortz. [See JSC Findings ¶¶ 269-270](#). That Bortz interviewers were not provided with any written instructions is immaterial and does not negate the Bortz interviewers substantial training and experience. [See JSC Findings ¶ 269](#) (citing Dr. Mathiowetz’s testimony that it is typical to train interviewers over the phone without separate training materials when there is a small number of interviewers).

Recordkeeping. PTV, PS, and CCG’s claim that Bortz’s record-keeping was sloppy is misstated and greatly overblown. [See, e.g., CCG Findings ¶¶ 360-365; PS Br. at 64-65; PTV Findings ¶ 289](#). The vast majority (*viz.* 698) of alleged interview-related “recording errors” identified by the regression proponents relate to the name or phone number of the respondent, and an additional 83 of the alleged errors are attributable to the recordation of multiple respondent positions. [See JSC Findings ¶¶ 314-318 \(citing 7610 p. 16 Stec Supp. Reb.\)](#). It is not uncommon or inappropriate for Bortz survey respondents to have different or multiple titles. [See JSC Findings ¶ 315](#). Nor is it a record-keeping error to record a respondent’s name in shorthand in order to take his or her privacy interest into account. [See JSC Findings ¶ 317; Tr. 3978:14-3979:13 \[Mathiowetz\]](#). In fact, the survey expert who provided the principal foundation for the regression proponents’ faulty record-keeping argument (Dr. Stec) himself acknowledged on cross-examination that it was “not an interviewer error” if a respondent was unwilling to give his or her full name and that there were legitimate reasons why a respondent might have multiple titles. [See JSC Findings ¶¶ 316, 318](#).

Double-blind. PTV and CCG’s argument that the Bortz survey was not double-blind is pure conjecture and has no merit. [CCG Br. at 55-56; see also PTV Findings 261-265](#). Although Ms. Grossman apparently was aware that the Bortz survey was used in connection with a “hearing” and had seen the term “CARP study” used without context on one occasion, [id.](#), there

is no evidence that Ms. Grossman or any other interviewer was aware of the identity of the sponsor of the Bortz survey. See [Tr. 3192:14-15 \[Trautman\]](#) (“Just to be clear, I did not indicate who my client was to Ms. Grossman.”). Nor is there any evidence of how such awareness could have affected the Bortz survey results or been anything other than prejudicial to the Devotional category.

Respondent Qualification. There is no compelling evidence that the Bortz survey’s screening process was inadequate at identifying qualified respondents. Although PTV, PS and CCG each cite to Ms. Costantini’s written testimony that “Bortz likely did not interview the persons ‘most responsible’ for programming carriage decisions for more than 75% of the surveyed cable systems,” Ms. Costantini’s analysis is misleading and does not establish that the Bortz respondents were insufficiently qualified to meet the Bortz survey’s screening standard. See, e.g., [PTV Br. at 61-62](#). Ms. Costantini’s contention that 345 of the 745 Bortz respondents were unqualified because decision-making authority was made at the national corporate level and not the local or regional level is contrary to the testimony of every industry and survey expert to opine on the subject (including Ms. Costantini herself). See [SDC Br. at 74-75](#); [SDC Findings ¶¶ 175-176](#); [PTV Findings ¶ 328](#) (citing 7304 pp. 6-10, Table 1 Costantini Reb. ¶¶ 14-23). The same is true for her contention that 383 of the 745 respondents had titles in departments, such as marketing, that were unlikely to be “most responsible” for programming carriage decisions. See [PTV Findings ¶¶ 227, 330](#); *id.* (citing 7304 pp. 18-47 (demonstrating that Ms. Costantini considered 273 respondents to be unqualified simply because they had positions related to the Department of Marketing). There is “no one-size-fits-all” standard for what position or level within a cable system is likely to be the person “most responsible” for programming decisions. See [JSC Findings ¶¶ 282-284](#); [SDC Findings ¶¶ 178-180](#). And, even if it were true that Bortz

failed to find the person who was “most responsible” for programming decisions for a particular system in some instances, that would not mean that the respondents were insufficiently qualified to provide reliable, probative data on the relative value of the programming at issue in this proceeding. See [SDC Findings ¶ 181](#).

“Cost” warm-up question. PTV, PS, and CCG each criticize the Bortz survey on the ground that the warm-up question on cost that preceded the Bortz valuation question muddled the questions of cost and value. See [PS Br. at 65-66](#); [PTV Br. at 65-68](#); [CCG Br. at 53](#). While it is true that the Judges previously determined that the Bortz survey’s cost question “may have injected some confusion into the respondent’s estimation of relative value,” the Judges did not find that this *potential* for “some confusion” rendered the Bortz survey results unreliable and acknowledged that “[i]t is unclear how” the cost and value questions interacted. [2010-13 Final Allocation Determination, 84 Fed. Reg. at 3590-91](#). Here, unlike in the 2010-2013 proceeding, there is testimony from both the survey proponents and opponents which establishes that the Judges’ concern regarding the cost question is not borne out by the Bortz data. See [SDC Findings ¶ 188](#); [JSC Findings ¶¶ 350-353](#); [SDC Findings ¶ 189](#). No evidence to the contrary was introduced by the regression proponents¹⁰ who, instead, argue that Mr. Trautman’s decision to remove the cost question in 2018 is an acknowledgment that the question causes confusion or bias (as opposed to a good-faith effort to be responsive to the Judges’ past postulations). At any rate, because Devotional programming was consistently ranked as one of the least expensive

