UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

THOMAS LAUMANN, FERNANDA GARBER, ROBERT SILVER, GARRETT TRAUB, DAVID DILLON and PETER HERMAN, representing themselves and all other similarly situated, Plaintiffs v. NATIONAL HOCKEY LEAGUE, *et al.* Defendants	CA No. 12-1817 (SAS) ECF Case
FERNANDA GARBER, MARC LERNER, DEREK RASMUSSEN, ROBERT SILVER, GARRETT TRAUB, and PETER HERMAN, representing themselves and all other similarly situated, Plaintiffs v. OFFICE OF THE COMMISSIONER OF BASEBALL, *et al.* Defendants	CA No. 12-3704 (SAS) ECF Case ~~**[FILED UNDER SEAL]**~~ **REDACTED**

SUPPLEMENTAL DECLARATION OF ROGER G. NOLL

My name is Roger G. Noll, and I reside in Palo Alto, California. Previously I submitted a declaration in this litigation in which I undertook an antitrust economics analysis of the liability

issues in this litigation.[1] That declaration contains my professional background and qualifications, and includes a list of the cases in which I have served as an expert during the past five years. Since submitting that declaration, I have testified at trial in one matter:

In re NCAA Student-Athlete Name and Likeness Licensing Litigation (U.S. District Court, Oakland).

ASSIGNMENT

Attorneys for the class plaintiffs have asked me to ascertain whether the evidence and analytical methods that an economist would use to undertake an antitrust economics analysis of the liability allegations in the complaints[2] and to calculate the damages are predominantly common among members of each class that is alleged in the complaint. This litigation pertains to two classes, a class for each sport (Major League Baseball, or MLB, and the National Hockey League, or NHL) consisting of subscribers to out-of-market live video presentations of games in that sport over the Internet or a multichannel video program distribution system (MVPD).

At issue in the *Complaints* are the policies and practices of MLB and the NHL that restrict each team in the league and the regional sports network (RSN) that telecasts its games to distribute live video broadcasts over either an MVPD of the team's games outside of the team's home broadcast territory or the Internet anywhere in the U.S. In the *Noll Declaration,* I undertook an antitrust economics analysis of the liability issues in this matter. To avoid restating the evidence and analysis in my prior report, I am submitting this declaration as a supplement to the *Noll Declaration*. The *Noll Declaration* is incorporated by reference into this declaration.

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[1] *Declaration of Roger G. Noll*, February 18, 2014 (henceforth *Noll Declaration*).

[2] *Fernanda Garber, et al., v. Office of the Commissioner of Baseball, et al.* and *Thomas Laumann, et al. v. National Hockey League, et al*. Henceforth I refer to the first as the *MLB Complaint*, the second as the *NHL Complaint*, and both collectively as the *Complaints*.

My assignment in this declaration has two elements. The first is to ascertain whether the evidence and methods that were used in my prior declaration to undertake an antitrust economic analysis of liability in each of the cases in this litigation are common to members of each class. The second element is to determine whether the method that an economist would use to calculate damages is common to members of each of the two classes.

In undertaking this analysis, I have taken into consideration the same material that I used in my prior declaration, plus additional discovery that is listed in Appendix A and the footnotes to this declaration. I have been assisted in preparing this declaration by economists at Bates White Economic Consulting and by Professors Gregory Crawford of the University of Zurich and Ali Yurukoglu of Stanford University.

SUMMARY AND CONCLUSIONS

The *Noll Declaration* applies the methods of antitrust economics to analyze the competitive effects of the policies of MLB and the NHL with regard to televising games in each sport. The conclusion that I reached from this analysis was that the restrictions on the sale and distribution of live broadcast rights that have been adopted by both leagues, their member teams, and their RSNs caused anticompetitive harm to consumers. Specifically, these restrictions have the following anticompetitive effects: (1) to limit the choices available to consumers for acquiring live video presentations of MLB and NHL games; (2) to cause the prices that consumers pay for telecasts of out-of-market games in MLB and the NHL to be higher than would be the case if each team and its RSN were not prevented from televising live games outside the team's home broadcast territory; and (3) to reduce output by reducing the number of consumers who buy access to view live telecasts of out-of-market games.

The principal conclusion from the analysis in this declaration is that the methods of

antitrust economics that an economist would use to prove liability and to calculate damages in this matter are predominantly common to members of each class. The fundamental reason that proof of liability and calculation of damages are common to members of each class is that the products at issue are sold nationally on the basis of posted prices. Consequently, the effect of the rules that prohibit a team and its RSN from televising live games outside of the team's home broadcast territory is to cause all consumers to face higher prices for the out-of-market packages and for fewer consumers to buy access to out-of-market games.

This declaration contains no new information about the methods that economists use to prove liability in a rule-if-reason antitrust case. On these issues, this declaration focuses solely on whether the analysis in the *Noll Declaration* used methods that are common to class members. My conclusion is that the methods and evidence that were used in the *Noll Declaration* to define the relevant markets and to demonstrate the presence and source of defendants' market power are common to all class members.

The procedure that I have adopted to prove anticompetitive harm and to calculate damages involves using a a set of econometric models that shows how restrictions against competition in telecasts of live games cause the menu of prices for each bundle of out-of-market games to be higher than otherwise would be the case. These econometric models are based on an article by Professors Crawford and Yurukoglu on the effects of unbundling the sale of television channels by MVPDs that was published in 2012 in the *American Economic Review*, the flagship journal of the American Economic Association. The anticompetitive harm that these models establish consists of the loss of choice and output arising from denying consumers access to out-of-market telecasts and higher prices for the bundles of live telecasts of out-of-market games that are sold by MLB and the NHL. The models in the *Noll Declaration* produced a formula for calculating the damages due to elevated prices for each bundle of out-of-market telecasts in each

sport that are distributed over the Internet that is common to all consumers who subscribed to the Internet versions of the league bundles. The same model can be estimated for customers who subscribe to the out-of-market league bundles from Comcast and DirecTV. The *Noll Declaration* did not attempt to estimate models for these defendants, but this declaration reports the results from a model for measuring the effects of the restrictions on out-of-market telecasts for consumers who purchased MLB Extra Innings from DirecTV.

This declaration contains new information and analysis that is derived from extending and refining the model that was used to calculate the effect of the system of exclusive territorial broadcasting rights on the prices of the league-wide bundles of out-of-market games. The new models are refinements of the econometric models in the *Noll Declaration* and use more data for subscribers to MLB.tv and NHL GameCenter LIVE and subscriber data for Extra Innings on DirecTV. (The data that DirecTV produced for Center Ice and that Comcast produced for both league bundles are too fragmentary to support estimating the same model.) This declaration explains the revised econometric model, data from DirecTV that were used to create a formula for calculating the overcharge for MVPD customers of MLB Extra Innings, the adjustments to the data for the two Internet versions of the league bundles, and the new results from the analysis of both the Internet and DirecTV data, and explains why the estimated effects of the prohibition against out-of-market telecasts is conservative.

The model that is used to prove harm to competition provides proof of two types of anticompetitive injury: loss of output and elevation of prices. The econometric model shows that the total number of subscribers to the league packages would suffer a small decline, but that this would be swamped by new subscriptions to RSNs that carry the live games of a team. The model also calculates the profit-maximizing price for each league's out-of-market bundle of telecasts if the RSNs that are included in each bundle were permitted to distribute their telecasts of MLB

and NHL games on a nation-wide basis over both the Internet and MVPDs. These differences vary between 23 and 25 percent of the actual monopoly price. Finally, the model predicts the number of subscribers to access the out-of-market games for each team as well as the price for each, showing that offering out-of-market games remains profitable for the league bundle and would be profitable for the teams in selling access to their own games.

The last step in establishing liability under the rule of reason is to determine whether the anticompetitive conduct of the defendants has a reasonable business justification, which occurs if the anticompetitive harm from defendants' conduct is offset by pro-competitive benefits that cannot reasonably be obtained in a less anticompetitive manner. The business justifications that the defendants have asserted in their filings in this litigation are as follows: (1) each league is a single entity for purposes of antitrust analysis; (2) exclusivity in selling television rights is efficient; (3) the leagues created new products in offering bundles of out-of-market telecasts; (4) league rules restricting the distribution of telecasts of a team's games contribute to competitive balance; and (5) the leagues' policies and practices regarding the distribution of game telecasts enhance the financial stability of the teams in the league.

The *Noll Declaration* describes the evidence and methods an economist would use to examine these issues, and concludes that these allegations either are not supported by economic analysis or do not identify a pro-competitive benefit to consumers. For the purpose of class certification, the key fact is that these justifications apply to the operation and performance of the league and its members, not independently to any member of each class. Because these justifications pertain only to the nature of the leagues' products and performance, they cannot involve issues that require individualized analysis. Consequently, this declaration contains no additional discussion of these issues.

As discussed in the context of proving liability, the econometric models estimate the

price of league out-of-market bundles that would be charged if the prohibition against out-of-market telecasts was eliminated. The difference between the actual price and the price that would be charged in the absence of restrictions is the overcharge, or the damage to each consumer that is caused by the defendants' anticompetitive conduct. Because of differences in pricing and service characteristics between Internet and MVPD versions of the out-of-market bundles, the same basic model has been estimated separately from data for subscribers to each of the Internet services and to DirecTV subscribers to MLB Extra Innings. Each model produces a formula for measuring anticompetitive injury and calculating damages that is common to all customers who buy the same out-of-market bundle from the same source.

The procedure for calculating damages involves the following steps. (1) Use the econometric model to calculate the overcharge for the most popular version of each league's out-of-market bundle from each service (MLB.tv, GameCenter Live, and MLB Extra Innings on DirecTV), and express the overcharge as a percent of the original monopoly price. (2) Multiply the prices for all of the versions of each league bundle by the percentage overcharge for the most popular version. (3) Multiply the overcharge for each version of the bundle by the number of subscribers to that version. Total damages for sales through one service are then the sum of the damages for all versions of the bundle. Total damages for subscribers for 2012 are $8,127,491 for MLB.tv, $1,526,409 for GameCenter Live, and $15,590,857 for DirecTV's version of MLB Extra Innings. Because the estimates of the price effects are conservative, these damages are a lower bound on actual damages.

Damages for other years could be calculated by estimating the same econometric model for all years in the class, or by simply applying the same percentages to all years. Likewise, the econometric model can be applied to Comcast data and to DirecTV data for Center Ice if these data are produced, or, alternatively, because the overcharge as a fraction of the monopoly price is

close to the same for all three products that are analyzed using the econometric models, the percentage overcharge for DirecTV Extra Innings could be applied to other MVPD bundles.

The basis for my conclusion that the methods that are used to establish liability and to calculate damages are common to class members is contained in the remainder of this report.

