

CONTAINS MATERIALS DESIGNATED AS HIGHLY CONFIDENTIAL PER PROTECTIVE ORDER

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

IN RE: ELECTRONIC BOOKS ANTITRUST
LITIGATION

No. 11-md-02293 (DLC)
ECF Case

THE STATE OF TEXAS, et al.,
Plaintiffs

v.

No. 12-cv-03394 (DLC)
ECF CASE

PENGUIN GROUP (USA), INC., et al.,
Defendants

**Sur-Reply Declaration of Jonathan Orszag in Response to Reply Declaration of
Roger G. Noll and in Support of Defendant Apple Inc.'s Consolidated
Memorandum of Law in Opposition to Class Plaintiffs' and Plaintiff States'
Motions to Exclude Expert Opinions Offered by Jonathan Orszag**

January 21, 2014

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I. Assignment and Summary of Conclusions

1. My name is Jonathan Orszag. I previously submitted a declaration in this matter on November 15, 2013 and a corrected declaration on November 25, 2013.¹
2. I have been asked by counsel for Apple Inc. (“Apple”) to review the Reply Declaration of Roger G. Noll submitted on behalf of Plaintiffs in this matter and to assess and respond to unanticipated, new opinions put forward by Professor Noll.² In addition, I include responses to the two memoranda of law in support of Plaintiffs’ motions to exclude certain testimony of mine.³
3. Professor Noll proffers several new arguments and claims in response to the analysis I presented in my initial declaration. Based on my analysis of the new arguments put forward by Professor Noll, I have reached the following conclusions:⁴
 - *Professor Noll’s new econometric analysis suffers from the same problems I identified in my initial declaration and is unsupported by the economics literature and standard econometric practice.* Specifically, Professor Noll’s econometric approach relies heavily on identifying an appropriate control group and assuming that the products in the control group (e-books published by non-Publisher Defendants) respond in the same way to market stimulus as do products in the treatment group (e-books published by Publisher Defendants). Professor Noll has undertaken no analysis to demonstrate that such conditions are met in this case, nor has he rebutted my finding that the results are sensitive to the definition of the control group. Notably, Professor Noll’s approach is inconsistent with the testimony of both Professor Ashenfelter and Professor Gilbert, both of whom previously testified on behalf of Plaintiffs in the first phase of this matter.

¹ See Declaration of Jonathan Orszag, November 15, 2013, and Corrected Declaration of Jonathan Orszag, November 25, 2013 (hereinafter, *Orszag Declaration*, or my initial declaration). See also Deposition of Jonathan Orszag, December 7, 2013 (hereinafter, *Orszag Deposition*). My qualifications and terms of compensation are set forth in the *Orszag Declaration*, Section I.

² See Reply Declaration of Roger G. Noll, December 18, 2013 (hereinafter, *Noll Reply*). See also Corrected Declaration of Roger G. Noll, October 18, 2013 (hereinafter, *Noll Declaration*); and Deposition of Roger G. Noll, November 1, 2013 (hereinafter, *Noll Deposition*).

³ See Memorandum of Law in Support of Class Plaintiffs’ Motion to Exclude the Expert Opinions Offered by Apple’s Expert Jonathan Orszag, December 18, 2013 (hereinafter, *Class Plaintiffs’ Motion*); and Plaintiff States’ Memorandum of Law in Support of Their Motion to Exclude Opinions Offered by Jonathan Orszag, December 18, 2013 (hereinafter, *States Plaintiffs’ Motion*).

⁴ I understand that Professor Kalt is addressing Professor Noll’s statements as they pertain to Professor Kalt’s opinions. See Sur-Reply Report in Response to Reply Declaration of Roger G. Noll and Declaration in Support of Defendant Apple Inc.’s Memorandum of Law in Opposition to Class Plaintiffs’ Motion to Exclude Expert Opinions Offered by Dr. Joseph Kalt, Joseph P. Kalt, Ph.D., January 21, 2014 (hereinafter, *Kalt Sur-Reply*).

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- *Professor Noll's new economic analyses of device prices are incorrect.* While Professor Noll appears to agree that an increase in e-book prices creates incentives for retailers to reduce device prices to the benefit of consumers, he asserts that, as a matter of economics, such decreases in device prices should not be considered for the purposes of assessing consumer harm. Professor Noll's claim is based on incorrect economic analysis and is inconsistent with the economic literature. In fact, his own analysis demonstrates that accurate estimates of consumer harm must incorporate the impact of the alleged conspiracy on device prices, which Professor Noll agrees are inextricably linked with e-book prices. In addition, Professor Noll ignores other incentives faced by retailers identified in my initial declaration and misunderstands the data I relied upon in the quantification of damages.
- *Professor Noll's new analyses of other offsetting effects are based on an incomplete reading of the record and reflect a lack of understanding of the e-book industry.* In addition, Professor Noll's new analyses continue to ignore other offsetting effects identified in my initial declaration.

None of the new opinions in the *Noll Reply* causes me to alter the conclusions that I reached in my initial declaration.

4. In the following sections, I describe in more detail the facts and analyses that lead to these conclusions. In Section II, I consider Professor Noll's new econometric arguments related to the change in e-book prices during the damages period. In Section III, I consider Professor Noll's new theories and critiques related to my analysis of device prices and the resulting offsetting effect on damages. In Section IV, I consider Professor Noll's new arguments related to other offsetting effects identified in my initial declaration but not quantitatively included in my damages calculations. In Section V (and Appendix C), I present updated damages calculations after incorporating Professor Noll's new econometric analysis. My updated *curriculum vitae*, including prior testimony, is included as Appendix A and a list of the materials I have relied on in forming my opinions is included as Appendix B. Although I do not attempt to respond to every point raised by Professor Noll, I note that in several places Professor Noll mischaracterizes my testimony and asserts that I made arguments that I did not make. I include a list of these mischaracterizations in Appendix D. My opinions and estimates may be revised in light of any new evidence that may emerge. I, therefore, reserve the right to incorporate such evidence into my analysis.

II. Professor Noll's New Econometric Analyses

5. Professor Noll presents new econometric analyses that reduce his estimate of damages. I first consider the impact of Professor Noll's new approach on the econometric specifications that I presented in my initial declaration. I then address Professor Noll's new arguments and critiques related to my econometric analysis and demonstrate why they are unfounded.

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A. Updated results based on Professor Noll's new econometric approach are similar

6. In the *Noll Reply*, Professor Noll presents a new, "preferred" econometric model of e-book prices to estimate damages.⁵ In his initial econometric analysis, Professor Noll first created four-week average prices for each title and then used these average prices as the unit of observation. In his new econometric analysis, Professor Noll no longer relies on four-week averages but continues to rely on average overcharges for each category.⁶ The change in the unit of observation reduces Professor Noll's estimated damages by nine percent – from \$308 million to \$280 million (\$263 million after excluding consumers whose location is "unidentified").⁷
7. Professor Noll's new approach does not address the fundamental flaws in his econometric model that I identified in my previous declaration. Therefore, I have rerun the regression analyses that I presented in my initial declaration using Professor Noll's new approach, which results in only minor changes to my estimates.^{8,9} In the regression in which I limit the analysis to the Big 6 publishers (following Professor Ashenfelter's approach) and make no other changes, the average estimated effect increases from 14.9 percent to 16.5 percent (excluding the other factors described in Sections VI and VII of my initial declaration). In the regression in which I follow Professor Ashenfelter's approach of limiting the pre-period to 24 weeks prior to April 1, 2010 and limiting the post-period to 24 weeks after April 1, 2010, the average estimated effect decreases from 15.5 percent to 15.1 percent (again, excluding the other factors described below and in my initial declaration). In the regression in which I include one year of data following April 1, 2010 and exclude data from the first

⁵ *Noll Reply* at 4-7.

Professor Noll's preferred model uses a different weighting scheme than the analysis in his initial declaration. In the analysis in which Professor Noll uses four-week average prices, he applies fixed quantity weights by title-retailer combination (i.e., each observation for a given title receives the same weight). In his preferred approach, Professor Noll argues that fixed quantity weights are "unnecessary" because "greater quantities are reflected in a larger number of transactions." (*Noll Reply* at 16-17.)

⁶ For a more complete discussion of this issue, see *Kalt Sur-Reply*, Section II.A.

⁷ *Noll Reply* at 5-6. In Exhibit 3 to the *Noll Reply*, Professor Noll shows \$17.7 million in damages for customers whose location is "unidentified" and therefore cannot be confirmed as U.S. residents, much less as residents of a specific U.S. state. Professor Noll continues to assume, incorrectly, that these represent sales to U.S. residents temporarily living abroad. See *Orszag Declaration*, ¶124 and note 227.

⁸ It is unclear what Professor Noll means when he states that the new approach requires a "super-computer." (*Noll Reply* at 17.) All that his new approach requires is a computer that possesses sufficient RAM (approximately one terabyte) to handle a large number of observations. Such computer hardware can readily be purchased from several manufacturers.

⁹ In addition to his preferred approach, Professor Noll also presents regression analysis that uses weekly average prices for each e-book title. (*Noll Reply* at 5-6.) For completeness, I include in the backup to this report the results of rerunning the regression analyses from my initial declaration using this level of aggregation. The results are quite similar to the estimates discussed in this paragraph.

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quarter of 2010, the average estimated effect increases from 14.2 percent to 14.3 percent (ignoring the other factors described below and in my initial declaration).¹⁰ The average of these estimates increases from 14.9 to 15.3 percent. In Section V, I consider the impact of these changes on aggregate damages.