¹⁰ PS’s Findings do aver that Dr. Stec conducted a test which establishes that the Bortz survey’s cost question influences the valuation question; however, Dr. Stec’s conclusion that that a third of Bortz respondents did not allocate the highest percentage to the same programming they deemed most expensive reaffirms that respondents understood the difference between the cost and value questions. See [SDC Findings ¶¶ 187-190](#). And he does not address Dr. Mathiowetz’s contention that the correlation between cost and value in the Sports category was *sui generis* and that, for all other categories, the most expensive category of programming differed from the most valuable category of programming 75% of the time. [Id.](#)

programming categories, there is no reason to believe that any bias from the muddling of the cost and value questions would have been beneficial to the Devotional category. See [SDC Findings ¶ 190](#) (citing [7405 p. 5 Conrad Reb.](#) (alleging that cost question would promote “undervaluation of the smallest categories”)); [7101 p. 41 \(Bortz Report\)](#) (indicating that the Devotional category was the fifth least expensive category of programming for all years at issue in this proceeding).

Complexity of question. Numerous television industry experts agreed that the Bortz survey question was not overly complex and tracked, in general terms, the way in which survey respondents would likely think of categories of programming. See [SDC Findings ¶¶ 192-193, 196](#); [JSC Findings ¶¶ 333-336, 375](#). Contrary to the supposition of the regression proponents and their survey experts, CSO executives do not calculate or account for every minute of every program when appraising the value of a channel (as the unfortunate data experts in this proceeding have done). See [JSC Findings ¶ 333](#); [SDC Findings ¶¶ 192, 197](#). Rather, CSO executives focus on bundling together general subsets of programming that are likely to attract or retain subscribers. See [JSC Findings ¶ 333](#); [SDC Findings ¶ 170](#). No television industry expert in these proceedings has challenged this characterization of how programming is valued or offered a basis to give the complexity criticism any more weight than in past proceedings.

“Irrational Valuations” of Programming Categories. PTV, PS and CCG’s claim that some Bortz respondents’ allocated value to programming that was not actually carried does not provide a new, empirical basis for concluding that the Bortz survey was overly complex or that the number of these allegedly “irrational” valuations were any greater than they would be in a real-world valuation. See [PTV Br. at 68-70](#); [PS Findings ¶¶ 541-543](#); [CCG Findings ¶¶ 265-273](#). The categorizations that PTV, PS, CCG’s analyses rely on to calculate the number of “irrational” respondent valuations were demonstrated to be incorrect, and Dr. Stec, Dr. Simonson, and Mr.

Carbert’s categorizations of this “objective data” were themselves inconsistent across experts.¹¹ See [JSC Findings ¶¶ 347-349, n. 681](#). More to the point, PTV, PS, and CCG were only able to identify a small number of instances where Bortz respondents valued programming that they did not carry. See e.g. [CCG Findings ¶¶ 270-71; 7608 pp. 41-42 Stec Reb.](#); [PTV Findings ¶ 364 \(citing 7305 pp. 60-64 Simonson Reb.\)](#) (concluding that—of the 179 completed surveys and hundreds of discrete category allocations he examined in 2017—there were only 18 instances where he alleges that a category was erroneously allocated value and three instances where he determined that the Devotional category was compensated for programming that was not carried). This is an insufficient basis to conclude that the Bortz results are unreliable or biased in favor of any category—let alone the Devotional category. Cf. [JSC Findings ¶ 349](#).

Non-response bias. CCG and PS contend that the Bortz survey’s use of a census approach in the years 2015-2017 may have resulted in non-response bias because the non-respondents in an attempted census are not missing at random. See, e.g., [CCG Br. at 69-70](#). All surveys, whether they are applied to the universe of potential respondents or a random sample, carry some risk that respondents and non-respondents will differ in a way that relates to the statistic of interest. But a census approach does not have a greater risk of such non-response bias than a random sample when all eligible respondents in the attempted census are contacted and the response rate under both approaches is substantially the same (as is the case here). See [7101 p. 66 \(Bortz Report\)](#). Moreover, there is no evidence¹² that non-response bias impacted the

¹¹ Compare, e.g., [7608 pp. 41-42 Stec Reb.](#) (stating that, in 2017, Dr. Stec identified 22 instances where Bortz respondents gave allocations to the JSC category despite not retransmitting JSC programming) with [CCG Findings ¶¶ 268-271](#) (asserting that Mr. Carbert identified 2 such instances where JSC programming was incorrectly valued in 2017).