ECONOMIC ANALYSIS OF LIABILITY UNDER THE RULE OF REASON

As explained in the *Noll Declaration* (pp. 17, 19-21), the goal of an antitrust economic analysis of liability in a rule-of-reason case is to determine whether the defendants engaged in conduct that caused anticompetitive harm. Economists have developed two procedures for addressing this question (*Noll Declaration*, pp. 21-24). First is the "traditional" method, which involves defining the relevant markets in which the conduct at issue took place, establishing that the defendants enjoy market power in these markets, demonstrating that the defendants' market power was created, enhanced or maintained by anticompetitive conduct, and then showing how the incremental market power that was created by anticompetitive conduct caused harm to competition. Second is the "direct effects" method, which measures the effect of the defendants' conduct on prices, quality and/or product choice without defining the relevant market and establishing that the defendants enjoy market power in a relevant market.

The descriptions and explanations of these methods and the mechanics of their implementation by economists that are set forth in the *Noll Declaration* are applicable to all members of both classes. These descriptions and explanations would have to be repeated in essentially identical form in a case about the same restrictions on out-of-market telecasts that was filed by a member of one of the classes and so are common to all members of the classes.

The goal of a rule-of-reason analysis in antitrust economics is to ascertain whether defendants' conduct caused harm to competition, which almost always involves demonstrating

that this conduct caused prices to be higher. The fundamental reason that the methods and evidence that an economist would use to analyze liability issues in this litigation are common to members of each class is that the defendants offer versions of the reference products nationwide to members of the classes according to menus of posted prices. Neither the composition of the packages nor the prices associated with each package varies according to individual characteristics of consumers or is subject to individual negotiation with a customer. Instead, prices vary according to the delivery path (Internet and MVPD), the characteristics of the package, and, for the NHL, the availability of some promotional discounts and the inclusion of sales taxes in some but not all purchase records. Thus, an economic analysis of the prices of various packages involves using only information about the composition of each of the products and their terms of sale, and so is common to all members within each class.

Variation in prices for out-of-market bundles takes the following form. Both MLB and the NHL offer several versions of their out-of-market bundles to consumers. The prices of these versions depend principally on the starting date, the duration of the subscription, and the method of payment (single payment or installments). For both leagues the full-season package accounts for most subscribers.[3] Both MLB's and the NHL's full-season packages are offered at an "early bird" discounted price to consumers who buy the entire season before the first game is played.[4] The full-season packages from both leagues can be purchased for either a single up-front payment that is due at the time of the subscription or monthly installment payments throughout the season. MLB Extra Innings, NHL Center Ice, and NHL GameCenter Live offer monthly

[3] For Internet services, [redacted] percent of MLB subscribers and 56 percent of NHL subscribers bought the full-season package in 2012. For Comcast, [redacted] percent of MLB subscribers and 93 percent of NHL subscribers purchased the full season in 2012. For DirecTV, [redacted] percent of MLB subscribers and 71 percent of NHL subscribers purchased the full-season package.

[4] The Internet MLB package offers this discount only to returning customers, but both Comcast and DirecTV offer the early bird discount to all customers.

installment options that total approximately the same amount as the single, up-front payment, while the MLB.tv full-season subscriptions require somewhat higher installment prices but allow cancellation of the subscription at any time.

Both leagues also offer products that provide access to out-of-market games for part of the season at a total price that is less than the regular season price. The NHL sells a half-season package, a "Race to the Cup" package during the last two months of the season, intermittently offers a "Day Pass" that gives a customer access to games for one day,[5] and sells a "Vault" package for access to replays of classic games. MLB.tv sells products that cover the last five months, the last four months, the last three months, and the last two months of the regular season, and MLB.tv also offers a monthly subscription and "Race to the Pennant" packages for the last month, the last two weeks, and the last week of the regular season.

MLB offers two versions of its out-of-market bundle over the Internet: the "basic" version, which includes only the telecasts of the RSN for the home team, and the "premium" version, which includes the live telecasts of the RSNs of both the home and visiting teams.[6] The MLB packages that are sold by MVPDs include all RSNs and more often carry the same game on two channels, and so are more similar to the premium Internet service. MLB's bundles also include post-season games that are not carried by national networks, while the NHL bundles currently include only regular season games.[7] Both MLB.tv and NHL GameCenter LIVE allow replays of playoff games.

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[5] "Day Pass subscriptions may also be available for purchase at certain periods for a single low price" (http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCAQFjAA&url=http%3A%2F%2Fwww.nhl.com%2Fice%2Fgclfaq.htm&ei=LxIZVLO9BIquigKk44GgAg&usg=AFQjCNGN8JYTXaCny5ApCW7LPbCb6mfG1w&bvm=bv.75558745,d.cGE).

[6] The NHL sells only an out-of-market package that includes all RSNs, which is like MLB's premium package.

[7] See http://www.nhl.com/ice/page.htm?id=26371.

Exhibit 1 contains the total and average monthly posted prices for the Internet versions of the MLB and NHL out-of-market bundles for 2012 for each date and duration of a subscription.[8] Exhibit 2 contains the posted prices for the out-of-market MLB and NHL bundles for Comcast. Exhibit 3 shows the versions of the MLB and NHL bundles and the prices that are offered by DirecTV. These data show that sales of a small number of packages at the same posted price account for a large majority of subscribers to all three services.

The average monthly price per game generally is higher for packages that cover only part of the season, although the prices for MLB.tv packages that cover the end of the season are actually cheaper on a monthly basis than some of the packages of longer duration. Internet prices are lower than the MVPD prices for the same package, reflecting the mark-up that MVPDs charge over the carriage fee to the MVPD for these products.

The data for the Internet services show that [redacted] subscribers to both MLB.tv and NHL GameCenter LIVE purchase a full season package at one of the two posted prices (regular or discount). The discounts for the full-season package are modest. For MLB.tv, the discount for renewing subscribers was about [redacted] for the basic MLB.tv service and [redacted] for the premium MLB.tv service. The early bird discount in 2012 for Extra Innings (which is comparable to the premium service on MLB.tv) was about 10 percent on Comcast and 4 percent on DirecTV. The early bird discount for GameCenter LIVE was about 6 percent, while the early bird discounts for Center Ice were about 4 percent on both Comcast and DirecTV.

The Internet services data that were produced by MLB and the NHL exhibit more variation in pricing than the prices for MVPD services. About [redacted] of customers in the MLB.tv data base and 30 percent of customer records in the NHL data base made payments that were not equal to one of the posted prices for the products that are shown in Exhibit 1.

[8] The NHL data are for the 2011-12 season, which for convenience is referred to as 2012 throughout this declaration.

The prices in the MLB data show the first payment by a subscriber. Most of the entries at nonstandard prices are accounted for by customers who purchased a package that covers less than a full or half season, leaving about two percent of the total payments as nonstandard. At least some of which reflect special promotions that were widely available to consumers.[9]

The NHL payment data for the U.S. show each payment that is made by a subscriber, rather than just the first payments, as in the MLB.tv data. The NHL transactions data include over 50,000 payments for a nonstandard amount. About 92 percent of these payments reflect purchases of services other than GameCenter LIVE or are standardized adjustments to the posted prices that easily can be accommodated in the damages model.

More than half of the payments for nonstandard amounts in the NHL data are not for subscriptions to live telecasts of games, and so are not transactions at issue in this litigation. About 39 percent of the transactions at nonstandard prices are payments for Vault. Vault gives subscribers access to replay classic NHL games. These subscribers are not members of the NHL class because they do not purchase access to live games. Another 12 percent of the nonstandard transactions are for the premium upgrade for GameCenter LIVE, which allows GameCenter Live subscribers to receive audio broadcasts and video highlights of games.[10]

Nearly [redacted] percent of the nonstandard NHL payments are at a price of zero for one of the standard out-of-market packages shown in Exhibit 1: early bird full season, regular full season, half season, or race for the cup.[11] Employees of the league and teams who receive

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[9] See Bates Nos. MLB0255316.ppt (slides 2, 3, 33, 34, 36), MLB0255317.ppt (slide 56), and MLB0070249.xls. Some extremely high prices ($6,300 and $1,500) are plausibly in yen and so have been eliminated from the damages calculation (see Bates Nos. MLB0059707 and MLB0060105).

[10] See https://neulion.hs.llnwd.net/e1/nhl/player/nhlgc2/help.htm.

[11] About [redacted] percent of sales at a price of zero are recorded as complimentary full-season passes. The rest of these transactions lack an explanation for why they are zero, but plausibly these also are complimentary subscriptions.

complimentary subscriptions are not part of the NHL class.

About 21 percent of nonstandard payments are ten percent less than the posted price of one of the GameCenter LIVE packages in Exhibit 1. The NHL gives this discount to customers who use a Discover card to purchase service.[12] The damages due to the NHL's restrictions on out-of-market telecasts for these customers is simply 90 percent of the damages of customers who did not receive the discount.

About two percent of subscribers pay six percent more than a posted price, which according to the NHL is the amount of the sales tax surcharge on residents of Connecticut.[13] In addition, one-tenth of one percent of subscribers purchase a version of GameCenter LIVE at a discount of 4.6 percent. These prices are the result of applying both the ten percent Discovery discount and the six percent Connecticut sales tax. Thus, in calculating damages for Connecticut customers, the overcharge is 106 percent of the overcharge to other subscribers, with a small fraction of these customers damaged by 90 percent of this amount due to the Discover discount.

Finally, about ten percent of the nonstandard payments are for "Day Pass," which allows a subscriber to view all out-of-market games for a single day. Nearly 95 percent of these transactions are at the standard posted price of $9.99, and another three percent pay $8.99, which is a ten percent discount from $9.99.

These sources of price variation account for almost all nonstandard payments, with less than one percent of all payments at prices that do not fall into one of these categories. Thus, despite the seemingly high incidence of price variation in the NHL data, in fact virtually all members of the NHL class who subscribe to GameCenter LIVE pay the list price, 90 percent of the list price, or one of these prices plus six percent for one of the GameCenter LIVE products.

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[12] See https://gamecenter.nhl.com/nhlgc/secure/gclsignup?CMPID=GCL:vnty.

[13] See http://www.nhl.com/ice/gclfaq.htm?cmpid=gclfaq-csmodule#section2a.

All transactions in the data that were produced by Comcast are at the posted prices for a few different packages that are shown in Exhibit 2. Comcast subscriptions to MLB Extra Innings and to NHL Center Ice each were transacted at one of four prices: the early bird full season, the regular full season, the half season, and race to the pennant or cup. For both MLB and the NHL, most Comcast subscribers purchased the early bird full season package, with roughly two-thirds of subscribers buying this package in 2012.

DirecTV sells four versions of its full-season MLB packages: regular, early bird ([redacted] percent discount in 2012), renewal ([redacted] percent discount in 2012), and telemarketing ([redacted] percent discount in 2012). The full-season NHL package has three versions: regular, early bird (4.4 percent discount in 2012), and renewal (4.4 percent discount in 2012). The DirecTV data include prices and subscriptions for two more packages each for Extra Innings and Center Ice, which also are shown in Exhibit 3. Among the 2012 DirecTV subscribers, around [redacted] subscribers to Extra Innings and 22 percent of subscribers to NHL Center Ice paid prices that do not correspond to any of the packages shown in the Exhibit, but DirecTV has not produced enough information to permit classifying these payments as nonstandard (not at list price). The DirecTV data do not show either the prices or the durations of the service that were obtained by these subscribers, so these transactions cannot be classified according to whether they were sales of other versions of the bundles with different start dates and durations at posted prices or of the same products at a discount. For both MLB and the NHL, about [redacted] MLB subscribers and 58 percent of NHL subscribers purchased the full-season package as a renewal.