B. Professor Noll's new arguments and critiques of my econometric analysis are unfounded

8. Professor Noll presents a new argument based on the general claim that “[a] core principle of econometric analysis is that using more data normally increases the reliability of a regression model and excluding some data normally amounts to throwing away valuable information.”¹¹ He then addresses specific modeling choices regarding the appropriate construction of a “control group” and the appropriate time periods from which to draw data. I address each of these arguments in turn.
9. Standard econometrics textbooks contain many examples in which it is preferable *not* to include additional data in an econometric model. For example, it is generally viewed as inappropriate to include extraneous explanatory variables in a regression simply because doing so would add more data to the analysis.¹² Rather, the appropriate explanatory variables must be derived from coherent economic analysis that defines the relationships between dependent and explanatory variables.¹³
10. Similarly, in the context of difference-in-differences regression techniques of the type used by Professor Noll, the economics literature cautions against exactly the sort of approach that Professor Noll now advocates. For example, Besley and Case (2000) caution:¹⁴

Our investigation showed that these conditions [for unbiased estimation] are quite demanding. It is difficult in some exercises to find either within-state and/or cross-state groups for whom the effect of economic forces are the same as for the group of interest. *Since the quality of a difference-in-differences estimation is crucially dependent*

¹⁰ As in my initial declaration, I have also implemented the analysis using all of the non-Publisher Defendant general interest publishers in the top 20 (including Random House, [REDACTED] [REDACTED] as the control group and find that the results are not substantively different from those that I report above. I include the full set of results in the backup to this declaration.

¹¹ *Noll Reply* at 41.

¹² See, e.g., William H. Greene (2011), *Econometric Analysis*, 7th Ed., Prentice Hall: New Jersey, Section 5.10 (noting that the inclusion of irrelevant variables in a regression can lead to reduced precision).

¹³ See, e.g., Peter C. Reiss and Frank A. Wolak (2007), “Structural Econometric Modeling: Rationales and Examples from Industrial Organization,” in *Handbook of Econometrics*, Vol. 6A, Chapter 64, at 4282-4284.

¹⁴ Timothy Besley and Anne Case (2000), “Unnatural Experiments? Estimating the Incidence of Endogenous Policies,” *The Economic Journal*, 110, F672-F694 (hereinafter, *Besley and Case*), at F692 (*emphasis added*). See also, Richard Blundell and Thomas MaCurdy (1999), “Labor Supply: A Review of Alternative Approaches,” *Handbook of Labor Economics*, Volume 3, Ed. O. Ashenfelter and D. Card, Elsevier Science B.V., Chapter 27, Section 5.

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on the quality of the control group chosen, we think greater attention should be paid to this in future analysis in this vein.

In other words, relying on a “kitchen sink” approach to constructing a control group can lead to biased estimates of the effects of interest. Rather, it is critical that care is taken to define an appropriate control group that satisfies the necessary conditions for generating unbiased econometric estimates.

11. It is notable that Professor Noll cites to no support in the economic literature for his new assertion that it is preferable in this instance to use a “kitchen sink” approach and, indeed, the economic literature does not support his approach. In the following sections, I consider Professor Noll’s specific arguments in more detail.

1. Control Group

12. As I described in my initial declaration, Professor Noll defines a “control group” that consists of all non-Publisher Defendants in the data.¹⁵ The role of a control group in a difference-in-differences regression is to serve as a proxy for the expected behavior of the treatment group (in this case, the Publisher Defendants) in the absence of the treatment (in this case, the move to agency). For this reason, it is crucial that the control group evolve in a similar manner to the treatment group other than the effect of the treatment. Besley and Case (2000) identify two necessary conditions for obtaining unbiased estimates from a difference-in-differences regression analysis:¹⁶

- “apart from the [explanatory variables included in the regression], there are no other forces affecting the treatment and control groups differentially pre- and post-treatment;” and
- “the composition of the treatment group and control group must remain stable over the period.”

If these conditions are not met, the resulting estimates may be biased. For this reason, the economics literature cautions that “it is necessary for researchers using difference-in-differences techniques to justify their selection of ‘controls’.”¹⁷ As I describe in further detail below, Professor Noll has failed to do so.

13. In his Reply, Professor Noll argues that excluding “other” publishers (i.e., publishers other than the Big 6 publishers) from the analysis is “unwarranted.”¹⁸ I first note that Professor Noll’s approach with respect to the construction of a control group differs from the analysis presented by Professor Ashenfelter on behalf of Plaintiffs, which excluded “other” publishers and used only Random House

¹⁵ *Orszag Declaration*, Section V.A.

¹⁶ *Besley and Case* at F686.

¹⁷ *Besley and Case* at F689.

¹⁸ *Noll Reply* at 44-49.

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as the control group.¹⁹ Professor Noll asserts that “Random House transactions cannot serve as valid competitive benchmarks after Random House adopted the agency model,” and therefore “the only available competitive benchmarks are prices charged by other publishers.”²⁰

14. Professor Noll fails to acknowledge that this modeling decision involves a trade-off between the amount of data available and the control group to be used. While it is true that using a control group that consists only of Random House – as Professor Ashenfelter did – does not allow one to measure the effects of the agency agreements after Random House switched to agency, this fact does not justify the use of an inappropriate control group. Indeed, Professor Gilbert, who testified on behalf of Plaintiffs in the first phase of this matter, recognized that, as the time since the event (i.e., the switch to agency) increases, the difference-in-differences approach used by Professor Noll requires stronger assumptions to be valid:²¹

[REDACTED]

Indeed, Professor Gilbert testified [REDACTED] “²² Professor Noll has provided no analysis that demonstrates that his controls are sufficient to estimate reliably damages one year after the alleged conspiracy, much less two years.

15. In addition to being inconsistent with Professor Ashenfelter’s and Professor Gilbert’s approach, Professor Noll’s approach also fails to heed the warnings of the economics literature. Professor Noll has undertaken no analysis to demonstrate that his control group meets the necessary conditions described above. Instead, Professor Noll mischaracterizes my testimony by asserting that I excluded “other” publishers “because they are smaller than other firms”²³ and “because [they] have low sales.”²⁴ I did not exclude “other” publishers for these reasons. Rather these factors are symptoms of the fact that many e-books sold by other publishers do not meet the necessary conditions of a good control group as defined by the economics literature.²⁵

¹⁹ See *Orszag Declaration*, Section IV and cites therein.

²⁰ *Noll Reply* at 44.

²¹ Deposition of Richard J. Gilbert, April 10, 2013, [REDACTED]

²² Deposition of Richard J. Gilbert, April 10, 2013, [REDACTED]

²³ *Noll Reply* at 45.

²⁴ *Noll Reply* at 46-47.

²⁵ As I noted in my initial declaration, e-books published by Random House also may not satisfy these criteria such that even the results of the Random House-only regressions should be read with caution.

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16. The *Noll Reply* contains a new and extensive discussion of the economic reasons behind the pattern of prices of e-books offered by “other” publishers.²⁶ On the basis of this discussion, Professor Noll concludes that the pattern of average prices for e-books from other publishers “has a plausible theoretical explanation that justifies including these prices in the econometric model as valid competitive benchmarks.”²⁷ Leaving aside whether a “plausible” explanation is sufficient grounds to construct a control group with no sensitivity or other analysis, Professor Noll’s analysis fails to address the key point. It is not sufficient to argue, as Professor Noll attempts to do, that there are plausible explanations for the observed pricing patterns. Instead, one must show either that one’s explanatory variables are sufficiently rich and detailed to capture fully all of the economic factors at work or that the control group would respond in the same way as the treatment group to these economic forces. Professor Noll does not attempt to make either of these two arguments, nor does he address my analysis showing that these conditions are not met.²⁸
17. While Professor Noll offered no justification in the *Noll Declaration* for the control group that he constructed, in the *Noll Reply*, he introduces a new argument that “products that are in the same relevant market necessarily do respond in the same way to changes in market condition.”²⁹ It is unclear what this statement is based upon and Professor Noll cites to no economic literature supporting this conclusion. Market definition is based on substitution patterns between products.³⁰ Products are considered to be in the same relevant market if they are sufficiently close substitutes for each other. Nothing in the market definition exercise implies that all products in the relevant market must respond in the same way to competitive stimulus.³¹

2. Time Period

18. Professor Noll also argues that it is incorrect to exclude transactions from the first quarter of 2010.³² I first note that I excluded this quarter of data in one of three primary model specifications that I relied upon. I ran one specification that excluded this time period in order to test the sensitivity of the analysis to this exclusion and because there are reasons to think that the first quarter of 2010

²⁶ *Noll Reply* at 47-49.

²⁷ *Noll Reply* at 49 (*emphasis added*).

²⁸ For example, in my initial declaration, I identified self-published titles as a class of e-books that did not respond in the same way to competitive forces. (See *Orszag Declaration*, Sections V.A and VII.A.)

²⁹ *Noll Reply* at 45.

³⁰ See U.S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, August 19, 2010, Section 4.

³¹ Indeed, Professor Gilbert made this point when testifying at trial for the Plaintiffs in the first phase of this matter. (Trial Transcript, *United States v. Apple Inc., et al.*, No. 12-cv-02826-DLC; *State of Texas, et al., v. Penguin Group (USA) Inc., et al.*, No. 12-cv-03394-DLC (S.D.N.Y) (hereinafter, *Trial Transcript*), Richard J. Gilbert, June 13, 2013, 1660:4-23.)