¹² Although Dr. Boyle testified that the Bortz smaller systems were overrepresented in the Bortz survey respondents and that this could be evidence of non-response bias, he did not test whether this alleged difference in characteristics between respondents and nonrespondents was related to average valuations in any year. See [JSC](#)

Bortz survey estimates in either the 2014 (when Bortz used a random sampling approach) or the years 2015-2017 (when Bortz employed a census approach). See [JSC Findings ¶ 381](#).

Recall Bias. The survey opponents' argument that the "delay" in conducting the Bortz survey may have impacted the ability of survey respondents to recall the information necessary to value programming is unavailing. See [PS Brief at 58-62](#); [PTV Br. at 48-49](#). Mr. Trautman testified that during his monitoring of the Bortz survey, no respondent expressed concern about the time gap between the royalty year at issue and the fielding of the Bortz survey (despite being reminded repeatedly in the survey to focus on the year of interest). See [SDC Findings ¶ 183](#); [JSC Findings ¶ 387](#). Moreover, Dr. Mathiowetz testified that—in establishment surveys like the Bortz survey—it is common for surveys to be backward-looking and begin after the calendar year in question. See [SDC Findings n. 30](#); [JSC Findings ¶ 385](#). Although PS speculates that the 8-19 month length of "delay" during the 2014-2017 period "create[d] substantial risk of recall bias," it cites to no empirical data suggesting that the Bortz responses were less reliable in those years where it was conducted farther away from the year of interest. See [PS Brief at 58-62](#). Nor does it offer any reasoned explanation as to why the issue of recall bias should be given more weight than in the 2010-2013 Cable Allocation Determination where the "length of delay after royalty year surveyed" was substantially the same as in this proceeding and given no discernable weight by the Judges. See [SDC Findings n. 30](#); [PS Findings ¶ 399](#); [JSC Findings ¶ 382](#); [2010-13 Final Determination, 84 Fed. Reg. at 3583, n. 104](#). In short, there is no record evidence that the Bortz respondents were unable to recall their programming decisions with sufficient accuracy

[Findings ¶¶ 379-381](#). And he did not confute Dr. Mathiowetz's finding that total royalty payments were not related to program valuations in any year and, therefore, not evidence of non-response bias. *Id.*

during the 2014-2017 period and no basis to depart from the Judges' treatment of that issue in the 2010-2013 Cable Allocation Determination.

2. In the absence of bias, any measurement error in the Bortz survey goes to precision and is accounted for in its confidence intervals.

All the criticisms raised by the survey opponents are invalid or greatly overstated. But, even if there were some merit to any of the above criticisms, it would not follow that the Bortz survey results are invalid.

Analysis of survey results is a statistical exercise that assumes some amount of measurement error and can account for those errors within the standard error so long as they are normally distributed and uncorrelated. *See, e.g.,* [Tr. 3927:7-22; 3936:23-3938:16 \[Mathiowetz\]](#); [Federal Judicial Center, Reference Manual on Scientific Evidence, Reference Guide on Statistics, n. 30 \(3d ed. 2011\)](#). Measurement error in surveys occurs as a part of data collection (as opposed to sampling or coverage) and is comprised of: (1) systemic error, which occurs when there is a consistent bias or deviation from the true value in the same direction across all measurements, and (2) random error, which are unpredictable fluctuations in the measuring process that reflect the random variation in a respondents' answer to a survey question. *See, e.g.,* [Federal Committee on Statistical Methodology, OMB Statistical Policy Working Paper 31: Measuring and Reporting Sources of Error in Surveys, 6-1 \(June 2001\)](#).

Random errors in surveys can be caused by various factors, including misunderstanding, memory lapses, and transcription mistakes, and generally "wash out" when aggregating data across a large sample size. *See* [Federal Judicial Center, Reference Manual on Scientific Evidence, Reference Guide on Statistics, 240 \(3d ed. 2011\)](#); [SDC Findings ¶ 198 \(citing Tr. 3872:17-3873:22 \[Mathiowetz\]\)](#). By contrast, systemic errors—such as biased questionnaire design—reflect a consistent pattern or direction in the difference between the respondents'

answers to a question and the correct answer and are not accounted for within the survey's standard error. *See, e.g.*, [Tr. 3936:23-3938:16 \[Mathiowetz\]](#); [Federal Judicial Center, Reference Manual on Scientific Evidence, Reference Guide on Statistics, 246 \(3d ed. 2011\)](#).

Here, the survey opponents level a number of criticisms that—if true—would result in random errors that do not have a consistent direction or pattern. They also fault the Bortz survey for failing to take steps, such as pretesting and increased interview training, that could reduce the risk of systemic error. However, the only measurement error criticism the survey opponents raise that could result in systemic error or bias *per se* is the criticism that the “cost warm-up question” is likely to benefit traditionally high-cost claimants like the JSC.