These data show that nearly all of the members of each class purchase one of a small number of packages of out-of-market games for which the average monthly price is subject to some variation that reflects the point in the season when the bundle was purchased and the method of payment. Moreover, a large fraction of subscribers buy the full-season package,

although some commitments to buy on an installment plan are not fulfilled. As a result, an economic analysis of liability issues is based solely on the factors that affect a small number of posted prices for all subscribers in each class and so is common to all members of each class.

MARKET DEFINITION AND MARKET POWER

This section deals with the first three steps of an economic analysis of liability under the rule-of-reason approach: market definition, market power, and sources of market power. This section reviews the analysis that an economist would use to define the relevant product markets, establish that the defendants enjoy market power in those markets, and show that defendants' market power is enhanced by geographic restrictions on televising the games of each team, and shows that the evidence and methods that would be used to conduct this analysis are common to members of each class.

Market Definition

The procedure for defining a relevant market is to identify products that are close competitive substitutes to a reference product. If a product has close competitive substitutes, then an attempt to raise its price above the competitive level will cause a sufficiently large number of buyers to switch to the substitutes to make the price increase unprofitable. Market definition involves ascertaining whether such substitution will occur, but it does not depend on identifying which consumers would switch. Consequently, the methods and evidence that are used to define a market are common to all of the purchasers of the product.

The four reference products at issue in this litigation are the Internet and MVPD versions of the bundles of out-of-market games: MLB Extra Innings, MLB.tv, NHL Center Ice, and NHL GameCenter LIVE. Each product is sold at posted prices (shown in Exhibits 1, 2, and 3) that do

not vary according to individual characteristics of subscribers. Every subscriber in each class buys a product for a full or partial season from the same menu of prices.

The *Noll Declaration* (pp. 43-53) analyzes the economic research and other available information that is pertinent to defining the relevant antitrust markets that contain these reference products. In addition to the bundles of out-of-market telecasts that are offered by MLB and the NHL over the Internet and through MVPDs, every team in both leagues sells the rights to live telecasts of its games to RSNs and over-the-air television stations within its home broadcast territory. The reference products are simply bundles of the live telecasts of games of each team in each league that are sold outside of a team's home broadcast territory.

The *Noll Declaration* (pp. 43-53) concludes that out-of-market telecasts are competitive substitutes for in-market telecasts, but that telecasts of other sporting events and other non-sports programs are not competitive substitutes for either. The analysis and evidence that supports this conclusion pertain to the distribution of preferences for teams among fans of each sport, the underlying supply and demand for telecasts, and the propensity of multiple RSNs to telecast games into metropolitan areas that have no team in a league but that are in the home broadcast territory of several teams with home stadiums in other, distant metropolitan areas. Thus, the conclusion that telecasts of games in each sport constitute a relevant product market is based on analysis and evidence that pertains to general conditions in the market for live telecasts, and so is common to members of each class.

The *Noll Declaration* (pp. 53-58) also addresses whether distribution of the bundles of out-of-market games over the Internet are part of the same relevant market as the distribution of games by over-the-air broadcasters and RSNs through MVPDs. The evidence and analysis that supports the conclusion that Internet and MVPD distribution are competitive substitutes pertains to the convergence of the technical capabilities and content of the two technologies. The analysis

of how the convergence of television and Internet technologies has caused the content on these technologies to be competitive substitutes is common to members of the classes.

Market Power

The analysis of market power in the *Noll Declaration* (pp. 69-95) identifies and applies the methods that are used in antitrust economics to detect the presence of market power. The evidence that economists use to detect market power and that are applied in the *Noll Declaration* are: the Lerner Index, market concentration in the presence of barriers to entry, and the ability to exclude competitors.

The data that were used to calculate the Lerner Index (*Noll Declaration*, pp. 80-84) are the revenues and costs of the bundles of out-of-market telecasts for each league. The results show that MLB and the NHL have extraordinarily high profit margins, which implies substantial market power. These data and methods are common to all members of the two classes.

In implementing the use of market concentration as an indicator of market power, the *Noll Declaration* (pp. 84-87) used information about the number of teams and their RSNs that televise games into the top 75 television markets and showed that in most local markets the concentration of televised games is very high. Because league rules prevent other teams from televising games in these cities, entry is precluded, so that high concentration implies the presence of market power. Because this analysis pertains to the competitive conditions in the market for telecasts of games of teams in each league in each television market, the analysis is common to members of the corresponding class for that league.

The analysis of exclusion of competitors in the *Noll Declaration* (pp. 88-94) identifies the territorial broadcasting rights of teams as a source of the market power of leagues and teams in the market for game telecasts. A team is permitted to sell the rights to telecast its games over a

standard television station or an MVPD within its home broadcasting market, but league rules and policies generally prevent teams from selling the right to stream games over the Internet in their home broadcast territories.[14] Some Canadian teams in MLB and the NHL have had their games streamed locally.[15]

The effect of these restrictions is to create a series of highly concentrated local markets for telecasts of games in each sport. The high market concentration with no possibility of competitive entry from teams and their RSNs in the same sport is the source of the market power of each team in selling its television rights as well as the market power of the leagues in selling their bundles of out-of-market telecasts. The analysis and evidence for each sport that supports this conclusion is common to members of the corresponding class.

ANTICOMPETITIVE EFFECTS AND DAMAGES

The *Noll Declaration* (pp. 95-105) identifies two anticompetitive effects of the rules and policies of MLB and the NHL with regard to game telecasts. The first is a reduction in choice and the quantity of the audience for telecasts of games in either MLB or the NHL. The second is

[14] Both MLB and the NHL require that Internet streaming of games that are televised over a U.S. team's RSN must take place through the team's home page on the league's web site, rather than through a web portal controlled by an RSN or some other entity (such as, for example, Netflix). [redacted] See *Declaration of Gary B. Bettman*, pp. 5-6, and Maury Brown, "MLB on Cusp of Ending Blackouts on Streaming Games Online and on Mobile Devices," *Forbes*, August 22, 2014, at http://www.forbes.com/sites/maurybrown/2014/08/22/ mlb-on-the-cusp-to-relaxing-blackouts-for-streaming-baseball-games-online-or-mobile-devices/.

[15] John Ourand and Eric Fisher, "Live Local Streaming down to One Team in MLB," *Sports Business Journal*, April 7, 2014, at http://www.sportsbusinessdaily.com/Journal/Issues/2014/04/07/Media/MLB-streaming.aspx; Fred Dreier, "Canucks, Leafs Lead on In-Market Mobile Streaming," *Sports Business Journal*, February 21, 2011, at http://www.sportsbusinessdaily.com/Journal/Issues/2011/02/21/Media/NHL-streaming.aspx; and Christine Dobby, "Rogers to Make 1,000 NHL Games Available Live Online," *Globe and Mail*, September 3, 2014, at http://newsmaritimes.ca/2014/09/03/rogers-to-make-1000-nhl-games-available-live-online/.

the elevation in the price for gaining access to televised out-of-market games. The cause of both reduced viewing and the elevated price of the bundle of out-of-market games is the restrictions that prohibit a team from allowing its RSN to deliver live telecasts of its games over either an MVPD that is not in its home broadcast territory or the Internet, even in its home broadcasting territory. These restrictions reduce competition in the sale of game telecasts to consumers, which leads to higher prices for bundles of out-of-market games and reduced viewing of such games.

The proof of anticompetitive injury includes the effect of the restrictions on the prices of the bundles of out-of-market games that are sold by MLB and the NHL. These effects on prices also constitute the damages to each member of each class. Hence, this section presents a combined discussion of injury through price elevation and the calculation of damages.

The Effect of the Restrictions on Choice and Quantity

Nearly every game in MLB and the NHL is televised live by an RSN that holds the television rights to one of the teams in the game. Each league arranges for live game telecasts from all RSNs to be distributed nationally and internationally over the Internet and through MVPDs as part of its out-of-market bundle. But the availability to consumers of telecasts of games of every team is restricted by the rules of MLB and the NHL (*Noll Declaration*, pp. 12-15). A consumer cannot access Internet streams of games of the team that holds territorial broadcast rights for the community in which the consumer resides. A consumer who resides outside of a team's home broadcast territory can access the team's games on its RSN only by purchasing the entire out-of-market bundle of games that is sold by the league. Thus, the costs distributing RSNs nationally have been incurred, as have extra costs to black out policy games inside a team's home broadcast territory.

One limitation on consumer choice is that a potentially important option is not available

to consumers: to pay for access to the live game telecasts of some but not all out-of-market teams. That is, San Francisco Giants fans in New York cannot buy access just to the RSN that carries Giants games, but instead must buy access to all out-of-market games or to none. Another limitation to choice is that a consumer cannot acquire Internet access to live telecasts of games involving a team that includes the consumer's location in its home broadcasting territory, even if the fan pays for the Internet stream bundles that are offered by the leagues.

An important element of this system is that every RSN's live MLB and NHL game telecasts are available in one way or another in nearly every DMA in the nation, with the only exceptions being the absence of an RSN in a few DMAs that are in the home territory of one of the teams in the game. Consequently, if territorial broadcast restrictions were removed, every RSN could be made available to every DMA at little or no incremental cost. Because DirecTV carries nearly every RSN for distribution in DMAs within its home broadcast territory and every RSN as part of the out-of-market package, each RSN could be accessible everywhere simply by removing the blackout restrictions and allowing all DirecTV customers to purchase access to any number of RSNs, regardless of whether the customer's DMA is within its team's home broadcast territory. Likewise, the leagues already sell access to telecasts of games that are streamed over the Internet, so each RSN could make its stream available over its web site at little or no additional cost. Thus, the restrictions do not significantly reduce the costs of distributing all games nationally, but serve solely to restrict access to games and thereby to reduce competition.

The restrictions on the distribution of game telecasts by RSNs reduce quantity. The prices of the bundles of out-of-market games are substantially higher because consumers cannot purchase access to an out-of-market RSN separately. As shown in the next section, econometric models can be used to measure the effect of the restrictions on the prices of the bundles as well as the prices that would be established for access to live game telecasts on each team's RSN.

These models show that if the league restrictions were removed, league bundles would continue to be offered but their prices would be lower. These models also show that if the prohibition against out-of-market telecasts were eliminated, most consumers who would subscribe to out-of-market games would buy access to a single team rather than the league bundles and that the increase in subscribers to out-of-market RSNs would far exceed the reduction in subscribers to the league bundles. Thus, removing these restrictions would increase output by increasing the number of households that buy access to out-of-market games without causing any product to be withdrawn from the market. The proof of these conclusions is derived from the econometric models, each of which yields a formula for calculating the prices and subscriptions to each RSN and each league bundle for all consumers and so is common to members of each class.