³² *Noll Reply* at 53-55.

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may not be representative.³³ While excluding data from the first quarter of 2010 has some effect on the estimates – reducing the estimated average effect from 15.1 percent to 14.3 percent based on Professor Noll’s revised model – these effects are small relative to the impact of the control group definition.³⁴

19. Professor Noll asserts that “Mr. Orszag does not explain why greater demand for e-books due to the introduction of the iPad plus expectations of collusive prices in the future created an incentive for Amazon to cut prices. Economic theory predicts exactly the opposite.”³⁵ He also speculates that “if the intended meaning is that the iPad would not have been introduced unless the publisher defendants agreed to fix e-book prices, this assertion is not based on any evidence and is facetious on its face.”³⁶ First, I have never claimed and do not believe that Apple would not have launched the iPad in the absence of the agency agreements.³⁷ Second, the presence of the iBookstore makes the iPad a potentially much closer competitor to the Kindle. Thus, contrary to Professor Noll’s assertions, it is entirely consistent with economic theory that Amazon would attempt to attract consumers to the Amazon eco-system prior to the iPad entry (and would do so by reducing prices). Third, the record in this matter indicates that Amazon engaged in a variety of strategies to preemptively respond to the imminent move to agency contracts. Among other examples, Amazon announced new higher royalties for self-publishers, promoted Random House titles, and removed the buy button on its website for Macmillan’s books.³⁸

3. Consistency with Dr. Burtis

20. Professor Noll asserts that my econometric approach is inconsistent with testimony presented by Dr. Burtis in the first phase of this matter.³⁹ The alleged inconsistency is based on a misreading of the record. In the testimony cited by Professor Noll, Dr. Burtis makes it clear that she is referring to a different analysis than the one that I undertake. In particular, Dr. Burtis testified that:^{40, 41}

They have not performed a regression analysis to enable us to know what the price, *the average price or any eBooks price* would have been but for agency. *The annual*

³³ See *Orszag Declaration*, Section V.C.

³⁴ Using the approach in my initial declaration, the corresponding numbers were 15.5 percent and 14.2 percent. (See *Orszag Declaration*, Section V.C.)

³⁵ *Noll Reply* at 53.

³⁶ *Noll Reply* at 53.

³⁷ *Orszag Declaration*, ¶¶75, 111-112. See also *Orszag Deposition*, 203:3-14.

³⁸ See, e.g., *Orszag Declaration*, Section VII.A.; Declaration of Madeline McIntosh (Random House), April 25, 2013, ¶22; and Direct Testimony of Russell C. Grandinetti (Amazon), ¶45.

³⁹ See *Noll Reply* at 42. See also *Class Plaintiffs’ Motion* at 24-25.

⁴⁰ *Trial Transcript*, Michelle Burtis, June 18, 2013, 2263:10-20 (*emphasis added*).

⁴¹ I note that the court objected to Dr. Burtis’ analysis. (See *Opinion and Order*, note 61.)

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regression analyses in this case were performed based on the defendant publishers' data only, not the market. Or Professor Ashenfelter did a regression where he tried and he said it was, I think, a baby step towards trying to understand what would happen if you took out the effects of the entry of new publishers. And my contention is you shouldn't take them out. He admitted very clearly that he did not do a regression that could be used to get at the issue of but-for prices in a relevant market.

21. As the above quote makes clear, Dr. Burtis was referring to an analysis of the *average but-for price* in the entire relevant market. Such an analysis differs from the analyses that Professor Noll and Professor Ashenfelter undertake, which focus on the prices of the Publisher Defendants relative to some control group. I agree with Dr. Burtis that if one wants to examine average prices (or but-for prices) in the entire relevant market, then one should examine prices of all products. But no one is analyzing average prices in the entire relevant market. Professor Ashenfelter, Professor Noll, and I are all analyzing the prices of the Publisher Defendants, which requires using an appropriate control group in a difference-in-differences regression analysis (as described above). Thus, Professor Noll has not shown an inconsistency between my approach and that of Dr. Burtis.

III. Professor Noll's New Theories and Critiques Related to e-Reader Devices

22. In my initial declaration, I discussed the impact of the alleged conspiracy and other market changes on the pricing incentives of e-retailers.⁴² I concluded that: (i) the increase in e-book margins due to agency contracts created an incentive for retailers to reduce device prices, to the benefit of consumers; and (ii) in the but-for world, e-book prices would have been higher than Professor Noll claims because the entry of the iPad would have created an incentive for Amazon and other retailers to reduce device prices and increase content prices.
23. In the *Noll Declaration*, Professor Noll did not include any analysis of device prices and retailers' business strategies.⁴³ In the *Noll Reply*, he offers five primary arguments related to device prices, none of which he had previously put forward:
1. Professor Noll asserts that "technological progress and increased competition in e-readers had a much greater effect on e-reader prices" than the increase in e-book prices.⁴⁴
 2. Professor Noll asserts that the "reduction in [device] price does not fully compensate consumers from the loss in welfare in e-readers arising from a price increase in a complementary product."⁴⁵

⁴² *Orszag Declaration*, Section VI.

⁴³ *Noll Deposition*, 44:2-12. In deposition, Professor Noll stated that these issues were not relevant to his analysis. *Noll Deposition*, 20:23-21:21, 109:18-110:1, 208:11-22.

⁴⁴ *Noll Reply* at 62.

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3. Professor Noll asserts that my analysis “depends on the joint use of e-readers and e-books from the same vendor.”⁴⁶
4. Professor Noll objects to my conclusion that the entry of the iPad would have changed Amazon’s pricing incentives in the but-for world.⁴⁷
5. Professor Noll asserts that the data I use in my analysis are unreliable.⁴⁸

For the reasons I describe below, these arguments are based on incorrect economic analyses.⁴⁹

24. In Section III.A, I discuss Professor Noll’s first three arguments, which relate to the change in device prices in the actual world. In Section III.B, I discuss Professor Noll’s fourth argument, which relates to prices that would have prevailed in the but-for world. In Section III.C, I discuss Professor Noll’s critiques of the data and calculations I used to quantify the relationship between e-book and device prices (and the offset to damages). Finally, in Section III.D, I discuss Plaintiffs’ criticisms of my assumption that Amazon would not lose money in the but-for world, an assumption Professor Noll previously agreed with.

A. Professor Noll’s new theories with respect to device prices are unfounded

25. In order to clarify the following discussion, it is useful to explicate the incentives that e-retailers face with respect to device and content pricing. As a starting point, both Professor Noll and I agree that e-books and e-readers are complementary products, which are inextricably linked.⁵⁰ Products are considered to be complementary if an increase in the price of one product decreases demand for the other, and vice versa.⁵¹ Such complementarity creates a number of incentives for retailers with respect to the pricing of devices and content:

- An increase in e-book prices, all else equal, shifts the demand curve for devices downward, which can create an incentive for retailers to reduce the price of devices (“Effect 1”).⁵²

⁴⁵ *Noll Reply* at 8-9.

⁴⁶ *Noll Reply* at 8.

⁴⁷ *Noll Reply* at 74-81.

⁴⁸ *Noll Reply* at 69-74.

⁴⁹ In addition, in several places, Professor Noll mischaracterizes my analysis and then criticizes arguments that I did not make. Examples of these mischaracterizations are included in Appendix D.

⁵⁰ See, e.g., *Noll Reply* at 60-63. See also *Noll Deposition*, 40:20-41:11, 38:19-39:4.

⁵¹ A decrease in quality could engender similar effects.

⁵² Similarly, a reduction in device prices shifts the demand curve for e-books upward, which can create an incentive for retailers to increase e-book prices. As noted by Professor Noll, the effect on the price of the complementary product can be reversed in the presence of economies of scale. (*Noll Reply* at 68.)

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- An increase in e-book prices (and profit margins), all else equal, creates an incentive for retailers to lower device prices in order to generate more device sales and therefore more content sales (“Effect 2”).

For ease of exposition, I will use the shorthand of referring to these effects as Effect 1 and Effect 2 throughout the following discussion.

1. Technological Progress and Increased Competition

26. In order to argue that the facts of the market do not support the price effects discussed in my initial declaration, Professor Noll introduces a new argument that “there was no suppression of demand for e-readers to cause a price reduction.”⁵³ Instead, Professor Noll asserts that “technological progress and increased competition in e-readers had a much greater effect on e-reader prices [than the increase in the price of e-books]....”⁵⁴
27. Professor Noll ignores the fact that my analysis explicitly accounted for these factors. Specifically, I quantify the effect of increased competition.⁵⁵ In order to incorporate device manufacturing costs that resulted from technological progress, my analysis relied on retailers’ margins rather than prices.⁵⁶ Because margins are equal to revenue minus costs, I directly incorporated reductions in manufacturing costs due to technological progress into my quantitative analysis. I also relied on third-party evidence on device manufacturing costs.⁵⁷ As such, my model takes into account directly the reduction in device prices caused by increased competition and technological improvements.⁵⁸ Furthermore, Professor Noll’s assertion that technological progress and increased competition had “a much greater effect” lacks any evidentiary or empirical support.
28. Moreover, even if one agreed with Professor Noll’s unsupported claim that there was no demand suppression to cause a price reduction on e-readers (Effect 1), one still needs to take into account Effect 2 (i.e., the additional incentive for retailers to reduce device prices in order to generate more content sales).⁵⁹ Professor Noll has agreed that retailers would take e-book prices into account

⁵³ Noll Reply at 8.

⁵⁴ Noll Reply at 62.