That alleged systemic error is unsupported by the Bortz survey data itself and was not identified or quantified by the survey opponents through countersurvey, randomized experiment, cognitive testing, record check studies, or any other generally accepted approach to assessing measurement error. *See* [Federal Committee on Statistical Methodology, OMB Statistical Policy Working Paper 31: Measuring and Reporting Sources of Error in Surveys, 6-13 \(June 2001\)](#). It is also likely to be prejudicial to the Devotional category (if true). Therefore, with respect to the Devotional category, all of the salient measurement errors identified by the survey opponents are likely to produce random errors that are accurately accounted for within the standard error and incorporated into the Bortz results' confidence intervals.¹³ *See, e.g.*, [Federal Judicial Center, Reference Manual on Scientific Evidence, Reference Guide on Statistics, 243 \(3d ed. 2011\)](#) (“[t]he standard error gives the likely magnitude of...random error”).

¹³ The 95% confidence intervals for the Devotional category range from .4 in 2014 to .9 in 2016 and—in no year—supports an award that is less than 4.9%. *See* [SDC Br. at 72](#).

C. The survey opponents claim that the Bortz survey improperly excluded PTV and CCG-only systems is overstated and can be fairly addressed through weighting.

The only criticism that the survey opponents raise that does not relate to measurement error is the criticism that the Bortz survey design excludes systems that carry exclusively PTV and/or CCG distant signals. *See* [PTV Br. at 38-43](#). The extent and import of this alleged “coverage error”¹⁴ is greatly overstated by the survey opponents. *See* [SDC Findings ¶¶ 202-205](#); [JSC Findings ¶¶ 391-408](#). But, even if that were not the case, any potential bias attributable to the Bortz survey’s alleged coverage error could be reasonably corrected through weighting.

The Judges and PTV have recognized this in the past and attempted to address the PTV and CCG-only issue by assuming that non-surveyed PTV and CCG-only CSOs would allocate 100% of their relative valuations to PTV and/or Canadian programming. *See* [2010-13 Final Allocation Determination, 84 Fed. Reg. at 3602-3603, n. 174, 3608, 3610](#). Such an adjustment—which has been historically referred to as the “McLaughlin Adjustment”—appropriately recognizes that the way to address alleged “coverage errors” is through weighting of the excluded population. But the McLaughlin Adjustment has never made economic sense and is uniquely inappropriate in the years 2014-2017.

The McLaughlin Adjustment is premised on the flawed economic assumption that—whenever PTV or CCG is the only programming a system reports as distant—that system must value PTV or CCG programming at 100% of the entire amount the system pays, even if its retransmission of PTV or CCG programming is not enough to reach the minimum fee. *See* [SDC Br. at 83-84](#); [JSC Findings at ¶¶ 391-408](#). What is worse, during the years 2014-2017, that fallacious premise of assigning a 100% value to PTV content is applied to the significant number

¹⁴ Coverage error is a term used to describe inconsistencies between a sampling frame (i.e. the source from which a sample is actually drawn) and a target population (i.e. all the individuals a researcher would like to study).

of PTV-only systems that were *compelled* to carry PTV programming pursuant to the Must Carry Rule or NCTA Agreement or were “same DMA systems” that were only treated as a compensable distant signal as a result of PTV’s unique regulatory treatment under Section 111. See [SDC Br. at 83-84](#) (“Overall, 57% of PTV Only systems are Same DMA systems”); [JSC Findings at ¶¶ 395-396](#) (“Over 30% of the distant signals carried by PTV-only CSOs in 2014-2017 were carried pursuant to the must-carry rules or the related multicast agreement”). This is plainly improper and causes the McLaughlin Adjustment’s 100% weighting to greatly overstate the value of Public Television and Canadian programming.

The CCG’s Post-hearing Brief does not appear to contest this and makes no effort to justify the McLaughlin Adjustment’s assumption that excluded CCG-only systems should be ascribed a 100% relative valuation. Nor does it adduce any evidence quantifying the alleged coverage error attributable to the exclusion of CCG-only systems¹⁵ or contend that the exclusion of CCG-only systems could not be adequately addressed through weighting.

Unlike CCG, PTV does argue that exclusion of PTV-only and CCG-only systems renders the Bortz surveys “fatally unrepresentative” and beyond repair. [PTV Br. at 38-42](#). However, PTV simultaneously contends that using the McLaughlin Adjustment to weight the Bortz results can “possibly have probative value” and “yield[] shares that approximate relative valuations.” [Id. at 42-43, 82](#). And it appears to support the Judges’ past use of the McLaughlin weighting approach to account for alleged coverage error and prejudice to PTV.