In addition to the results of modeling the sale of out-of-market games, other experiences support the conclusion that choice and quantity would be higher if the restrictions on the distribution of live game telecasts were removed. One example is the experience in DMAs that have been assigned to the home television territories of three or more teams. As discussed in the *Noll Declaration* (pp. 96-98), in these cities almost all of the RSNs that carry the games of teams that share territorial broadcast rights are available on at least one major MVPD in the area. Another example is experience with MLB and NHL teams in Canada, where teams can and do engage in in-market Internet streaming of games. In 2014, the Toronto Blue Jays were the only MLB team to offer in-market Internet streams of their games.[16] The Vancouver Canucks and the Toronto Maple Leafs began offering mobile subscriptions to in-market Internet streaming of live game broadcasts during the 2010-11 NHL season.[17] In the 2011-12 season, the price for the Vancouver Canucks Internet streaming service was $2.99 for a single game, $15.99 for ten

[16] Ourand and Fisher, *op. cit.*

[17] Dreier, *op. cit.*

games, and $39.99 for the entire season,[18] while the Toronto Maple Leafs charged $9.99 for all pre-season games and set the early-bird price for 51 regular season games at $39.99.[19]

Another example is the distribution of telecasts of college football games after the decision in *Board of Regents v. NCAA*. Prior to that case, the NCAA controlled the sale of television rights to all college football games.[20] Colleges and conferences were prohibited from selling the rights to live telecasts of their games, and the NCAA sold the rights to packages of games to two national television networks.

The decision in *Board of Regents* prohibited the NCAA from monopolizing the sale of television rights to college football games. The effects of *NCAA* have been widely studied, and the results are that introducing competition caused both a large increase in the number of games that were televised in each DMA and a reduction in not only the rights fees per game but also the total amount that was paid by broadcasters for television rights.[21] Moreover, these effects

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[18] See https://web.archive.org/web/20111103021338/http://canucks.nhl.com/club/page.htm?id=64206.

[19] See http://mapleleafs.nhl.com/club/news.htm?id=538111&navid=DL|TOR|home.

[20] This case and its effects on the market for televised college football games are described in Brian L. Porto, *The Supreme Court and the NCAA*, University of Michigan Press, 2012.

[21] See *Ibid*. Chapter 4; Kathleen Carroll and Brad R. Humphreys, "Opportunistic Behavior in a Cartel Setting: Effects of the 1984 Supreme Court Decision on College Football Television Broadcasts," *Journal of Sports Economics*, June 25, 2014 (online version, available at http://jse.sagepub.com/content/early/recent); Larry Collette, "The Evolving Market Structure of Televised College Football," *Journal of Media Economics* Vol. 2, No. 2 (Fall 1989), pp. 3-19; Keith Dunnavant, *The Fifty-Year Seduction: How Television Manipulated College Football, from the Birth of the Modern NCAA to the Creation of the BCS*, St. Martin's Press, 2004, Chapter 10; David Greenspan, "College Football's Biggest Fumble: The Economic Impact of the Supreme Court's Decision in *National Collegiate Athletic Administration v. Board of Regents of the University of Oklahoma*," *Antitrust Bulletin* Vol. 33, No. 1 (Spring 1988), pp. 1-65; Ira Horowitz, "The Reasonableness of Horizontal Restraints: NCAA (1984)," in John E. Kwoka and Lawrence J. White, *The Antitrust Revolution*, Oxford University Press, 1999, pp. 202-19; D. Kent Meyers and Ira Horowitz, "Private Enforcement of the Antitrust Laws Works Occasionally: *Board of Regents of the University of Oklahoma v. NCAA*, a Case in Point," *University of Oklahoma Law Review* Vol. 48, No. 4 (Winter 1995), pp. 669-709; Patricia L. Pacey, "The Courts and College Football: New Playing Rules off the Field," *American Journal of Economics*

occurred in an era when the Internet did not exist, MVPD penetration was lower than today, satellite TV was acquired mostly by consumers in rural areas and small towns, and cable television systems typically carried fewer than 40 channels. Today MVPDs carry hundreds of channels and reach nearly 90 percent of all households, all major wireless carriers offer streaming video over high-speed Internet access, and scores of college football games are available every week in every DMA. In addition, numerous games are available through Internet streaming. For example, CBS College Sports Live offers internet streaming of 30 college sports, including football, from over 100 colleges for $9.99 per month or $99.99 per year.[22] The widespread distribution of college football telecasts reflects the high demand for and low cost of expanding the distribution of local game telecasts to the entire nation.

Effects on Prices and Damages

As discussed in the *Noll Declaration* (pp. 99-105), the data on subscriber viewing patterns for the existing out-of-market bundles of games can be used to construct an econometric model of how unbundling these packages would affect prices and subscriptions to both the league bundles and to each of the RSNs that carry these games if each were offered separately. The goal of this econometric modeling exercise is to predict counterfactual prices for the bundles of out-of-market games that are offered by each league defendant under the assumption that each team and its RSN is permitted to distribute live video broadcasts over MVPD systems and the Internet outside of its home broadcast territory.

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and Sociology Vol. 44, No. 2 (April 1985), pp. 145-54; and Patricia L. Pacey and Elizabeth D. Wickham, "College Football Telecasts: Where Are They Going?" *Economic Inquiry* Vol. 23, No. 1 (January 1985), pp. 93-114.

[22] See https://cbsi.secure.force.com/CBSi/articles/FAQ/What-is-College-Sports-Live?retURL=%2FCBSi%2Fapex%2Fknowledgehome%3Freferer%3Dcbsallaccess.com&popup=false&categories=CBS_Sports%3ACBS_College_Sports&template=Template_College&referer=cbsallaccess.com&data=&cfs=SFS_College.

The core model of the effects of unbundling the packages of out-of-market games is an application of a model that was developed and implemented in a recent article in the *American Economic Review* by Gregory Crawford of the University of Zurich and Ali Yurukoglu of Stanford University.[23] I have worked with Professors Crawford and Yurukoglu and with economists at Bates White Economic Consulting to apply this model to the problem of calculating the effects on prices and subscriptions if each RSN that telecasts the games of a team in MLB or the NHL were available as an unbundled channel on a nationwide basis.

The modeling exercise proceeds in three steps. The first step specifies a model of a consumer's decision whether to buy the bundle and, if the bundle is purchased, the allocation of time to viewing items in the bundle. This model specifies consumer behavior as a function of preferences for watching the channels in the bundle and the utility of income (money) spent on other things (including other television channels). The second step uses data provided by the defendants to estimate distributions of the preferences for each channel in the bundle across consumers. In the last step, the estimated preferences are used to predict counterfactual outcomes in a world in which the existing bundle and telecasts of each team by its RSN are available on a nationwide basis. The remainder of this section describes the data that were used to estimate the model, and then each of the three steps of the modeling exercise.

Data for Estimating the Model

[23] The model that is implemented in this declaration is an application of a generalized method of moments, developed in Lars Peter Hansen, "Large Sample Properties of Generalized Method of Moments Estimators," *Econometrica* Vol. 50, No. 4 (1982), pp. 1029-54. This approach was first applied to analyzing competition in imperfectly competitive industries in Steven Berry, James Levinson and Ariel Pakes, "Automobile Prices in Market Equilibrium," *Econometrica* Vol. 63, No. 4 (1995), pp. 841-90. A recent applications that is similar to the problem addressed in this declaration is Robin S. Lee, "Vertical Integration and Exclusivity in Platform and Two-Sided Markets," *American Economic Review* Vol. 103, No. 7 (2013), pp. 2960-3000.

The data that are used to implement the model are the viewing patterns of consumers who subscribe to an out-of-market bundle of games among the RSNs that are available in the bundle to that consumer and the price that the consumer paid for the bundle. Viewership data are used to infer the relative values that each viewer places on the teams involved in a particular game. The data that have been produced by the defendants that permit implementation of this model are for the Internet services of MLB and the NHL and for Extra Innings service on DirecTV. The NHL data for DirecTV are unusable because the data for most Center Ice channels have been aggregated into a single channel. The Comcast data were not usable because they cover only a brief time period and too small a geographic area to support reliable estimates of viewer preferences among teams.

DirecTV reports that its data on viewing patterns for MLB Extra Innings are records from the set-top boxes of a sample of U.S. subscribers that are collected and analyzed by a third party, Kantar Media.[24] These data record the time and duration of a single session of viewing a channel. These data preserve subscriber anonymity, but provide individual viewing data for each subscriber in the sample. For the 2012 MLB season, the DirecTV data contains 1,178,100 viewing records for 3,236 subscribers. The data that DirecTV produced do not include the location of the subscriber, so the games that are blacked out in a subscriber's service are unknown and cannot be incorporated into the model. The data record viewing of both live games and replays, including some games from prior seasons. Because the DirecTV data do not identify the teams involved in replays, viewing of replays has been allocated in proportion to the subscriber's viewing of live games.

The DirecTV viewing data record only the channel that was watched, not whether the channel was carrying a game or, if so, the identities of the teams in the game. Viewing sessions

[24] Bates No. DTV-SP0090017.

by subscribers were matched to games by consulting the DirecTV broadcast schedule. The time spent viewing an RSN when no game was being played was dropped from the data set. For viewing during games, often several discrete viewing sessions appear during the period that a single game was televised. The durations of each viewing session for the same game were added to produce a single total viewing time for that game for each of the teams involved. If a customer is recorded as having watched the same game simultaneously on more than one set-top box, the viewing time that is used is the longest time on any box. Because the same game normally appears on two RSNs, viewing data are recorded from both RSNs that carry each team.

DirecTV's viewing data do not indicate which package of games the subscriber purchased. The price for all subscribers is assumed to be the monthly average for the full-season renewal price because most DirecTV subscribers purchase that package. Later in estimating the counterfactual price for the bundle, the price can be adjusted for each consumer under the assumption that the proportionality between the early bird price and the price of each other package remains the same.

MLB.tv produced [redacted] viewing records among [redacted] unique subscribers for the 2012 season. All but [redacted] of these viewing records were for games played during the 2012 season. Records that pertained to customers who are not U.S. residents were removed from the data. All games that were played in 2012, including spring training and playoff games, were included, regardless of whether viewed live or on replay. Likewise, viewing records for all subscribers were used, regardless of which package (basic or premium, full or partial season) they purchased. The market share for MLB.tv was calculated as the ratio of MLB.tv subscribers to the number of households that viewed the 2012 World Series. The location of each subscriber was recorded in the data set, which permits matching subscribers to the home broadcast territories of teams.