⁵⁵ I estimated the impact of increased competition to be [REDACTED] See *Orszag Declaration*, ¶¶83, 88.

⁵⁶ See, e.g., *Orszag Declaration*, ¶¶50, 54-55, 84, Figure VI-1, and Table VI-1.

⁵⁷ *Orszag Declaration*, ¶92, and notes 158, 215, and 220.

⁵⁸ Professor Noll incorrectly claims that I ignored these factors: “In analyzing these issues, defendants’ experts ignore all other factors that affect price in both markets, including the extent of competition in e-books if the market were unaffected by collusion and other factors that affect e-reader prices, such as advances in technology.” (*Noll Reply* at 8. See also *Noll Reply* at 60.)

⁵⁹ Despite the repeated omission of Effect 2 in his discussion, Professor Noll incorrectly claims that my arguments are based on a “narrow” application of the “economic theory of complementary goods.” (*Noll Reply* at 7.)

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when setting device prices.⁶⁰ Plaintiffs' expert Jonathan Baker has also identified this effect in his academic writings.⁶¹ However, Professor Noll continues to fail to incorporate this effect in his analysis.

29. Professor Noll also makes a number of new arguments that are not directly related to my analysis:

- “[D]espite the collusive price increases in e-books, the demand for e-books continued to grow extremely rapidly after the agency model was adopted,”⁶² and “Amazon’s Kindle business was not exactly in shambles in 2010 and 2011.”⁶³ There is no contradiction between these arguments and my analysis. In fact, I describe the rapid growth in e-book sales in my initial declaration.⁶⁴
- “The evidence indicates that, [REDACTED] even had price collusion in e-books never occurred. Hence, the collusive price increase of e-books could not possibly have caused a price cut in Kindles in 2010.”⁶⁵ It is not clear why Professor Noll concludes that an increase in e-book prices could not have caused the price cut in the Kindle in 2010. To the extent that he suggests that firms would not have an incentive to reduce prices under supply limitations, the argument would also apply to Professor Noll’s argument regarding price cuts that resulted from increased competition and technological progress. In addition, the alleged [REDACTED] took place in the actual world (i.e., after reducing device prices). As a result, this finding is perfectly consistent with my argument that in the but-for world, device prices would have been higher.
- “The prices of e-readers did not begin falling with the implementation of collusion and the introduction of the iPad in April 2010.”⁶⁶ I did not claim that e-reader prices began their decline only after the introduction of the iPad. Rather, I explained that (a) the price cuts on e-reader devices that occurred right after the introduction of the iPad were more significant than previous ones, (b) third-party accounts related the substantial price cuts to the

⁶⁰ Noll Deposition, 43:12-44:1.

⁶¹ Jonathan B. Baker, 1989, “The Antitrust Analysis of Hospital Mergers and the Transformation of the Hospital Industry,” *Law and Contemporary Problems*, 51:2, 93:164 (hereinafter, *Baker (1989)*), at 135-136, and note 201. See also Direct Testimony of Jonathan B. Baker, Ph.D., April 25, 2013 (hereinafter, *Baker Testimony*), ¶45.

⁶² Noll Reply at 8 (*emphasis added*).

⁶³ Noll Reply at 64-65 (*emphasis added*).

⁶⁴ See *Orszag Declaration*, ¶135 and Figure V-2. (See also *Orszag Declaration*, Section III and Figure III-1.)

⁶⁵ Noll Reply at 65 (*emphasis added*).

⁶⁶ Noll Reply at 65 (*emphasis added*).

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introduction of the iPad, and (c) the price reductions outpaced the decline in manufacturing costs.⁶⁷

2. Welfare Effects of E-Reader Prices

30. Professor Noll asserts that “[t]he fallacy in the argument by defendants’ experts [that consumers benefited from a reduction in device prices] is that while consumers are paying less for the complementary product, they also are deriving less net benefit from this product even though price has fallen.”⁶⁸ Professor Noll’s new analysis of the value to consumers from reductions in device prices (or welfare effects) is both incomplete and incorrect.
31. To see why Professor Noll’s analysis is incomplete, note that an increase in content margins creates incentives for a firm to decrease device prices for the two related reasons described above (Effect 1 and Effect 2). Professor Noll considers Effect 1, but fails to consider Effect 2.⁶⁹ As a consequence, his analysis fails to explain why [REDACTED] a key feature of this market during the damages period. Moreover, Professor Noll’s failure to consider Effect 2 means that he cannot accurately analyze the magnitude of the device offset, which is critical to an accurate assessment of damages.
32. The hypothetical numerical example that Professor Noll presents illustrates this flaw. In that example, an increase in content prices shifts the demand curve for devices inward, leading to a loss of welfare (i.e., Effect 1).⁷⁰ But the example does not allow for an increase in content sales resulting from a decrease in device prices (i.e., Effect 2). Specifically, Professor Noll’s assumes that “a profit-maximizing e-reader firm will maximize revenues minus costs, $PQ - C(Q) = P(900 - P) - (F + 100(900 - P))$,” where P is the device price and Q is the device quantity.⁷¹ Content revenues and the relationship between those revenues and device prices do not enter Professor Noll’s formula. As a result, there is no mechanism in Professor Noll’s formula that would cause the retailer to [REDACTED] as occurred in the actual world.⁷²
33. Professor Noll’s analysis is incorrect because, regardless of the incentives that cause retailers to lower device prices, his analysis does not account accurately for the welfare effects of the changes

⁶⁷ Orszag Declaration, Section VI.B.

⁶⁸ Noll Reply at 69.

⁶⁹ “If the price of a Kindle had fallen solely due to the implementation of collusion in e-book prices, *the cause would have been a loss in the value of e-readers to consumers, only some of which was compensated by the price reduction.*” (Noll Reply at 67, *emphasis added.*) In assuming that the only cause could have been the loss in the value of e-readers to consumers Professor Noll ignores Effect 2.

⁷⁰ Noll Reply at 68-69.

⁷¹ Noll Reply at 68.

⁷² In the numerical example, Professor Noll concludes that the profit-maximizing price is 500, whereas the marginal cost is 100. (Noll Reply at 68.)

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in the prices of devices and content. To understand this point, it is important to clarify what Professor Noll claims. He posits a new theory that *in addition to the consumer harm arising from an increase in e-book prices* there is an additional net consumer welfare loss on devices *even after accounting for the decrease in device prices*.⁷³ Professor Noll's conclusion is based on the incorrect assumption that the welfare impact on devices is separate and distinct from the welfare impact on content.

34. Consumers may derive utility from using a device from many sources (e.g., browsing, emailing, game-playing, productivity applications, etc.). Once source of the utility obtained from using the device is the consumer surplus associated with the e-book content consumed on the device. All else equal, an increase in the price of that content can be expected to reduce the consumer surplus associated with the content, which can in turn reduce the utility that the consumer obtains from using the device. But the key point, which Professor Noll fails to recognize or discuss, is that Professor Noll *already purports to capture* the reduction in consumer surplus associated with an increase in content prices through his econometric analysis and associated damages calculations. Professor Noll articulates no additional and separate effect on the demand for or utility from devices. Thus, as Professor Noll's numerical example shows, in order to capture the full impact on consumers it is essential that the analysis accounts for the offsetting effect of a reduction in the device price.⁷⁴

⁷³ *Noll Reply* at 8-9: "The fall in e-reader prices arises because e-readers are less valuable to consumers. In general, the reduction in price does not fully compensate consumers from the loss in welfare in *e-readers* arising from a price increase in a complementary product." (*emphasis added*)

⁷⁴ The correct interpretation of Professor Noll's example demonstrates exactly why the device price offset must be included to ascertain the full welfare effects. Professor Noll starts with a hypothetical linear demand curve represented by $Q(P) = 900 - P$. (*Noll Reply* at 68-69.) Based on this assumption, he shows that the equilibrium price is $P = 500$, the equilibrium quantity is $Q = 400$, and the resulting consumer surplus is $CS = 80,000$. Professor Noll then assumes that the increase in content prices shifts the demand curve for devices downward such that $Q'(P) = 800 - P$ and computes the new equilibrium, where $P' = 350$, $Q' = 350$, and the resulting consumer surplus is $CS' = 61,250$. In this hypothetical example, the decrease in consumer welfare from an increase in content prices (which is reflected in the shift in the demand intercept from 900 to 800) is equal to $\Delta CS = 80,000 - 61,250 = 18,750$. This decrease in consumer welfare *includes the device price offset*. To see this, I split the effect of the shift in the demand curve into two steps. First, I consider the consumer welfare, holding the price fixed at pre-shift levels. Under this assumption, $P'' = 500$, $Q'' = 300$, and the resulting consumer surplus is $CS'' = \frac{1}{2}(300)^2 = 45,000$. This change in consumer surplus captures the impact of the increase in content prices, which Professor Noll purports to quantify through his econometric analysis and associated calculations, without accounting for the device offset. Second, I consider the impact of the change in device price. The decrease in device prices then *increases* consumer surplus – relative to the scenario with the post-shift demand curve and the pre-shift price – to $CS' = 61,250$. Thus, if one failed to include the device offset – as Professor Noll advocates – one would mistakenly conclude that the impact on consumer welfare was $\Delta CS' = 80,000 - 45,000 = 35,000$ rather than $\Delta CS = 80,000 - 61,250 = 18,750$ as Professor Noll's example shows. Contrary to Professor Noll's assertions, his own example demonstrates that my approach is correct.