Although PTV essentially endorses the McLaughlin Adjustment as probative of value, it makes no reasoned argument as to why the conventional McLaughlin Adjustment is appropriate

¹⁵ This omission is unsurprising. Because the McLaughlin Adjustment and Bortz Adjustments all ascribe a 100% value to all excluded CCG-only systems, it is likely that all of the potential Bortz adjustments in the record *overcompensate* the CCG and overvalue its programming. See [JSC Findings ¶¶ 409-413](#).

or why a CSO carrying only PTV and/or CCG signals would attribute *no* value to other programming categories. Nor does it meaningfully address the SDC and JSC’s arguments that the increase in PTV-only signals in this proceeding is offset by the fact that a majority of PTV-only signals were carried under compulsion or only treated as distant because of PTV’s unique status under Section 111.

To be sure, PTV argues that JSC’s calculation of must-carry signals employed a classification system that *could* inaccurately categorize certain highly popular distant signals as “must carry” signals and that JSC’s witnesses improperly conclude that must-carry PTV signals have no value. *See, e.g.,* [PTV Br. 15-17, 21-22](#). But PTV does not directly contest that a large share of PTV-only signals was the product of PTV’s distinct regulatory status and offered no affirmative evidence to rebut JSC’s “conservative” estimates of the scope of PTV’s must-carry carriage (despite being in a unique position to do so). *See* [JSC Findings ¶¶ 469-474](#).

PTV and CCG also fail to explain why the weighting approach endorsed by the SDC and JSC (*viz.* Bortz Adjustment One) is not a more reasonable weighting approach than the McLaughlin Adjustment. Adjustment One to the Bortz Survey attributes 100% of the value of PTV and CCG distant signals that are retransmitted by a CSO as its only distant retransmission; however, for excluded PTV-only system that previously carried WGNA, it instead uses the CSOs prior responses to the Bortz survey from 2014 and imputes a relative value allocation of approximately 8.8%. *See* [JSC Findings ¶ 410](#); [SDC Findings ¶¶ 206-207 \(citing 7501 pp. 22, 25-26 Sanders Reb.\)](#). This approach is a sensible way to mitigate the unsound inflation of PTV and CCG’s relative value that results from an application of the McLaughlin Adjustment. *See id.* And it is consistent not only with PTV’s own position that all programming categories must have some value to CSOs, but also with PTV and CCG’s prior 2010-2013 proposals for addressing

“missing data” through changed circumstances analyses that use the best available data. *See, e.g.,* [PTV Br. 16-18](#); [2010-13 Final Allocation Determination, 84 Fed. Reg. at 3589](#) (noting that in the 2010-2013 proceeding CCG’s survey expert, Professor Conrad, testified that “missing” CCG data could be appropriately addressed by “imput[ing] values from data actually collected”); [id. at 3589, n. 138](#) (indicating that PTV supported a “changed circumstances” analysis in 2010-2013 that used past data to estimate the relative value of PTV programming).

Although PTV now contends that the alleged coverage error in the Bortz survey cannot be fixed with an adjustment, a coverage error only impairs the value of a survey when “the excluded population is likely to respond differently from the included population” and is not susceptible to any reasonable estimation. *See* [PTV Findings ¶ 171](#) (citing the Federal Judicial Center’s *Reference Manual on Scientific Evidence*). Here, there is no evidence to suggest that the excluded PTV-only systems were likely to value PTV substantially more than those systems who were included in the 2014-2017 Bortz population and did provide an average relative value of 7.1% for PTV. *See* [SDC Findings ¶ 166](#). Likewise, there is no record basis to assume that the excluded PTV-only systems who had carried both WGNA and PTV prior to the conversion of WGNA in 2014 were likely to suddenly upend their underlying preferences and determine that PTV was approximately ten times more valuable in 2015-2017 as it was in 2014 (when the same CSOs were included in the Bortz sample population and ascribed an average relative value of 8.8% to PTV). *See* [JSC Findings ¶¶ 398-400](#).

To the contrary, it is logical to assume that the PTV-only CSOs’ choice to be a PTV-only system was largely a function of the WGNA conversion and that PTV-only systems would value PTV programming in a manner similar to both other contemporary CSOs and former WGNA+PTV CSOs from 2014. In fact, because CSO’s relative valuations of PTV and CCG

programming has been consistent across the years, and because no other CSOs carrying PTV and CCG in 2015-2017 materially increased their relative valuation of PTV and CCG programming, the data indicate that the excluded population of PTV and CCG-only systems were unlikely to differ from the included population of systems carrying PTV and CCG. See [SDC Findings ¶¶ 166-167](#) (indicating that—over the Bortz survey’s thirty-five-year lifespan—PTV has never had a value allocation of greater than 7.03% in any year). Accordingly, any alleged coverage error in the Bortz survey is susceptible to reasonable estimation and can be adequately addressed—as Bortz Adjustment One does—by imputing values from data that was actually collected from similarly situated CSOs in the included survey population.