The MLB.tv data do not record the time spent viewing, indicating only each time that a subscriber turned on a particular game. Many records report multiple viewing sessions for the same game. These sessions were combined to produce a single episode of viewing for that game on a particular day.[25] This procedure has the disadvantage of counting a double header as a single game, but because there are relatively few double headers, the error created by this procedure is small compared to the error in counting several viewing sessions of the same game as separate viewing episodes of different games.

Each viewing episode was recorded for both teams in the game. These data were then combined to determine the number of games for each team that each subscriber viewed. The mean viewing time for each team was estimated by multiplying the number of games viewed by the average viewing duration for that team in the DirecTV data.

In 2012 MLB.tv full season prices varied from $99.99 to $124.99, depending on whether a customer was new or old and whether the service was basic or premium. Because the package that had the most subscribers was the full-season premium package, the average monthly price for this package was used to estimate the econometric model for MLB.tv. Subsequently the effect of competition on prices can be calculated by assuming that each package would bear the same proportional relationship to this price.

NHL Internet data record the viewing time of each subscriber for each game that was viewed during the 2011-12 season, including replays of playoff games. The data set includes 4,166,577 records for 99,966 subscribers. The data also include the location of the subscriber.

The data included some subscribers from outside the U.S., so these records were dropped if the country code or the zip code was not U.S. In some cases, the total recorded viewing time was far longer than a game, sometimes stretching to several days. Hence, total viewing time for a

[25] Viewing a replay of a game on a day after it was played is counted as a separate viewing event from viewing the same game live.

game on a single day was capped at two hours and 40 minutes, which is the maximum possible length of a game that goes to a shoot-out.

Data were used for subscribers purchasing all of the live game packages other than the Day Pass,[26] and the market share of GameCenter Live was calculated as the number of subscribers to the service divided by the number of U.S. households that watched the Stanley Cup finals in 2012. While the packages had slightly different average monthly prices, the price that was used to estimate the econometric model was the average monthly early bird full-season price, which was the most popular of the packages offered by the NHL. In calculating the price effects of removing the restrictions, the prices for other packages can be estimated by assuming that they exhibit the same proportionality with the early bird season price.

Model Specification

The model is based on the decision process that a consumer faces in deciding whether to buy access to out-of-market games. In the counterfactual world without restrictions on out-of-market telecasts, a consumer could buy one or more RSNs individually, or buy the league package that includes all out-of-market games.

Assume that C channels in a given sport are available. A consumer who chooses a package of C channels must decide how much time to spend watching each channel j. Let T be the maximum total time that consumer i has available to watch channels in the purchased package. Then his constrained maximization problem can be written as:

$$\max_{\{t_i\}_j} u_i = \sum_{j \in C} \omega_{ij} \log(1 + t_{ij}) \quad (1)$$

[26] The individual team analog to Day Pass is pay-per-view, which is a qualitatively different product than one-day access to all NHL games. Thus, applying the results of an analysis of viewing patterns on Day Pass to pay-per-view of a single team is of dubious merit.

$$\text{such that } \sum_j t_{ij} \leq T \text{ and } t_{ij} \geq 0,$$

where u_i is the total utility from watching all channels in the bundle and ω_{ij} measures the intensity of subscriber i's preference for channel j. The package is assumed to include an outside option, noted by $j = 0$, which represents all alternative uses of time. A consumer will not watch a channel if the marginal utility of watching does not exceed the marginal value of free time. If λ_i is the marginal utility of time (the Lagrange multiplier on the consumer's time budget constraint), the solution for λ_i is given by:

$$\lambda_i = \frac{\sum_{j^+} \omega_{ij}}{T + C^+}$$

where j^+ denotes all channels, j, such that $t_{ij} > 0$ (including $j = 0$), and C^+ is the number of channels for which $t_{ij} > 0$.

Assuming that a consumer buys a package of channels, the number of channels that the consumer watches is determined in an iterative process that is based on the observation that $t_{ij} = 0$ if $\omega_{ij} < \lambda_i$. The iterative process begins by assuming that a consumer watches all channels in the package and then calculating an initial shadow value of time, $\lambda_i = \frac{\sum_j \omega_{ij}}{T+C}$. The next step is to check whether, for any channel j, the utility of watching a channel is less than the value of time, $\omega_{ij} < \lambda_i$. For each such j, the corresponding channel is removed from C^+. For the remaining channels in C^+, we recalculate $\lambda_i = \frac{\sum_{j^+} \omega_{ij}}{T+C^+}$, and go through the same procedure, checking whether $\omega_{ij} < \lambda_i$, dropping channels that satisfy this condition from C^+, recalculating λ_i, and so on. Continuing iteratively allows us to converge to the final group of channels for which $t_{ij} > 0$. The time spent watching each channel is:

$$t_{ij}^* = (T + C^+)\frac{\omega_{ij}}{\sum_{j^+} \omega_{ij}} - 1 \qquad (2)$$

for each $j \in C^+$ and is zero for the other channels.

This model is consistent with a range of preferences and behavior by consumers. A consumer who has a very strong taste for the New York Yankees ($\omega_{i,NYY}$ is large) and very weak tastes for all other teams (ω_{ij} is small for teams other than the Yankees) will not watch any channel that carries the games of teams for which the marginal utility of viewing the game is below the value of time ($\omega_{ij} < \lambda_i$). The share of time consumers devote to each channel that they do watch is proportional to their "preference share" for that channel ($\frac{\omega_{ij}}{\sum_{j^+} \omega_{ij}}$). Thus, a fan with a large $\omega_{i,NYY}$ and small ω_{ij} for all other teams (but large enough to watch) will watch the Yankees nearly all of the time. By comparison, fans of the game, rather than a team, will have similar values for many ω_{ij}s and will allocate viewing time more equally among channels.

Equation (2) gives the optimal allocation of viewing time among the j^+ channels. These viewing times can be plugged into equation (1) to calculate the consumer's overall utility from watching those channels. Denote this maximum achievable utility as u_i^*.

This basic model can be generalized to the case in which a consumer has a choice among different bundles of channels. Let the bundles of channels be indexed by b. Given the viewing preferences described above and the price for each bundle, the most general form of consumer i's utility from bundle b is $\gamma_i u_{ib}^* - \frac{1}{\alpha_i} p_b + \varepsilon_{ib}$, where u_{ib}^* is the utility from the optimal allocation of viewing time among the channels in the bundle, p_b is the price of the bundle, γ_i measures the utility of being able to access the bundle, α_i is the sensitivity of consumer i's utility to the price of the bundle, and ε_{ib} is a random variable that is drawn from a Type I extreme value (Gumbel) distribution that reflects factors influencing the consumer's decision to buy the bundle that are not observed, such as income, the quality of the customer's MVPD service or internet connection, or other features of the choice environment. The utility of not purchasing the bundle is the utility of spending all available time doing something other than watching the bundle, which is given by $\gamma_i u_{iout} + \varepsilon_{iout}$, where $u_{iout} = \omega_{i0} \log(1 + T)$.

Consumers will buy the bundle if doing so increases their utility, i.e., if:

$$\gamma_i u_{ib}^* - \frac{1}{\alpha_i} p_b + \varepsilon_{ib} > \gamma_i u_{iout} + \varepsilon_{iout}.$$

The probability of purchasing the bundle for some consumer i is given by the logit probability:

$$s_{ib} = \frac{\exp(\gamma_i u_{ib}^* - \frac{1}{\alpha_i} p_b)}{\exp(\gamma_i u_{out}) + \exp(\gamma_i u_{ib}^* - \frac{1}{\alpha_i} p_b)}.$$

Both γ_i and α_i are assumed to be randomly distributed among consumers according to the log-normal distribution, which captures heterogeneity among consumers in bundle utility and price sensitivity. In the academic literature, these are called random coefficients and the model is called a random coefficient logit (RCL) model.[27] The market shares of channels can be predicted by integrating the market shares of all consumers, s_{ib}:

$$s_b = \int \frac{\exp(\gamma_i u_{ib}^* - \frac{1}{\alpha_i} p_b)}{\exp(\gamma_i u_{out}) + \exp(\gamma_i u_{ib}^* - \frac{1}{\alpha_i} p_b)} f(\omega_i) f(\gamma_i) f(\alpha_i) d\omega_i d\gamma_i d\alpha_i.$$

Econometricians regard random coefficient logit models as the most flexible models to estimate demand. These models combine the best of the logit model—widespread familiarity and convenient functional form—with flexibility to fit important features of the data, such as market shares and markups. As explained in the next sub-section, the ability to specify distributions for random coefficients with long tails is important for fitting features of the data.

Estimation Procedures

The goal of the econometric estimation is to recover the distribution of consumer preferences for live telecasts of the games of each team (ω_{ij}) as well as consumer preferences for

[27] See Aviv Nevo, "A Practitioner's Guide to Estimation of Random Coefficient Logit Models of Demand," *Journal of Economics and Management Science* Vol. 9, No. 4 (2000), pp. 513-48.

viewership utility and price sensitivity, γ_i and α_i. To achieve this goal requires specifying the distributions of these consumer taste parameters in order to fit the model to data. The coefficients in the consumers' utility functions, ω_{ij}, that measure the utility of time spent watching team j, γ_i and α_i, are assumed to be distributed log-normally.[28] These distributional assumptions are motivated by features in the defendants' data.

The distribution of games watched across consumers in the defendants' data is highly skewed. Most subscribers watch a moderate number of games, but substantially more subscribers watch an inordinately large number of games than watch a few games. These features are well captured by specifying a log-normal distribution of preferences for each team. Similarly, assuming that γ_i and α_i each have a log-normal distribution helps to explain why individuals who watch very few games still purchase the bundle. A consumer who allocates very little time to watching games cannot derive much utility from viewership so must have a low value for u_{ib}^*. Consumers who do little viewing but who purchase a bundle at a price of over $100 per season must have either a very high utility from having access to the bundle (very high γ_i) or very low price sensitivity (very high α_i). These features are captured by a distribution of preferences with a long tail like the log-normal distribution. Low price sensitivity also equates with an inelastic demand curve for the bundle, implying a high profit margin, which is another feature of the defendants' prices as discussed in the *Noll Declaration* (pp. 80-84).

If a league has N teams, these distributional assumptions imply that the model must estimate $2N$ channel preference parameters (a mean and standard deviation) of the utility weight, ω_{ij}, for each team, plus two parameters each (mean and standard deviation) for the distributions of γ_i and α_i, for a total of 2N+4 parameters. The estimation method follows the generalized method of moments (GMM). The method starts with the assumption that a set of moment

[28] The value of ω_{i0} is normalized to equal 1 for all i, which is equivalent to assuming that $\mu_j = 0$ and $\sigma_j = 0$.

conditions, which are functions of the model parameters, are equal to 0 in expectation. The goal is to set the sample analogs of these moment conditions, calculated from the defendants' data, as close to 0 as possible. The data that are used for the moment conditions are the following:

- The means of viewing times for individual teams (N moments),
- The standard deviation of viewing times for individual teams (N moments),
- The market share for the bundle (1 moment), and
- The observed mark-up of the bundle over marginal cost (1 moment).