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35. In order to illustrate the intuition underlying this point, I present a straightforward example in which the complementary products are consumed in fixed proportion – for example, a left shoe and a right shoe. Suppose firms separately priced left shoes and right shoes and the price of the left shoes increased. This increase would create an incentive for manufacturers of right shoes to decrease the price of their products. The logic articulated by Professor Noll implies that the increase in the price of left shoes would create a decrease in consumer welfare associated with the left shoe (equivalent to his estimated e-book damages) and an additional decrease in consumer welfare associated with the right shoe, even after accounting for the decrease in the price of right shoes (equivalent to his hypothesized decrease in welfare associated with devices).
36. As a consequence, Professor Noll argues that the net consumer welfare impact can be measured conservatively by the price increase in the left shoe, while ignoring the right shoe entirely. But the welfare loss associated with the right shoe is not separate and distinct from the welfare loss associated with the left shoe. By his logic, Professor Noll would conclude that if a retailer offered a deal in which the price of the left shoe increased by \$1 and the price of the right shoe decreased by \$1, resulting in a price for the pair that is unchanged, consumers would nonetheless be harmed by \$1. Effectively, Professor Noll is double-counting the welfare loss associated with the \$1 increase in the left shoe. First, he asserts there are damages associated with the left shoe of \$1. Second, he implicitly asserts that there are *additional* damages of \$1 associated with the right shoe such that a \$1 decrease in the price of the right shoe results in no change in the welfare associated with the right shoe (and a \$1 welfare decrease associated with the pair of shoes).⁷⁵
37. Such a conclusion is incorrect. It is also inconsistent with Professor Noll's deposition testimony, where he noted that, from the point of view of the consumer, the correct price to focus on is the combined price of a left shoe and a right shoe.⁷⁶ Regardless of what caused the price of right shoes to decrease (whether it was the reduced value of the right shoes after the price increase on left shoes or the retailers' incentive to reduce the price of the right shoe in order to sell more left shoes) consumers are not harmed if they pay the same for the pair of shoes (and are harmed only to the extent that the price of the pair of shoes has increased).
38. Professor Noll's conclusion is also at odds with the antitrust literature. For example, Shapiro (1995) analyzes the impact on consumer welfare of an increase in price in an aftermarket (analogous to a price increase for e-books) when consumers must also buy associated equipment (analogous to an e-reader).⁷⁷ He concludes that the "consumer injury associated with supracompetitive aftermarket

⁷⁵ While the example above posits that the complementary products are consumed in fixed proportions for ease of exposition, the underlying logic applies more broadly.

⁷⁶ *Noll Deposition*, 40:3-14.

⁷⁷ Carl Shapiro, 1995, "Aftermarket and Consumer Welfare: Making Sense of Kodak," *Antitrust Law Journal*, Vol. 63, 483-511 (hereinafter, *Shapiro (1995)*). Professor Shapiro examines aftermarkets involving parts and services associated with equipment (e.g., copiers). The products offered in the aftermarket are complements to the equipment and vice versa. See also W. Michael Hanemann (1984), "Discrete-

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prices tends to be far less than the consumer injury usually associated with monopoly power. The reason is that, with competitive equipment markets, any supracompetitive aftermarket profits are effectively rebated to consumers in the form of discounts on equipment.”⁷⁸ In other words, Shapiro (1995) concludes that the decrease in the effective equipment price offsets a price increase in the aftermarket and substantially reduces the net impact on consumer welfare. Such a finding is consistent with my methodology and at odds with Professor Noll’s assertion that there is a net welfare decrease on devices (equipment).⁷⁹

39. For these reasons, Professor Noll’s arguments related to my analysis of the device offset are not supported by sound economic analysis.

3. Joint Use of Devices and Content from the Same Vendor

40. Professor Noll incorrectly claims that the retailers’ incentive to lower device prices in order to generate more content sales (i.e., Effect 2) “depends on the joint use of e-readers and e-books from the same vendor” and that “[t]he facts of both markets are inconsistent with that theory.”⁸⁰ For example, he mentions that consumers do not need a Kindle to read Amazon’s e-books and an iPad owner is not “tethered” to the iBookstore.⁸¹
41. Contrary to Professor Noll’s claim, joint use of e-readers and e-books from the same vendor is not a “necessary condition” in my analysis.⁸² All that Effect 2 requires is that sales of e-readers increase demand for e-books from the same retailer. As a practical matter, substantial evidence demonstrates that buying a Kindle makes customers more likely to purchase e-books from Amazon, and that retailers took this effect into account when pricing devices.⁸³

Continuous Models of Consumer Demand,” *Econometrica*, 52: 3, p. 541-61 (discussing a general class of models in which consumers first make a discrete choice and then make a continuous choice).

⁷⁸ *Shapiro (1995)* at 505.

⁷⁹ Plaintiffs’ expert Jonathan Baker also appears to agree with me that one should take into account the changes in device prices: “The process of market definition focuses on the analysis of the economic force of buyer substitution, so it is preferable to account for the significance of product complements when analyzing the competitive effects of the conduct under review rather than when defining markets.” (*Baker Testimony*, ¶145.) Competitive effects are closely related to consumer welfare. In his academic writings, Professor Baker presents an example in which the consumer benefit from lower prices on a complementary product fully offsets a collusive price increase and the cartel does not earn any economic profits. (See *Baker (1989)* at 135-136, and note 201.)

⁸⁰ *Noll Reply* at 8, 78-79.

⁸¹ *Id.*

⁸² See *Noll Reply* at 78. Professor Noll claims that a necessary condition for my analysis “is that integrated suppliers offer closed systems (sometimes called “walled gardens”) that require buying a device and content from the same supplier.”

⁸³ I present abundant evidence of this relationship between devices and content in my initial declaration, Section VI.C and Section VI.D. For example, Amazon’s CEO Jeff Bezos statements that “[w]e want to make

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42. In fact, as I explain in my initial declaration, the fact that Amazon’s e-books could be read using the iPad created incentives for Amazon to change its business strategy and increase e-book prices (i.e., it was no longer an optimal strategy for [REDACTED]).⁸⁴ I also note in my initial declaration, for example, that iPad owners can read Kindle e-books through the Kindle App, and that some retailers offer e-books on a variety of formats readable on an array of devices (or in universal formats, such as PDF).⁸⁵

B. Professor Noll’s new discussion of economic incentives in the but-for world does not invalidate my analysis

43. Professor Noll also objects to my conclusion that an increase in device competition would have changed Amazon’s pricing incentives in the but-for world relative to its incentives prior to the entry of the iPad.⁸⁶ As one example of how changes in competition could change a firm’s pricing incentives, I offered a textbook example of pricing incentives with complementary products.⁸⁷ Professor Noll dedicates several pages to demonstrating that the particular theoretical example I cited is not applicable to the e-book industry.⁸⁸
44. Professor Noll’s discussion misses the main point of my analysis, which is that when retailers sell complementary products an increase in competition for one product changes the pricing incentives for the complementary product. Such a question has been analyzed in the economics literature.⁸⁹ Indeed, Professor Noll seems to agree with this conclusion. At various points in the *Noll Reply*, he discusses examples in which these incentives apply:

money when people use our devices, not when they buy our devices” and that “when people buy a Kindle they read four times as much as they did before they bought the Kindle” rely on the fact that consumers who buy a Kindle are more likely to purchase e-books from Amazon. (See *Orszag Declaration*, ¶167.) The Amazon document I rely upon in my calculations also shows that [REDACTED] of e-book sales from Amazon were to customers that own a Kindle device. (See AMZN-DOJ-000023-38, at 26.) Even for a general-use tablet like the iPad, and despite Amazon’s larger share of the e-book market, the most commonly downloaded e-reader app was [REDACTED] (See *Orszag Declaration*, ¶161 and note 105.)

⁸⁴ *Orszag Declaration*, Section VI.C.

⁸⁵ *Orszag Declaration*, ¶¶14, 61.




⁸⁶ *Noll Reply* at 74-81.

⁸⁷ *Orszag Declaration*, ¶163.

⁸⁸ Professor Noll appears to suggest, incorrectly, that my analysis of retailers’ incentives requires that conditions in the e-book market match perfectly the assumptions in the textbook model. For example, Professor Noll claims that my analysis requires Amazon to be a monopolist in devices. (*Noll Reply* at 79-80.)

⁸⁹ See *Orszag Declaration*, Section VI.C.

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- Professor Noll provides the example of a monopolist in one market that faces competition in the market for the complementary product.⁹⁰ In Professor Noll's example, the firm has the incentive to depart from the competitive price in the complementary product in order to increase overall profits.
 - Professor Noll provides an example in which an increase in e-book prices, all else equal, shifts the demand curve for devices downward creating an incentive for retailers to reduce the price of devices.⁹¹ As Professor Noll admitted in deposition, this linkage works in both directions. That is, a reduction in device prices (e.g., from increased competition) shifts the demand curve for e-books upward and can create an incentive for retailers to increase e-book prices.⁹²
 - Professor Noll provides an example of technological "lock-in" (i.e., when devices can only display e-books from the same retailer). Professor Noll notes that, in this case, retailers may sell devices below cost and make money on content.⁹³ But he fails to note that the technological lock-in is not a necessary condition for such a conclusion to hold.⁹⁴ The same incentives apply when a significant number of consumers are "locked-in" for reasons unrelated to the technology of each device. As discussed above, all that is required in my analysis is that, for example, a customer that purchases a Kindle device is more likely to purchase e-books from Amazon's Kindle Store.
45. In addition, Professor Noll's discussion does not properly characterize my analysis. Professor Noll states that the essence of my argument is that increased competition on e-readers due to the entry of the iPad caused a fall in e-reader prices and profits. A key aspect of this market ignored by Professor Noll is that following the introduction of the iPad and the Kindle App for the iPad, 


46. Plaintiffs also assert that, in the but-for world, "Amazon likely would have negotiated lower wholesale e-book prices."⁹⁶ Plaintiffs characterize this assertion as "an obvious and most likely alternative to Amazon raising e-book or device prices."⁹⁷ I carefully considered this possibility and

⁹⁰ *Noll Reply* at 77 (example 3).