While Bortz Adjustment One is the most sensible way to account for the exclusion of PTV and CCG-only systems from the Bortz survey and a substantial improvement over the economically unsound McLaughlin Adjustment, it is important to emphasize the Bortz survey would still support an average Devotional allocation of 4.7% across the years 2014-2017 if one were to apply the *conventional* McLaughlin Adjustment that PTV itself has acknowledged would “yield[] shares that approximate relative valuations.” See [SDC Findings ¶¶ 206-208](#). This demonstrates that no party has introduced evidence demonstrating that the Bortz survey’s exclusion of PTV and CCG-only stations materially or disproportionately affects the value of the Devotional category and that it “would be inappropriate to overstate the impact of” any alleged coverage error on the Devotional category’s relative valuation. See [2004-05 Distribution Order, 75 Fed. Reg. at 57065](#).

For all the foregoing reasons, the Judges should conclude that the Bortz survey is the methodology that best reveals relative market value in this proceeding. The Judges should also find that each of the alleged measurement errors in the Bortz survey are invalid and accounted

for in the Bortz survey’s confidence intervals and that the only alleged directional bias in favor of the Devotional category is comprehensively addressed by Bortz Adjustment One.

III. Changed Circumstances

PTV contends that because the “relative quantity of distant retransmissions of Public Television increased immensely from 2013 to 2017... Public Television should be awarded a correspondingly larger share of the 2014-17 Basic Fund.” [PTV Br. at 4](#). PTV also contends that compensation to JSC, CTV, Program Suppliers, and Devotional Claimants “must decrease correspondingly.” [Id. at 10](#). But volume is not a measure of value. *See* [JSC Findings ¶¶ 101-15](#). None of the changed circumstances in this proceeding warrants the dramatic increase in royalty share allocations sought by PTV.

A. The increase in compensable PTV minutes in 2015-2017 does not reflect an increase in the relative marketplace value of PTV programming.

The increase in compensable PTV minutes during the 2015-2017 time period was driven by two changed circumstances: (1) the conversion of WGNA to a cable network in 2015, and (2) the reclassification of “exempt” PTV multicast signals to “non-exempt” following expiration of the initial term of the PBS-NCTA Agreement in 2016. Neither of these events indicates an increase in the marketplace value of or cable operators’ preference for PTV programming.

1. The increase in distantly retransmitted PTV signals following the WGNA conversion does not reflect any increase in the absolute or relative marketplace value of PTV programming.

WGNA’s decision to convert from a superstation to a cable network left many cable operators with the capacity to add one or more distant PTV signals without incurring additional copyright liability. Many cable operators elected not to do so. [SDC Conclusions ¶ 242](#). Nearly half of all systems elected not to retransmit any distant signals in the 2016-2017 period, and more than 80% of subscriber groups that *did* carry distant signals in 2016-2017 were part of

minimum fee systems. [JSC Findings ¶¶ 36-39; 64-65](#). To the extent any of those minimum fee systems began retransmitting distant PTV signals after removal of WGNA, we cannot infer from the available data whether they did so because they perceived an increase in the value or quality of those PTV signals.

The FCC's must-carry rules and PBS-NCTA Agreement indicate that at least some minimum-fee systems added PTV signals following the removal of WGNA because they were obligated to do so by federal law or contract. See [SDC Conclusions ¶¶ 218-219](#). That is, a cable operator retransmitting WGNA in 2014 would incur additional copyright liability if it also retransmitted a distant PTV signal. Absent an agreement by the PTV station to indemnify the cable operator for the increased copyright liability, the cable operator would have no obligation to retransmit on a distant basis a PTV station for which carriage would otherwise be required by the must-carry rules.¹⁶ *Id.* Following the loss of WGNA (at a DSE value of 1.0), however, the FCC's must-carry rules would require that same cable operator to retransmit up to four must-carry PTV stations (at a DSE value of 0.25 each) before triggering the indemnification requirement (i.e., before causing the cable operator to exceed the minimum fee). The PBS-NCTA Agreement would also obligate the cable operator to retransmit up to three multicast streams per must-carry PTV station, so long [REDACTED]

[REDACTED] [SDC Conclusions ¶ 203](#).

The addition of a distant PTV signal (at no cost to the cable operator) following removal of WGNA to comply with federal law does not indicate any preference by the cable operator for that PTV signal. If anything, it indicates that the PTV signal was available for distant

¹⁶ PTV suggests that at least some PTV stations that would otherwise be entitled to mandatory carriage would forego carriage rather than indemnify the cable operator for its copyright liability. [PTV Brief at 21](#).

retransmission and, when given the choice, the cable operator chose not to retransmit it. [See JSC Findings ¶ 77](#). Similarly, the addition of a distant PTV multicast stream at no cost to the cable operator (due either to the Section 111 exemption or station indemnification) following removal of WGNA to comply with the terms of a contract executed in 2005 bears no relationship to the marketplace value or quality of programming on that signal in 2015-2017.