The total number of these moments for estimating 2N+4 parameters is only 2N+2, which means that the model is under-identified: not all of the parameters can be estimated unless other factors that cause variation in purchasing and viewing decisions are found. Typically another source of variation for identifying the parameters in the estimation is price, but in this circumstance the only price variation is associated with differences in the date and duration of a subscription. Observed variation in monthly average prices among bundles are small and, for bundles of different duration, pertain to bundles of out-of-market games that are qualitatively different, such as the difference between end-of-season games versus early season games. Thus, exploitation of price variation is not a viable approach to identify all of the parameters.

In the absence of another source of variation that can be exploited to estimate all of the parameters, two parameters must be restricted. The natural candidate is γ_i, the component of utility that is obtained by the act of subscribing to a bundle. Thus, γ_i is assumed to have a mean of one and a variance of zero, meaning that it neither increases nor decreases the utility that is derived from watching games for any consumer. Normalizing the value of γ_i to one is a common procedure in econometrics. Values of γ_i below one cause the importance of the value of viewing to be lower, and at γ_i = 0 the consumer's valuation of purchasing access to the bundle would be unrelated to viewing the channels in the bundle, which is an unrealistic assumption. Values of γ_i

substantially above one cause a lower competitive price of the bundle if the restrictions on out-of-market telecasts are removed. Thus, for calculating damages, the assumption that γ_i is distributed with a mean of one and a variance of zero is conservative.

In order to estimate the remaining 2N+2 model parameters, the 2N+2 values of variables that are calculated from the data are used to pick the remaining 2N+2 parameters in a fashion that maximizes the ability of the model to fit the data. Specifically, the assumed distributions of α_i, γ_i, and ω_{ij} for each team *j* are used to simulate utility functions for a sample of 10,000 consumers, and these simulated functions are used to calculate each consumer's optimal value of $\hat{t}_{ij}(\boldsymbol{\theta})$ for given values of $\boldsymbol{\theta}$, the parameters to be estimated. For example, the moment condition for the mean viewing time of New York Yankees games is $E[t_{NYY} - \hat{t}_{NYY}(\boldsymbol{\theta}) \mid \text{buy}] = 0$. Here, $E[\hat{t}_{NYY}(\boldsymbol{\theta}) \mid \text{buy}]$ is the simulated average value of t_{NYY} predicted by the model, which must be conditioned on the simulated consumers actually buying the bundle. Next, for the total number of consumers in the data, N, the sample analog of $E[t_{NYY}]$ is calculated as $\frac{1}{N}\sum_i t_{iNYY}$, where t_{iNYY} are observed viewing times.

The parameters are estimated by solving:

$$\widehat{\boldsymbol{\theta}} = \arg\min_{\boldsymbol{\theta}} \boldsymbol{G}(\boldsymbol{\theta})' W \boldsymbol{G}(\boldsymbol{\theta})$$

where $\boldsymbol{G}(\boldsymbol{\theta})$ is the vector of moment conditions and W is a weighting matrix. W is set equal to the identity matrix, and the objective function is minimized using the Nelder-Mead algorithm as implemented by the fminsearch function in MATLAB.

Counterfactual Calculations

The estimated consumer preference parameters can be used to estimate the prices of individual channels and bundles of channels, including the existing out-of-market bundles. The counterfactual calculations examine the effects on prices and output (subscriptions) if each team

and/or its RSN offers live game telecasts out of the team's home broadcast territory. To calculate the effect of removing the restrictions on out-of-market telecasts requires information about costs and demand. Profit-oriented businesses base pricing decisions on the perceived sensitivity of their demand to changes in price (i.e., price elasticity) and marginal (or incremental) costs. The shape of the demand relationship is derived from the econometric model of consumer preferences, discussed above.

Marginal Cost. In the context of television programming, marginal cost is the cost of adding one more viewer to a program, and is typically very small compared to price and average cost. The marginal cost of a product can be estimated from accounting cost data or, if the functional relationship between demand and price is known, can be inferred from actual prices. Because consumers of games in MLB and the NHL in the current market environment are allowed only to purchase either no out-of-market telecasts or the entire bundle of all out-of-market games, the pricing of each bundle can be modeled as a monopoly pricing problem.

If demand is characterized by a simple logit model with a constant coefficient of α on price, the inferred marginal costs for a bundle of out-of-market channels would be:

$$MC_b^{\text{logit}} = p_b - \frac{1}{\alpha(1 - s_b)}$$

where α is the sensitivity of demand to price and s_b is the market share of the bundle. This formula, while not directly applicable to the out-of-market bundles, is useful because it illustrates the key structure of the model described above: inferred marginal cost equals observed price less the markup, with the markup in a logit model given by $\frac{1}{\alpha(1-s_b)}$.

For the random coefficient logit model, the formula for the marginal cost of the bundle is more complicated:

$$MC_b^{\text{RCL}} = p_b - \frac{s_b}{\int \alpha_i s_{ib}(1 - s_{ib}) f(\omega_i) f(\alpha_i) d\omega_i d\alpha_i}$$

As in the simple logit case, the marginal cost of the bundle can be calculated from the estimates of consumer preferences and market shares. The marginal cost of each individual channel is estimated by dividing the bundle marginal cost by N, the number of teams in each league. Exhibit 4 reports the marginal costs of the bundles and of each separate team that are implied by this procedure. The estimated marginal costs for the bundles are the same as the marginal cost estimates that were derived from the cost data that were produced by the defendants and analyzed in the *Noll Declaration* (pp. 81-82), which in 2012 were [redacted] percent of revenues for MLB and [redacted] percent of revenues for the NHL.

Nature of Competition. The *Noll Declaration* adopted a simple model to characterize the nature of competition if the restrictions on out-of-market live telecasts were removed. Specifically, fans are assumed to be interested in buying either the out-of-market games of only one team, the bundle that includes all teams in the league, or nothing. Although this approach leads to an underestimate of the intensity of competition and hence the extent to which competition lowers prices, it is retained in the analysis in this declaration to provide a conservative lower bound estimate of damages. This assumption has no effect on whether damages can be calculated on a class-wide basis. Changing the model to allow more competition will cause all prices to change in the same way for all subscribers.

Implementation and Damages Calculations

The econometric models were estimated using all of the subscriber viewing data except for the Day Pass NHL customers. Exhibit 5 contains the monthly prices and market shares for each RSN if distributed outside of the corresponding team's home broadcast territory and the price of the bundle if there were no restrictions on out-of-market telecasts of live team games. Exhibit 5A reports the results for out-of-market Internet streaming of baseball games, Exhibit 5B

shows the results for out-of-market Internet streaming of hockey games, and Exhibit 5C reports the results for MLB Extra Innings on DirecTV. These results show the following fall in monthly prices for these three products: $4.63 (23.1 percent) for MLB.tv, $6.20 (23.6 percent) for NHL GameCenter LIVE, and $8.34 (24.8 percent) for MLB Extra Innings on DirecTV. The damages for each subscriber who bought the specific package that was used to estimate the econometric model are the actual amount by which the bundle price is lower with greater competition. For each subscriber to other packages (except NHL Day Pass), damages are the percentage reduction in the bundle price multiplied by the amount actually paid for that package.

Exhibit 6 shows the amount of damage for each of these services. The total damages for subscribers are $8,127,491 for MLB.tv (Exhibit 6A), $1,526,409 for GameCenter Live (Exhibit 6B), and $15,590,857 for DirecTV Extra Innings (Exhibit 6C).

For the Internet services, the range of monthly prices among the individual RSNs is similar, with nearly all monthly prices between $8 and $9. The monthly DirecTV MLB Extra Innings prices for each RSN are typically $3 to $4 higher than the Internet streaming prices. In most cases the single channel monthly prices are between 35 and 45 percent of the actual monthly price of the bundle. Thus, consumers who switched from the bundle to a single channel carrying their favorite team experienced a larger cost saving than the fall in the price of the league-wide bundle; however, this additional saving is not included in the damages calculation. Nevertheless, the preference of these consumers for a single channel means that giving fans more choices by eliminating the prohibition against out-of-market telecasts would make them better off than had they purchased the bundle at a lower price after the restrictions were removed.

The market shares demonstrate that the elimination of territorial broadcasting rights would have a very large effect on output. In 2012, the market shares for the bundles were [redacted] percent for MLB.tv, 1.66 percent for NHL GameCenter LIVE, and [redacted] percent for MLB Extra

Innings on DirecTV. In each case this market share is lower in the competitive counterfactual with out-of-market broadcast restrictions removed, but the changes are not large. The loss in bundle market share is 0.11 percent for MLB.tv, 0.12 percent for GameCenter LIVE, and 0.10 percent for DirecTV Extra Innings. These results show that, for the league bundles, the gain in the number of subscribers from cutting the price is almost sufficient to offset the loss of subscribers due to switching to single channels by some existing subscribers.

By comparison, the sums of the market shares of each RSN are between 40 and 70 times larger than the loss to the bundle: 7.61 percent for MLB.tv, 4.88 for GameCenter Live, and 6.15 percent for DirecTV Extra Innings. This large increase in the total market shares of all forms of out-of-market telecasts measures an anticompetitive effect of prohibiting out-of-market live game telecasts by teams. Such an effect is not surprising as the reduction in price for consumers who seek access only to their favorite team is huge, typically in the range of 60 percent.

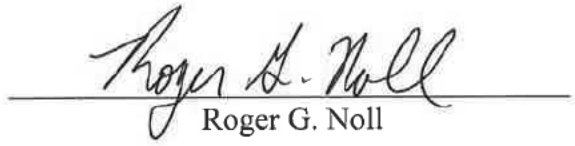
Finally, these prices and market shares are sufficient to make all of the out-of-market services – individual team/RSN and league bundle – profitable and so worthwhile to offer. Recall that the existing profit margins of the league out-of-market packages are in the range of [redacted], and the largest price reduction for the league bundle in Exhibit 5 is 25 percent for DirecTV MLB Extra Innings. Thus, a price cut of this magnitude will still leave these products with operating margins of over [redacted]. For the bundle with the lowest price – MLB.tv – the net operating profit per subscriber after the price reductions from greater competition is $12 per month. In the counterfactual case, MLB.tv will continue to have over 400,000 subscribers, so that terminating MLB.tv would cost MLB tens of millions of dollars per year in profit.

The market shares that teams would capture if the prohibition on out-of-market telecasts were eliminated range between 0.1 and 0.4 percent for all but a few teams, which implies at least tens of thousands of subscribers. Because these channels already are distributed as part of the

league-wide package, the marginal cost of these subscribers is extremely low, so even a team and its RSN at the low end of national market shares and monthly prices can earn more than half a million dollars in profit from selling out-of-market access to its games. The incremental profits of allowing national distribution have been calculated for each team in Exhibit 5, and in all cases the profit of the team and its RSN is higher if it distributes its live games nationally. And these figures do not include all distribution systems, as the analysis does not include Comcast or, for the NHL, DirecTV. Thus, teams and their RSNs would sacrifice profits if they did not take advantage of the opportunity to distribute live games out of market.