⁹¹ *Noll Reply* at 68-69.

⁹² *Noll Deposition*, 38:19-39:4.

⁹³ *Noll Reply* at 78 (example 5).

⁹⁴ When these complementary products markets are modeled in the economic literature, all that is required is "some degree of lock-in." See, e.g., *Shapiro (1995)* at 486.

⁹⁵ *Orszag Declaration*, ¶160.

⁹⁶ *Class Plaintiffs' Motion*, Section II.C.2. See also *States Plaintiffs' Motion* at 16.

⁹⁷ *Class Plaintiffs' Motion* at 16.

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concluded that there is no clear directional effect on wholesale e-book prices.⁹⁸ It is also notable that Plaintiffs' own expert does not support this assertion, characterizing the accuracy of any expectation that Amazon would negotiate lower wholesale prices, as opposed to increasing retail prices, as "debatable."⁹⁹ In fact, in his own work, Professor Noll assumed that wholesale prices continued at the pre-conspiracy level.¹⁰⁰ (It is ironic that I am attacked by Plaintiffs' counsel for making the same assumption regarding wholesale prices as Professor Noll and Professor Ashenfelter.) Moreover, there is no evidence that Random House or other publishers reduced wholesale prices after April 1, 2010.

47. I also note that Plaintiffs rely on selective evidence from Amazon's executives. While they rely on statements from Amazon's executives to claim that [REDACTED]

[REDACTED]¹⁰¹ they ignore statements from Amazon's executives that [REDACTED]¹⁰²

48. As Professor Noll seems to recognize, the economic incentives are for publishers to increase rather than decrease wholesale prices, because a decrease in the price of e-readers (whether through increased competition, decreased costs, or changed economic incentives) increases the demand for e-books.¹⁰³ The increase in demand for e-books creates an incentive for e-book publishers to *increase* wholesale prices.¹⁰⁴

⁹⁸ See also *Orszag Deposition*, 287:23-289:18.

⁹⁹ *Noll Reply* at 82.

¹⁰⁰ See *Noll Deposition*, 84:10-20.

¹⁰¹ See *Class Plaintiffs' Motion* at 18 and *States Plaintiffs' Motion* at 16.

¹⁰² See [REDACTED]

¹⁰³ This conclusion follows logically from Professor Noll's argument that an increase in e-book prices reduces the demand for e-readers. (*Noll Reply* at 68.)

¹⁰⁴ The economic literature provides another reason for publishers to have an incentive to increase wholesale prices when retailers reduce e-reader prices. Publishers worry about the cannibalization of print book sales. When the price of e-readers is high, few consumers purchase e-readers and publishers are less concerned with cannibalization. However, if retailers offer e-readers at very low prices, the cannibalization of print books is more of a concern because more customers (and, in particular, price sensitive customers who are more indifferent between electronic and print books) will substitute away from print books. (See Hui Li (2013), "The Impact of Ebooks on Print Book Sales: Cannibalization and Market Expansion," *working paper*, at 34-35.)

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C. Professor Noll's Critiques with Respect to Data Reliability

49. To quantify the relationship between e-book and device prices (and the offset to damages), I relied on internal, ordinary-course-of-business documents from Amazon.¹⁰⁵ Amazon regularly relies on these documents and the analysis and data they contain to make strategic decisions. I also relied on internal documents from Barnes & Noble and the transaction data Professor Noll relied upon.¹⁰⁶ Moreover, I relied on sworn testimony from Amazon executives, Professor Noll, and other Plaintiffs' experts related to Amazon's business strategy and profitability in the but-for world.¹⁰⁷ Although Professor Noll proposes no alternative data sources, and previously did not consider this information relevant to his analysis, in his Reply he presents new arguments criticizing my use of these documents. None of these arguments are valid and Professor Noll's critiques are, in some cases, internally inconsistent:

- [REDACTED] ¹⁰⁸ While Professor Noll asserts that this uncertainty implies that the resulting damages estimates are also subject to uncertainty, he does not argue that relying on these forecasts biases the estimates in any particular direction. Moreover, Professor Noll relies on information from Amazon's 2011-2012 forecasts (from the same financial document), which are more distant in time and therefore even more uncertain.¹⁰⁹
- "Mr. Orszag and Professor Kalt chose to use the [REDACTED]
[REDACTED]
[REDACTED].¹¹⁰ I correctly calculated total damages taking into account both devices and

¹⁰⁵ Orszag Declaration, Table VI-1 and notes 149, 152.

¹⁰⁶ *Id.*

¹⁰⁷ See Orszag Declaration, ¶¶87-88. Plaintiffs incorrectly claim that "the totality" of my analysis is based on a single page of a financial document from Amazon. (*Class Plaintiffs' Motion* at 8-9.) As such, they ignore other documents and evidence used in my analysis and discussed in my initial declaration. (See Orszag Declaration, Section VI.) With respect to the financial data from Amazon used in the calculation of the device offset, it is noteworthy that Plaintiffs opposed Apple's requests for additional discovery from Plaintiffs and third parties including, for example, discovery for information relating to Amazon's pricing policies, plans, and strategies. See Dkt. 397 (Apple letter to the Court describing the need for additional discovery); Dkt. 283 (Plaintiff States' letter to Court); and Dkt. 392 (Class Plaintiffs' letter to the Court).

¹⁰⁸ Noll Reply at 71.

¹⁰⁹ See, e.g., Noll Reply at 73: "Regardless of their accuracy, [REDACTED]" See also Noll Reply at 64, 65, and 74.

¹¹⁰ Noll Reply at 71-72.

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accessories.¹¹¹ I presented and Professor Kalt relied on the [REDACTED] estimate as an example based on devices alone. Furthermore, I understand that alternative examples are also consistent with Professor Kalt's substantive analysis of class issues.¹¹²

- *"The third issue concerning the reliability of Mr. Orszag's calculation is the unexplained decision to use [REDACTED] Mr. Orszag is silent about the appropriate concept of profitability"*¹¹³ Professor Noll further claims that he does not know the meaning of [REDACTED] in the Amazon's document I relied upon.¹¹⁴ Such a concern seems to result from Professor Noll's incomplete reading of my initial declaration and the evidence in this case. As I discuss in my initial declaration, "[REDACTED]"¹¹⁵ [REDACTED]¹¹⁶ Professor Noll agrees that these variable costs should be taken into account in the calculation of profits.¹¹⁷ Further support for the use of [REDACTED]¹¹⁸ As such, the alternative calculations provided by Professor Noll based on gross profits are unsupported by the evidence in this case and his own testimony.¹¹⁹
- *"Fourth, 2011 and part of 2012 also were affected by price collusion on e-books."*¹²⁰ Amazon did not produce data for 2011 and 2012. Therefore, I relied on the data available from 2010. To the extent that Professor Noll is suggesting that I should have relied on *ex ante* forecasts

¹¹¹ See *Orszag Declaration*, ¶188 and Table VI-1.

¹¹² *Kalt Sur-Reply*, Section V.

¹¹³ *Noll Reply* at 72.

¹¹⁴ *Noll Reply* at 72 and note 37.

¹¹⁵ *Orszag Declaration*, note 76. Based internal documents from Amazon, this note also explains [REDACTED]

[REDACTED] See also *Orszag Declaration*, note 77.

¹¹⁶ Deposition of Russell Grandinetti (Amazon), January 28, 2013, 77:22-78:4. See also Deposition of Laura Porco (Amazon), February 20, 2013, 96:6-13.

¹¹⁷ *Noll Reply* at 72: "The appropriate concept of profitability in determining whether a supplier benefits from continuing to produce a product is whether operating revenues are sufficient to cover the *incremental costs* of producing the product." (*emphasis added*)

¹¹⁸ See, e.g., AMZN-D-00000024-35, at 30; AMZN-MDL-0003711-58, at 20, 43; AMZN-DOJ-000023-38, at 35-36; and AMZN-TXCID-0000799-832, at 826.

¹¹⁹ *Noll Reply* at 72-73.

¹²⁰ *Noll Reply* at 73.

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for 2011 and 2012, this argument is internally inconsistent with his first point that using estimates for the fourth quarter of 2010 introduces uncertainty to the analysis. In particular, it would not be appropriate to use data for 2012, which is mostly outside the damages period and, because of the growth in e-book sales, would have a disproportionate weight in the calculation.