PTV contends that “a voluntary, negotiated agreement granting the cable operators a license to retransmit the Public Television multicast streams shows that the right to carry the Public Television multicast streams had value.” [PTV Br. at 12](#). But cable operators do not have to negotiate for consent to retransmit local or distant PTV signals as they do for local and distant commercial signals. [47 U.S.C. § 325\(b\)\(2\)](#) (requirement to seek retransmission consent “shall not apply (A) to retransmission of the signal of a noncommercial television broadcast station”). Rather, the apparent benefit to cable operators was [REDACTED] [REDACTED] (i.e., [REDACTED] [REDACTED]).

[SDC Conclusions ¶ 224](#) (citing PBS-NCTA Agreement). And the monetary value that the PBS-NCTA Agreement ascribed to PTV multicast signals was \$0. [See SDC Conclusions ¶ 242](#) (citing 7111 p. 12, [Hartman Reb. ¶ 27](#)).

The SDC do not contend that PTV’s share in this proceeding should be 0%, but any methodology suggesting that PTV content is by far the most valuable programming in the distant retransmission marketplace (tripling in value from 2013 to nearly 60% of the Basic Fund in 2017) conflicts with economic and common sense.

- 2. Reclassification of PTV multicast signals from “exempt” to “non-exempt” following expiration of the PBS-NCTA Agreement did not change how cable operators valued PTV multicast signals or entitle PTV to additional compensation.**

Much of the increase in PTV compensable minutes in 2014-2017 resulted from the reclassification of multicast signals already carried by a cable operator from “exempt” to “non-exempt” following expiration of the 2005 PBS-NCTA Agreement in 2016 (which had previously exempted PTV multicast streams from having a DSE value assigned). [SDC Conclusions ¶ 239](#). PTV contends that it is now entitled to a higher share of the royalties because the “copyright owners of programming on those multicast streams are now entitled to receive royalties in this proceeding that they were previously not entitled to receive....” [PTV Br. at 12](#).

But the fact that PTV has more mouths to feed does not entitle it to a higher share of the royalties. (And, given that PTV multicast signals “were largely duplicative of the primary feed,” we should not assume there are that many more mouths to feed. [SDC Conclusions ¶ 239](#) (citing [7111 p. 10, Hartman Reb. ¶ 27](#).) Royalties are allocated in this proceeding based on relative market value; not volume; not ratings; not production costs; not potential intrinsic value; and not numbers of copyright owners. [See SDC Conclusions ¶ 213](#). While the reclassification of PTV multicast signals led to a dramatic increase in compensable minutes of PTV programming, there is nothing in the record to suggest cable operators valued that programming more following the reclassification.

Moreover, most PTV multicast signals were retransmitted on minimum fee systems. [SDC Conclusions ¶ 238](#). In such cases, a reclassification of PTV multicast signals from exempt to non-exempt would not increase the amount of royalties paid into the fund. And where reclassification of PTV multicast signals would have increased a cable operator’s liability, [REDACTED] [JSC Conclusions ¶ 490](#) (citing [3113 pp. 6-7, 2005 PBS-NCTA Agreement, ¶ 6](#)). PTV should not be permitted now to reap a windfall of up to nearly 60% of the total royalty fees when the negotiated marketplace

value of the PTV signals retransmitted pursuant to must-carry or the PBS-NCTA Agreement was \$0. [JSC Conclusions ¶ 484](#).

B. A decrease in non-PTV minutes does not reflect a decrease in non-PTV programming market value.

1. Subscriber weighted minutes is a useless metric.

PTV claims that:

The subscriber-weighted distant minutes attributable to the Devotional Claimants and Program Suppliers also decreased steadily between 2013 and 2017. The programming in the Devotional Claimants category accounted for less than two percent of all subscriber-weighted distant minutes in 2013, and that percentage declined to a fraction of 1 percent by 2017.

[PTV Br. at 8](#).

This is misleading. There is no foundation for the claim that Devotional *subscriber-weighted minutes* declined. Rather, the analysis that PTV cites to shows that the Devotional *proportion* of subscriber-weighted minutes has declined, but that is principally because the number of PTV subscriber-weighted minutes skyrocketed in 2016, largely due to reclassification of PTV multicast signals at zero cost to the cable operators. This is a good illustration of the uselessness of subscriber-weighted minutes as a measure of anything meaningful.

Another example of how meaningless subscriber-weighted minutes are to measuring value is PTV's assertion that JSC's share should decrease 90% between 2014 and 2017 simply because "the subscriber-weighted distant minutes of JSC programming declined by more than 90 percent" following the WGNA conversion. [PTV Br. at 6](#). This position wrongly assumes that JSC minutes are as fungible as minutes of general entertainment programming. The record in this proceeding indicates that cable operators valued distant JSC games more highly in areas where subscribers were particularly likely to value them (i.e., retransmitting New York Yankees and Mets games on WPIX to subscribers in New Jersey and Pennsylvania, or LA Dodgers games

on KTLA to subscribers in other California markets). See [JSC Findings ¶¶ 87-88](#) (citing [7105 pp.36-42 \(Harvey Corrected WDT\) ¶¶ 52-67](#)); [JSC Findings ¶ 90](#).