The results of the econometric model demonstrate that, if the prohibitions against out-of-market live game telecasts by teams were removed, teams would participate in their league-wide bundle as well as allow their RSN to offer their games nationally. The analysis involves a comparison between overall industry profits with the bundle included in the market versus overall industry profits without the bundle, assuming that all teams offer their games nationally. If industry profits are greater with the bundle than without, teams would prefer to participate in the bundle in order to earn their shares of the incremental profits. Exhibit 7 reports the industry profit comparison for the three models – MLB.tv, NHL GameCenter Live, and DirecTV Extra Innings. In all three cases, industry profits increase when the bundle is offered, which implies that teams would indeed prefer to participate in a league-wide bundle even if they also offer their own nationwide telecasts of live games.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.



Roger G. Noll

Executed at Stanford, California, September 19, 2014.

Exhibit 1A. Pricing for MLB.tv Subscriptions for 2012 MLB Season[1]

	Premium			Basic			
MLB.tv (2012)	**Upfront**	**Per month**	**Subscribers**	**Upfront**	**Per month**	**Subscribers**	**Total subscribers**
Full season - renewing customer	$119.99	$20.05	[redacted]	$99.99	$16.71	[redacted]	[redacted]
Full season - new customer	$124.99	$20.89	[redacted]	$109.99	$18.38	[redacted]	[redacted]
Half-season - May	$114.99	$23.01	[redacted]	$99.99	$20.01	[redacted]	[redacted]
Half-season - July	$79.99	$25.34	[redacted]	$64.99	$20.59	[redacted]	[redacted]
Race to Pennant - August	$49.99	$24.14	[redacted]	$39.99	$19.31	[redacted]	[redacted]
Race to Pennant - two-day sale late August	$10.00	$8.00	[redacted]	N/A	N/A	[redacted]	[redacted]
Race to Pennant - mid September	$9.99	$15.99	[redacted]	N/A	N/A	[redacted]	[redacted]
Race to Pennant - late September	$3.99	$24.27	[redacted]	N/A	N/A	[redacted]	[redacted]
Monthly installments	N/A	$24.99	[redacted]	N/A	$19.99	[redacted]	[redacted]
Other[2]	47 other prices						[redacted]
Total subscribers							[redacted]

Source: MLB.tv viewership data; Bates White analysis.

[1] The average per-month price is based on the length of the regular season, prorated to the equivalent number of months plus any fraction of a month. For instance, for renewing subscribers to the full-season MLB.tv package, the denominator in the calculation of the per-month price is 182 days (April 4, 2012 – October 3, 2012), or the equivalent of 5.98 months. Therefore, the per-month price for those who purchased the "Full season - renewing customer" is $119.99 divided by 5.98, or $20.05. Recognizing that some spring training games and replays of playoff games are available to package subscribers, only regular season games are included in the calculation of the per-month price.

[2] Other prices in the MLB.tv viewership data range from $0.99 (purchased by [redacted] customers between July and September) to $6,300 (purchased by one customer in July).

Exhibit 1B. Pricing for GameCenter LIVE Subscriptions for 2011-12 NHL Season[3]

NHL GameCenter LIVE (2011-12)	Upfront	Per month	Subscribers
Early Bird - October	$159.00	$26.28	[redacted]
Regular Season - November	$169.00	$32.53	[redacted]
Half-Season - January	$119.00	$37.32	[redacted]
Race to Cup - Mid-February	$79.00	$45.34	[redacted]
Other[5]	47 other prices		[redacted]
Total subscribers			[redacted]

Source: NHL1425786; NHL GameCenter LIVE viewership data; Bates White analysis.

3 The average per-month price is based on the length of the regular season, prorated to the equivalent number of months plus any fraction of a month. For instance, for subscribers to the Early Bird NHL GameCenter LIVE package, the denominator in the calculation of the per-month price is 184 days (October 6, 2011 – April 7, 2012), or the equivalent of 5.98 months. Therefore, the per-month price for those who purchased the Early Bird package is $159.00 divided by 6.05, or $26.28. Recognizing that some playoff games are available to package subscribers, only regular season games are included in the calculation of the per-month price.

4 The NHL GameCenter LIVE subscription includes access to playback of postseason games.

5 Other prices in the NHL GameCenter LIVE viewership data range from $4.45 to $179.14.

Exhibit 2A. Pricing for MLB Extra Innings Subscriptions through Comcast, 2006-2012[6]

	Early Bird (6 months)			Full season (6 months)			Half-Season (4 months)			Race to Pennant (2 months)			
MLB Extra Innings	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Total subscribers**
2006	$159.00	$26.50	[redacted]	$179.00	$29.83	[redacted]	$129.00	$32.25	[redacted]	$49.00	$24.50	[redacted]	[redacted]
2007	$159.00	$26.50	[redacted]	$199.00	$33.17	[redacted]	$129.00	$32.25	[redacted]	$59.00	$29.50	[redacted]	[redacted]
2008	$159.00	$26.50	[redacted]	$199.00	$33.17	[redacted]	$129.00	$32.25	[redacted]	$59.00	$29.50	[redacted]	[redacted]
2009	$169.00	$28.17	[redacted]	$199.00	$33.17	[redacted]	$139.00	$34.75	[redacted]	$69.00	$34.50	[redacted]	[redacted]
2010	$179.00	$29.83	[redacted]	$199.00	$33.17	[redacted]	$139.00	$34.75	[redacted]	$69.00	$34.50	[redacted]	[redacted]
2011	$179.00	$29.83	[redacted]	$199.00	$33.17	[redacted]	$139.00	$34.75	[redacted]	$69.00	$34.50	[redacted]	[redacted]
2012	$179.00	$29.83	[redacted]	$199.00	$33.17	[redacted]	$139.00	$34.75	[redacted]	$79.00	$39.50	[redacted]	[redacted]

Source: COM-00063011.

[6] Both MLB Extra Innings and NHL Center Ice subscriptions include regular season games only.

Exhibit 2B. Pricing for NHL Center Ice Subscriptions through Comcast, 2006-2012[7]

	Early Bird (6 months)			Full season (5 months)			Half-Season (3 months)			Race to Cup (2 months)			
NHL Center Ice	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Total subscribers**
2006-07	$149.00	$24.83	[redacted]	$169.00	$33.80	[redacted]	$119.00	$39.67	[redacted]	$49.00	$24.50	[redacted]	[redacted]
2007-08	$149.00	$24.83	[redacted]	$169.00	$33.80	[redacted]	$119.00	$39.67	[redacted]	$59.00	$29.50	[redacted]	[redacted]
2008-09	$159.00	$26.50	[redacted]	$169.00	$33.80	[redacted]	$119.00	$39.67	[redacted]	$79.00	$39.50	[redacted]	[redacted]
2009-10	$163.80	$27.30	[redacted]	$171.80	$34.36	[redacted]	$119.80	$39.93	[redacted]	$79.90	$39.95	[redacted]	[redacted]
2010-11	$172.00	$28.67	[redacted]	$180.00	$36.00	[redacted]	$124.00	$41.33	[redacted]	$80.00	$40.00	[redacted]	[redacted]
2011-12	$172.00	$28.67	[redacted]	$180.00	$36.00	[redacted]	$124.00	$41.33	[redacted]	$80.00	$40.00	[redacted]	[redacted]

Source: COM-00063011

[7] Both MLB Extra Innings and NHL Center Ice subscriptions include regular season games only.

Exhibit 3A. Pricing for MLB Extra Innings Subscriptions through DirecTV, 2005-2012

	Renewal (6.25 months)			Early Bird (6.25 months)			Regular season (6.25 months)			Telemarketing (6.25 months)			Half-Season (3.25 months)			Race to Pennant (1.25 months)				
MLB Extra Innings	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Subs at other prices**	**Total subs**
2005	$139.00	$22.24	[redacted]	$149.00	$23.84	[redacted]	$169.00	$27.04	[redacted]	NA	NA	[redacted]	$119.00	$36.62	[redacted]	$49.00	$39.20	[redacted]	93	[redacted]
2006	$149.00	$23.84	[redacted]	$159.00	$25.44	[redacted]	$179.00	$28.64	[redacted]		NA	[redacted]	$129.00	$39.69	[redacted]	$49.00	$39.20	[redacted]	68	[redacted]
2007	$159.96	$25.59	[redacted]	$159.96	$25.59	[redacted]	$199.96	$31.99	[redacted]		NA	[redacted]	$129.00	$39.69	[redacted]	$59.00	$47.20	[redacted]	11,369	[redacted]
2008	$169.00	$27.04	[redacted]	$179.00	$28.64	[redacted]	$199.00	$31.84	[redacted]		NA	[redacted]	$129.00	$39.69	[redacted]	$59.00	$47.20	[redacted]	14,154	[redacted]
2009	$179.00	$28.64	[redacted]	$189.00	$30.24	[redacted]	$209.00	$33.44	[redacted]		NA	[redacted]	$139.00	$42.77	[redacted]	$69.00	$55.20	[redacted]	25,073	[redacted]
2010	$191.94	$30.71	[redacted]	$199.96	$31.99	[redacted]	$211.96	$33.91	[redacted]	$179.97	$28.80	[redacted]	$139.96	$43.06	[redacted]	$69.99	$55.99	[redacted]	13,052	[redacted]
2011	$203.94	$32.63	[redacted]	$209.94	$33.59	[redacted]	$219.96	$35.19	[redacted]	$194.97	$31.20	[redacted]	$139.96	$43.06	[redacted]	$69.99	$55.99	[redacted]	29,192	[redacted]
2012[8]	$209.94	$33.59	[redacted]	$215.94	$34.55	[redacted]	$223.96	$35.83	[redacted]	$209.97	$33.60	[redacted]	$139.96	$43.06	[redacted]	$69.99	$55.99	[redacted]	28,000	[redacted]

Source: DTV-SP0046513.

[8] Represent internal DirecTV forecasts.