- [REDACTED] raise questions about Mr. Orszag's assumption that e-book prices overall (as opposed to just those of the publisher defendants) were increasing."¹²¹ Professor Noll's statement mischaracterizes my testimony. First, I did not claim that e-book prices were increasing overall.¹²² Second, as previously acknowledged by Professor Noll, what matters (for the incentive to reduce device prices) is the [REDACTED] [REDACTED] gets on content, not the average price. In my analysis, I rely on [REDACTED] (i.e., the [REDACTED] taking into account the price changes for Publisher Defendants' titles).¹²³

50. Finally, Professor Noll implies that any empirical analysis that is not based on a formal regression is invalid, arguing that "[t]he proper test for whether a change in market conditions caused a change in prices requires estimating a reliable econometric model of e-reader prices."¹²⁴ Plaintiffs also suggest, incorrectly, that my analysis is unreliable and inadmissible because it does not include regression analysis.¹²⁵ I am aware of no professional standards that indicate that regression analysis is the only kind of reliable economic analysis. I have determined that the data available are insufficient to run a formal regression analysis of the impact of the alleged conspiracy on device prices. Professor Noll appears to agree with this assessment because he offers no independent econometric analysis of his own.
51. I also find Professor Noll's claim odd, considering that over his career he has written a number of peer-reviewed articles with quantitative analyses, estimates, and economic predictions that do not rely on any regression analysis. For example, in one study, Professor Noll estimates the social

¹²¹ Noll Reply at 73-74.

¹²² To the contrary, my calculation explicitly incorporates the fact that Professor Noll's model is based on the assumption that in 2010 the agency model only raised prices for the five Publisher Defendants and these represent approximately [REDACTED] of Amazon's e-book revenue in 2010. See *Orszag Declaration*, ¶191 and Table VI-2.

¹²³ See *Orszag Declaration*, Section VI.E.

¹²⁴ Noll Reply at 66.

¹²⁵ See *Class Plaintiffs' Motion* at 8-9. See also *States Plaintiffs' Motion* at 18, 21. In addition, Plaintiffs incorrectly state: "none of Mr. Orszag's opinions are the product of regression analysis or any other form of rigorous econometric or statistical analysis. Instead, they consist entirely of speculative, 'illustrative' analytical leaps from demonstrably false assumptions." (*Class Plaintiffs' Motion* at 1-2.) Such statements are quite odd considering that my initial declaration has an entire section with econometric analysis and that the "illustrations" provided in my initial declaration were not quantitatively included in my damages calculations. (See *Orszag Declaration*, Sections V and VII.)

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benefits and costs of baseball teams using basic salaries, tickets revenues, and other statistics.¹²⁶ Professor Noll's analysis is based on equations that map the relationship between these statistics and does not include any regression or statistical analysis. He nonetheless concludes that eliminating any baseball team is socially harmful, contraction is closely related to expansion policy, and the revenue sharing system established in 1996 substantially increased the incentive to contract.^{127, 128} In another article, Professor Noll explores the economics of the organizational form of leagues.¹²⁹ Professor Noll's tables illustrate certain quantitative points, but again he does not rely on any regression analysis. In this article, he concludes that the organization of sports league is a "fundamentally economic decision" that affects many aspects of the sports in addition to the economic benefits.¹³⁰

52. As an alternative to regression analysis, I have supplemented my economic analysis with substantial evidence drawn from ordinary-course-of-business documents and data, sworn testimony, peer-reviewed economic literature, and public statements by company executives. It is standard for economists to rely on these types of evidence in reaching conclusions, just as Professor Noll has done in his academic and other writings.

D. My assumption that Amazon would not lose money in the but-for world is reasonable and supported by abundant evidence in this case

53. Plaintiffs criticize my assumption in the quantification of the damages offset that Amazon would not lose money in the but-for world.¹³¹ It is therefore noteworthy that Plaintiffs' expert Professor Noll does not provide an analysis of this assumption in his Reply and in fact has previously agreed with my assumption.¹³² My assumption that Amazon would not lose money on the Kindle business in the

¹²⁶ Roger G. Noll (2003), "The Economics of Baseball Contraction," *Journal of Sports Economics*, 4:367-388 (hereinafter, *Noll 2003a*).

¹²⁷ *Noll 2003a* at 368.

¹²⁸ In another article, Professor Noll uses similar statistics to explain "[t]he economics of intercollegiate athletics" and argues that economic incentives in the NCAA are misguided, without reference to any econometrics or regression analysis. See Roger G. Noll (1999), "The Business of College Sports and the High Cost of Winning," *The Milken Institute Review*, 1:3, 24-37.

¹²⁹ Roger G. Noll (2003), "The Organization of Sports Leagues," *Oxford Review of Economic Policy*, 19:4, 530-551 (hereinafter, *Noll 2003b*).

¹³⁰ *Noll (2003b)* at 43.

¹³¹ *States Plaintiffs' Motion* at 14.

¹³² *Noll Deposition*, 75:25-76:15: "Q. Overall, would Amazon make money on e-books in the but-for world? ... A. I would expect that people who are engaged in e-book retailing would make money on the fact they were e-book retailing or get out of the business, yes. Q. And is it your expectation that in the but-for world Amazon's profitability would be positive with respect to the sale of trade e-books? ... A. I would expect them to be profitable selling e-books in general. With respect to any specific product, no, I wouldn't expect anything about whether that product was profitable or not." [REDACTED]

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but-for world is supported by many documents and statements from company executives, including in sworn testimony.¹³³ It is also consistent with the government's own argument that Amazon's e-book distribution business has been consistently profitable, and testimony from Professor Noll and other Plaintiffs' experts that Amazon would not have changed its business strategy in the but-for world.¹³⁴ In short, Plaintiffs' criticism is at odds with the testimony of company executives, the government, and their own experts.

54. Moreover, my assumption that that Amazon would not lose money in the but-for world is conservative (in the sense that it produces higher damages estimates). First, in my quantification of damages, I assume that Amazon would make *zero contribution profit* in the but-for world (see further discussion below). The zero contribution profit assumption implies that Amazon would only cover its variable costs and would lose money after taking into account other operating expenses and fixed costs, some of which are *avoidable* if the company decides to reduce its operations in the e-book business.¹³⁵ Second, to be cautious and consider reasonable uncertainty in the data, I made other conservative assumptions in the quantification of the damages. For example, I made conservative assumptions with respect to the useful life of the device and the expected growth in content revenue during this period.¹³⁶
55. Plaintiffs also make the misleading claim that my assumption is contradicted by the fact that [REDACTED]¹³⁷ Such a claim is based on an incorrect interpretation of accounting data, which I explained in my initial declaration and further clarified in deposition.¹³⁸ [REDACTED]
[REDACTED]¹³⁹ However, [REDACTED] represent an [REDACTED] Following the assumption in my model that a Kindle device has a useful life of four years, [REDACTED]
[REDACTED]
[REDACTED] By contrast, I assume that in the but-for world Amazon would have had

[REDACTED] (See *Noll Reply*, Exhibit 4 and *Noll Reply* at 73.)

¹³³ See *Orszag Declaration*, ¶¶51, 87

¹³⁴ See Complaint, *United States v. Apple Inc. et al.*, No. 12-cv-02826-DLC (S.D.N.Y. April 11, 2012), ¶30; [REDACTED]

¹³⁵ See *Orszag Declaration*, note 77. For a discussion of relevant cost concepts, see also Dennis W. Carlton and Jeffrey M. Perloff (2005), *Modern Industrial Organization*, 4th edition, Chapter 2.

¹³⁶ *Orszag Declaration*, ¶¶90-91 and note 152.

¹³⁷ *States Plaintiffs' Motion* at 14.

¹³⁸ *Orszag Declaration*, ¶90, and *Orszag Deposition*, 241:2-242:14.

¹³⁹ See, e.g., *Orszag Declaration*, Table VI-1.

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zero profit (before taking into account other operating expenses), which is conservative in light of the statements from Amazon's executives and Plaintiffs' experts.

IV. Other Offsetting Effects

56. In my initial declaration, I noted that Professor Noll ignored other effects that mitigated the impact of higher content prices for many consumers. In particular, I presented abundant evidence that in the but-for world:¹⁴⁰
- The growth in self-publishing would not have occurred to the same extent it occurred in the actual world;
 - Some free e-books would not have been available or would not have been offered for free;
 - Apple would have likely launched the iPad without introducing the iBookstore; and
 - At the but-for prices proposed by Professor Noll, Barnes & Noble would not have been profitable and likely would have reduced its operations or exited the e-book business.
57. I further provided calculations with the purpose of illustrating the potential consumer benefits that Professor Noll ignored in his analysis. Contrary to Plaintiffs' claims, I did not include these calculations in my damages estimate.¹⁴¹
58. Professor Noll admitted in deposition that he had not conducted any analysis related to these factors.¹⁴² In his Reply, Professor Noll continues to ignore the implication of free e-books for the quantification of damages and is silent with respect to the issue of whether Apple would have introduced the iBookstore absent the agency agreements.¹⁴³ Professor Noll only presents new arguments related to self-publishing, Barnes & Noble's profitability, and whether the absence of the iBookstore and Barnes & Noble would have reduced sales of e-books. I discuss these new arguments below.

A. Growth in Self-Publishing

59. With respect to self-publishing, Professor Noll makes two claims:

¹⁴⁰ *Orszag Declaration*, Section VII.

¹⁴¹ *Class Plaintiffs' Motion* at 1-2.

¹⁴² *Noll Deposition*, 58:13-18, 106:5-24, 134:1-19, 136:1-5, 95:17-25.

¹⁴³ As noted in my initial declaration, Plaintiffs' and Defendant's experts in this case have assumed that, in the absence of agency agreements, Apple would have likely launched the iPad without introducing the iBookstore. (*Orszag Declaration*, ¶111.)