Additionally, the mere fact that WGNA could reach more subscribers than other signals is not an indication that cable operators chose WGNA because they valued the JSC programming on WGNA as much or more than JSC programming on other distant signals. WGNA's decision to deliver its signal via satellite meant that, unlike other commercial signals, (1) it could be received by cable operators from coast to coast, and (2) cable operators did not need to negotiate for retransmission consent to retransmit WGNA. [47 U.S.C. § 325\(b\)\(2\)\(D\)](#). A focus on subscriber-weighted minutes as a measure of value ignores the reality that, due to physical or legal constraints applicable to other commercial stations, WGNA may have been available to a cable operator for distant retransmission when other commercial signals were not.

2. There is nothing in the record regarding signals cable operators chose *not* to carry.

PTV asserts that “during the 2014-17 period, many CSOs chose to retransmit Public Television distant signals when they could have carried another distant signal instead.” But, as several experts testified, there is no evidence in this proceeding regarding what commercial signals were available to CSOs for distant retransmission and not carried. See, e.g., [Tr. 2499: 8-11 \[Asker\]](#) (“I haven’t seen anything in the testimony that explains how that [CDC] data informs what’s -- what is available and what’s not available to any one particular CSO.”); [Tr. 5439:4-6 \[Tyler\]](#) (“I think there is a difference between having something available and not chosen versus not having something available at all.”). Commercial television signals may be unavailable for distant retransmission for technical or legal reasons unrelated to the Section 111 license and not applicable to distantly retransmitted PTV stations.

For example, cable operators are generally prohibited by federal law from retransmitting a commercial television station’s broadcast signal without first receiving the “express authority of the originating station.” [47 U.S.C. § 325\(b\)\(1\)\(A\)](#). This consent requirement does not apply to commercial stations that have elected must carry, and it does not apply to noncommercial (i.e., PTV) stations. [47 U.S.C. §§ 325\(b\)\(1\)\(B\), \(b\)\(2\)\(A\)](#). A commercial station may be unwilling (or due to programming agreements, unable) to consent to distant carriage, rendering its signals unavailable to the cable operator.

Additionally, a distant commercial station may be too far away to deliver an over-the-air signal to the cable system’s headend. A commercial station is considered local within its entire Nielsen designated market area. Absent a substantial investment in an alternative delivery method, a commercial station is not available for distant retransmission if its service contour does not extend beyond the borders of its designated market area (and further still to reach the cable system’s headend). This technical constraint is less likely to affect PTV stations, which are only considered local within 35 miles of the cable system’s headend (and therefore could be considered “distant” even within its own designated market area).

Given these constraints, one cannot infer from the available data that cable operators “elected” to retransmit a PTV signal “instead” of a commercial signal. A cable operator’s retransmission of a PTV signal (particularly one subject to must-carry or the PBS-NCTA Agreement) at no cost in the absence of any available commercial signals is not informative as to cable operator preferences.

IV. Conclusion

For all the foregoing reasons as well as those given in the SDC's initial Post-Hearing Brief, the Judges should conclude that the Bortz survey, modified with Bortz Adjustment 1, is

the methodology that best and most reliably reveals relative market value in this proceeding, and should allocate the following shares for the Devotional claimants:

	2014	2015	2016	2017	Average
Basic Fund	5.5%	5.8%	5.1%	4.5%	5.2%

[7101 p. 49 \(Bortz Report\)](#); [SDC Findings ¶ 246](#).

Consistent with their decision in the 2010-2013 proceeding (*see* [2010-13 Final Determination](#), 84 Fed. Reg. at 3611), the Judges should 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:

	2014	2015	2016	2017	Average
3.75% Fund	6.0%	6.7%	6.1%	5.6%	6.1%

[SDC Findings ¶ 247](#).

Date: June 5, 2023

Respectfully submitted,

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In re

DISTRIBUTION OF CABLE ROYALTY FUNDS

Docket No. 16-CRB-0009-CD (2014-2017)

**ERRATA TO THE SETTLING DEVOTIONAL CLAIMANTS’
POST-HEARING REPLY BRIEF**

The following table identifies citation errors in the Settling Devotional Claimants’ June 5, 2023 filing of its Post-Hearing Reply Brief that have been corrected in the attached hyperlinked version of that document.

Page number	Corrected text	Original text
Page 17	SDC Findings ¶ 76	<i>Id.</i> ¶ 76
Page 43	<i>See</i> JSC Findings ¶¶ 398-400.	<i>See</i> SDC Findings ¶¶ 398-400.

Proof of Delivery

I hereby certify that on Friday, June 23, 2023, I provided a true and correct copy of the Settling Devotional Claimants' Post-hearing Reply Brief with an Errata (hyperlinked, public). to the following:

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