Exhibit 3B. Pricing for NHL Center Ice Subscriptions through DirecTV, 2005-2013

	Renewal (7.5 months)			Early Bird (7.5 months)			Regular season (5.5 months)			Half-Season (3.5 months)			Race to Cup (2.5 months)				
NHL Center Ice	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Upfront**	**Per month**	**Subs**	**Subs at other prices**	**Total subs**
2005-06	N/A	N/A	[redacted]	$129.00	$17.20	[redacted]	$159.00	$28.91	[redacted]	$109.00	$31.14	[redacted]	$49.00	$19.60	[redacted]	53	[redacted]
2006-07	$149.00	$19.87	[redacted]	$149.00	$19.87	[redacted]	$169.00	$30.73	[redacted]	$119.00	$34.00	[redacted]	$49.00	$19.60	[redacted]	132	[redacted]
2007-08	$149.00	$19.87	[redacted]	$149.00	$19.87	[redacted]	$169.00	$30.73	[redacted]	$119.00	$34.00	[redacted]	$59.00	$23.60	[redacted]	562	[redacted]
2008-09	$159.00	$21.20	[redacted]	$159.00	$21.20	[redacted]	$169.00	$30.73	[redacted]	$119.00	$34.00	[redacted]	$79.00	$31.60	[redacted]	656	[redacted]
2009-10	$163.80	$21.84	[redacted]	$163.80	$21.84	[redacted]	$171.80	$31.24	[redacted]	$119.80	$34.23	[redacted]	$79.90	$31.96	[redacted]	24,981	[redacted]
2010-11	$171.80	$22.91	[redacted]	$171.80	$22.91	[redacted]	$179.80	$32.69	[redacted]	$123.80	$35.37	[redacted]	$79.90	$31.96	[redacted]	26,700	[redacted]
2011-12[9]	$171.80	$22.91	[redacted]	$171.80	$22.91	[redacted]	$179.80	$32.69	[redacted]	$123.80	$35.37	[redacted]	$79.90	$31.96	[redacted]	26,000	[redacted]
2012-13[10]	$171.80	$22.91	[redacted]	$171.80	$22.91	[redacted]	$179.80	$32.69	[redacted]	$123.80	$35.37	[redacted]	$79.90	$31.96	[redacted]	26,000	[redacted]

Source: DTV-SP0046513

[9] Represent internal DirecTV forecasts.

[10] Represent internal DirecTV forecasts; data on the number of subscribers during the 2012-2013 partial season has not been made available.

Exhibit 4. Marginal Costs Estimated from Models, in Dollars

	MLB.tv	**NHL GameCenter Live**	**DIRECTV**
Bundle price	[redacted]	$26.28	[redacted]
Bundle cost	[redacted]	$4.70	[redacted]
Per-Team cost	[redacted]	$0.16	[redacted]

Exhibit 5A. MLB Counterfactual Internet Streaming Prices and Market Shares

Team	Price (per month)	Market Share
Angels	$8.15	0.26%
Astros	$8.17	0.06%
Athletics	$8.31	0.22%
Blue Jays	$8.67	0.17%
Braves	$8.39	0.50%
Brewers	$8.37	0.12%
Cardinals	$8.34	0.40%
Cubs	$8.17	0.18%
Diamondbacks	$8.59	0.14%
Dodgers	$8.41	0.45%
Giants	$8.64	0.34%
Indians	$8.38	0.16%
Mariners	$8.43	0.18%
Marlins	$9.13	0.11%
Mets	$8.54	0.24%
Nationals	$7.93	0.19%
Orioles	$8.53	0.25%
Padres	$8.36	0.14%
Phillies	$8.76	0.36%
Pirates	$8.76	0.16%
Rangers	$8.20	0.21%
Rays	$8.46	0.21%
Red Sox	$8.88	0.48%
Reds	$8.64	0.21%
Rockies	$8.00	0.15%
Royals	$8.75	0.12%
Tigers	$8.74	0.34%
Twins	$8.71	0.17%
White Sox	$7.79	0.22%
Yankees	$8.57	0.86%
Bundle	$15.42	3.50%
Total share		11.11%
Original bundle	$20.05	3.61%

Exhibit 5B. NHL Counterfactual Internet Streaming Prices and Market Shares

Team	Price (per month)	Market Share
Ducks	$7.41	0.15%
Bruins	$7.88	0.21%
Sabres	$8.13	0.20%
Hurricanes	$9.16	0.12%
Flames	$7.82	0.15%
Blackhawks	$8.39	0.19%
Blue Jackets	$8.14	0.12%
Avalanche	$7.74	0.14%
Stars	$8.57	0.10%
Red Wings	$8.17	0.24%
Oilers	$9.11	0.13%
Panthers	$7.72	0.14%
Kings	$8.57	0.18%
Wild	$8.81	0.10%
Canadians	$8.63	0.12%
Devils	$8.16	0.19%
Predators	$8.74	0.13%
Islanders	$9.47	0.13%
Rangers	$8.65	0.16%
Senators	$8.52	0.14%
Flyers	$8.48	0.27%
Coyotes	$7.52	0.15%
Penguins	$9.01	0.23%
Sharks	$7.94	0.20%
Blues	$8.49	0.19%
Lightning	$8.22	0.11%
Maple Leafs	$7.61	0.16%
Canucks	$8.64	0.22%
Jets	$8.23	0.17%
Capitals	$8.62	0.14%
Bundle	$20.08	1.54%
Total share		6.42%
Original bundle	$26.28	1.66%

Exhibit 5C. DirecTV Counterfactual Prices and Market Shares for Baseball

Team	Price (per month)	Market Share
Angels	$11.76	0.20%
Astros	$11.13	0.12%
Athletics	$11.71	0.16%
Blue Jays	$12.71	0.19%
Braves	$12.29	0.37%
Brewers	$12.28	0.10%
Cardinals	$11.89	0.25%
Cubs	$12.20	0.17%
Diamondbacks	$13.01	0.10%
Dodgers	$12.15	0.33%
Giants	$12.42	0.17%
Indians	$11.82	0.16%
Mariners	$14.00	0.11%
Marlins	$14.00	0.11%
Mets	$12.65	0.21%
Nationals	$11.82	0.20%
Orioles	$12.83	0.24%
Padres	$13.33	0.13%
Phillies	$13.35	0.26%
Pirates	$12.28	0.16%
Rangers	$12.06	0.18%
Rays	$11.57	0.25%
Red Sox	$13.26	0.28%
Reds	$12.46	0.20%
Rockies	$11.87	0.14%
Royals	$12.49	0.14%
Tigers	$11.66	0.23%
Twins	$12.67	0.16%
White Sox	$11.85	0.21%
Yankees	$12.40	0.60%
Bundle	$25.25	2.49%
Total share		8.64%
Original bundle	$33.59	2.59%

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Exhibit 6A. MLB.tv Damages Estimates (2012)

Package	Overcharge per subscriber	Number of subscribers	Total
Renewal (Premium)	$27.71	[redacted]	[redacted]
Full Season (Premium)	$28.86	[redacted]	[redacted]
Half-season - May (Premium)	$26.55	[redacted]	[redacted]
Half-season - July (Premium)	$18.47	[redacted]	[redacted]
Race to Pennant - August (Premium)	$11.54	[redacted]	[redacted]
Race to Pennant - two-day sale late August (Premium)	$2.31	[redacted]	[redacted]
Race to Pennant - mid September (Premium)	$2.31	[redacted]	[redacted]
Race to Pennant - late September (Premium)	$0.92	[redacted]	[redacted]
Monthly installments (Premium)	$5.77	[redacted]	[redacted]
Renewal (Basic)	$23.09	[redacted]	[redacted]
Full Season (Basic)	$25.40	[redacted]	[redacted]
Half-season - May (Basic)	$23.09	[redacted]	[redacted]
Half-season - July (Basic)	$15.01	[redacted]	[redacted]
Race to Pennant - August (Basic)	$9.23	[redacted]	[redacted]
Monthly installments (Basic)	$4.62	[redacted]	[redacted]
Other		[redacted]	[redacted]
Total		[redacted]	[redacted]

Exhibit 6B. NHL Damages Estimates (2011-2012)

Package	Overcharge per subscriber	Number of subscribers	Total
Early Bird	$37.58	[redacted]	[redacted]
Full Season	$39.80	[redacted]	[redacted]
Half Season	$27.95	[redacted]	[redacted]
Race to Cup	$18.71	[redacted]	[redacted]
Other[11]		[redacted]	[redacted]
Total		[redacted]	[redacted]

11 Subscribers to the "Vault" package have been removed for the purpose of calculating damages for NHL GameCenter LIVE.

Exhibit 6C. DirecTV Damages Estimates (2012)

Package	Overcharge per subscriber	Number of subscribers	Total
Renewal	$52.13	[redacted]	[redacted]
Early Bird	$53.62	[redacted]	[redacted]
Full Season	$55.61	[redacted]	[redacted]
Telemarketing Full Season	$52.13	[redacted]	[redacted]
Half Season	$34.75	[redacted]	[redacted]
Race to Pennant	$17.38	[redacted]	[redacted]
Other	NA	[redacted]	[redacted]
Total		[redacted]	[redacted]

Exhibit 7. Industry Profits with and without Bundle, in Dollars

	With bundle	**Without bundle**
MLB.tv	$13,514,793	$9,442,800
NHL GameCenter Live	$1,909,970	$1,358,172
DIRECTV	$15,790,723	$11,105,500

Appendix A

Bates No.	**File Name or Description**
n/a	[redacted]
COM-00000651	[redacted]
COM-00000693	[redacted]
COM-00063012	[redacted]
COM-00063141	[redacted]
COM-00090372	[redacted]
COM-00090373	[redacted]
COM-00016667	[redacted]
DTV-SP0000009	[redacted]
DTV-SP0000017	[redacted]
DTV-SP0001208	[redacted]
DTV-SP0032092	[redacted]
DTV-SP0036928	[redacted]
DTV-SP0046513	[redacted]
DTV-SP0049958	[redacted]
DTV-SP0049959	[redacted]
DTV-SP0049960	[redacted]
DTV-SP0049961	[redacted]
DTV-SP0049962	[redacted]
DTV-SP0049963	[redacted]
DTV-SP0049964	[redacted]
DTV-SP0049965	[redacted]
DTV-SP0053364	[redacted]
DTV-SP0057606	[redacted]
DTV-SP0062171	[redacted]
DTV-SP0066358	[redacted]
DTV-SP0070034	[redacted]
DTV-SP0071856	[redacted]
DTV-SP0075501	[redacted]
DTV-SP0077304	[redacted]
DTV-SP0078896	[redacted]
DTV-SP0081748	[redacted]
DTV-SP0081749	[redacted]
DTV-SP0081750	[redacted]
DTV-SP0081751	[redacted]
DTV-SP0081752	[redacted]
DTV-SP0081753	[redacted]
DTV-SP0081754	[redacted]
DTV-SP0081755	[redacted]

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DTV-SP0081758	[redacted]
DTV-SP0081759	[redacted]
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DTV-SP0081779	[redacted]
DTV-SP0090017	[redacted]
DTV-SP0310943	[redacted]
DTV-SP0310946	[redacted]
MLB0000083	[redacted]
MLB0002722	[redacted]
MLB0082566	[redacted]
MLB0350844	[redacted]
NHL363112	[redacted]

CERTIFICATE OF SERVICE

I, Jeffrey B. Dubner, an attorney admitted to practice in this District, hereby certify that on September 19, 2014, I caused true copies of the Supplemental Declaration of Roger G. Noll to be served by electronic mail upon counsel for Defendants at the email addresses listed below:

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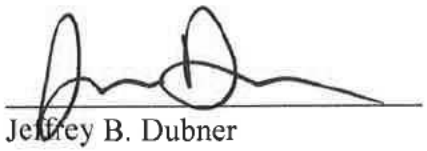
Dated: September 19, 2014



Jeffrey B. Dubner