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- Professor Noll incorrectly suggests that in my analysis I assumed that all of the growth in self-publishing was the result of Apple’s entry.¹⁴⁴
 - Professor Noll asserts that Amazon would have offered 70-percent royalties to self-publishers regardless of Apple’s behavior.¹⁴⁵
60. Professor Noll’s first assertion is based on a mischaracterization of my analysis. I explain in my initial declaration that the growth in self-publishing would not have occurred “to the same extent” in the absence of Apple’s entry and the agency agreements with publishers.¹⁴⁶ Accordingly, I simply noted that by ignoring the consumer benefits from an increase in self-published titles, Professor Noll overstated damages – potentially by a significant amount.
61. Professor Noll’s new arguments seem to address the wrong question. The issue is not whether the entire growth in self-publishing was the result of Apple’s entry with the agency agreements. I do not make such a claim. The issue is whether *some* of this growth was caused by the iBookstore and the agency agreements and, as a result, a damages model should consider (to the extent that there is sufficient data) this offsetting effect. In his Reply, Professor Noll continues to ignore this question.¹⁴⁷
62. Professor Noll’s second assertion appears to be based on an incomplete reading of the record and a misunderstanding of the publishing industry. Here, Professor Noll makes two related claims. First, he claims that Amazon considered increasing royalties to 70 percent before it found out that Apple was negotiating with publishers and well before Apple announced its own royalty rates.¹⁴⁸ Specifically, Professor Noll cites to an email from Amazon’s CEO Jeff Bezos discussing a 70-percent royalty on December 10, 2009, before Apple announced its own royalty of 70 percent in May 2010.¹⁴⁹ However, internal documents show that, one day before Mr. Bezos’ email, Amazon received information from third-party accounts containing speculation regarding Apple’s potential entry with a 70-percent royalty.¹⁵⁰ (As noted by industry analysts, Amazon adopted essentially the same royalty model that Apple used in its App Store and would eventually offer in its iBookstore.)

¹⁴⁴ *Noll Reply* at 49-50.

¹⁴⁵ *Noll Reply* at 49-53.

¹⁴⁶ *Orszag Declaration*, Section VII.A.

¹⁴⁷ For example, Professor Noll claims that I overstate the importance of the iBookstore in the growth of self-published e-books (*Noll Reply* at 51-53). The issue is not whether the iBookstore, by itself, drove the growth in self-publishing, but whether some part of the growth in self-publishing (at Amazon, Apple, and other retailers) would not have occurred in the absence of the competitive rivalry stimulated by Apple’s entry and the agency agreements.

¹⁴⁸ See *Noll Reply* at 50; see also *Orszag Declaration*, Section VII.A.

¹⁴⁹ *Noll Reply* at 50.

¹⁵⁰ As of December 2, 2009, in an interview with The New York Times, Mr. Bezos had touted Amazon’s old 35-percent royalty rate to self-publishing authors as being more attractive than the royalty authors typically received from publishers. (See Deborah Solomon, “Book Learning: Questions for Jeffrey P.

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63. Moreover, the evidence shows that the timing of the implementation of Amazon's new royalties was influenced by Apple's entry with the agency agreements.¹⁵¹ Professor Noll ignores this fact in his analysis. As a result, his new opinions are inconsistent with the Court's finding that Amazon's decision to increase the royalty for self-publishers was in response to information Amazon had received that most of the publishers were likely to enter agency agreements with Apple.¹⁵²
64. Second, Professor Noll asserts that other firms were already offering royalties of 80-85 percent at the time when Amazon first considered changing its royalty policy to offer higher royalties.¹⁵³ Professor Noll's assertion demonstrates a fundamental misunderstanding about the structure of the electronic publishing industry. Specifically, he confuses the role of e-book retailers, such as Amazon, Apple, and Barnes & Noble, etc., with the services provided by distributors of self-published e-books, such as Smashwords and Lulu.
65. Companies such as Smashwords and Lulu are primarily distributors (and publishing platforms) for e-book authors – not retailers. While they do sell a small share of self-published e-books via their own retail service, both companies identify themselves as publishers and distributors of e-books.¹⁵⁴ For example, Smashwords reports that more than 90 percent of the author's revenue comes from major retailers to which they distribute the e-books (and less than 10 percent from sales at the

Bezos," *The New York Times*, December 2, 2009. See also *Orszag Declaration*, ¶100.) Internal documents show that Amazon learned from third-party accounts about Apple's potential entry with the 70-percent royalty on December 9, 2009. (See AMZN-MDL-0076414 and AMZN-MDL-0143110.) On December 10, an email from Jeff Bezos contemplates a higher royalty rate: "How about we do a bigger rev share." (See AMZN-MDL-0044064.)

¹⁵¹ See, e.g., *Orszag Declaration*, ¶199. In deposition, I agreed that Amazon learned of the potential introduction of the iBookstore on January 18, 2010. (*Orszag Deposition*, 217:22-218:5.) Amazon had previously received information from third-party accounts containing speculation regarding the potential entry of Apple. However, as noted by the Court (and properly described in my initial declaration), Amazon did not announce the new royalty option until January 20, two days after it learned that the Publisher Defendants were moving to agency, which made possible Apple's introduction of the iBookstore with the launch of the iPad. (See *Opinion and Order* at 68-69, and *Orszag Declaration*, ¶198.)

¹⁵² Professor Noll also ignores additional evidence in my initial declaration that Amazon's new royalty and intensified focus on self-publishing was a reaction to Apple's entry with the agency agreements. (See *Orszag Declaration*, Section VII.A.)

¹⁵³ *Noll Reply* at 50 and note 18.

¹⁵⁴ See, e.g., "How to Create, Publish, and Distribute Ebooks with Smashwords," available at https://www.smashwords.com/about/how_to_publish_on_smashwords ("Our free service helps you publish, distribute and sell your masterpiece at multiple major ebook retailers"); and "Q&A With Smashwords Founder, Mark Coker," available at https://www.smashwords.com/about/how_to_publish_on_smashwords. ("Smashwords is an ebook distributor. We make it fast, free and easy for authors and publishers to distribute ebooks to the world's largest ebook retailers.") See also "About Lulu: Corporate Profile," available at <http://www.lulu.com/us/en/about>.

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Smashwords Store).¹⁵⁵ Retailers like Amazon and Apple recognize e-books from these platforms as self-published (and offer them the 70-percent royalty rate). Such vertical relationship between e-book retailers and self-publishing platforms contrasts with the competitive horizontal relationship that Amazon has, for example, with Apple.¹⁵⁶

66. Professor Noll seems to recognize the fact that these firms act more as distributors when he notes that Smashwords has been called the “largest distributor of indie e-books in the word.”¹⁵⁷ But the royalties he mentions (of 80 percent and 85 percent) represent what the author gets only in the case that the e-book is sold directly to customers (i.e., through the Smashwords Store). When an e-book is sold through a retailer (as happens in most cases), the author gets these percentages only as they apply to the revenue that the publishing platform receives from the retailer.¹⁵⁸
67. Ironically, despite his erroneous statements, Professor Noll criticizes my analysis for not mentioning one of these distributors: “His failure to mention Smashwords – the largest distributor of self-published e-books and a distributor to all major online retailers of e-books, including Apple – is sufficient to dismiss his analysis of self-publishing as uninformed.”¹⁵⁹ This is incorrect. I mention Smashwords (and Lulu) in my initial declaration.¹⁶⁰ In addition, I researched known self-publishing platforms in order to identify self-published titles in Professor Noll’s data.¹⁶¹ I also reviewed industry articles describing the growth in self-publishing, including the role of self-publishing distributors.¹⁶²

¹⁵⁵ See “Smashwords Support Center FAQ,” available at <https://www.smashwords.com/about/supportfaq>.

¹⁵⁶ Notably, the other major retailer (Barnes & Noble) increased royalties for self-published authors in October 2010. (*Orszag Declaration*, ¶96.)

¹⁵⁷ *Noll Reply* at 51. Consistent with the fact that self-publishing companies do not act primarily as retailers, Plaintiffs have not sought discovery from them and Professor Noll does not include in his econometric analysis any data on e-book sales from these companies directly to consumers. I added information about Smashwords and other self-publishing platforms to Professor Noll’s data in order to identify self-published titles in the transaction data produced by Amazon and other retailers. (See *Orszag Declaration*, note 168.)

¹⁵⁸ For example, major retailers (such as Apple and Amazon) currently provide the author a 70-percent royalty and Smashwords provides the author 85 percent of that. As a result, the self-publishing author gets approximately 60 percent of the retail price (70% x 85% = 60%). This is shown in large font on the Smashwords website: “Earn 60% of List Price from Major Ebook Retailers and 85% Net at Smashwords.com.” (See “How to Create, Publish, and Distribute Ebooks with Smashwords,” available at https://www.smashwords.com/about/how_to_publish_on_smashwords.)

¹⁵⁹ *Noll Reply* at 52.

¹⁶⁰ *Orszag Declaration*, note 168.

¹⁶¹ I identified in the data I produced with my initial declaration more than 15 platforms that help authors self-publish e-books. See backup file “Self-Publishing Websites.xlsx” produced with my initial declaration.

¹⁶² See, e.g., Geoffrey A. Fowler and Jeffrey A. Trachtenberg, “‘Vanity’ Press Goes Digital,” *The Wall Street Journal*, June 3, 2010.

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68. Professor Noll also claims that I overstate the importance of the iBookstore in the growth of self-published e-books.¹⁶³ But the calculations he provides supporting his claims are limited to paid e-books. As such, he ignores the evidence provided in my initial declaration that Apple dramatically expanded the supply of free e-books, many of which were not available on the Kindle Store or were not available for free.¹⁶⁴ As I note in my initial declaration, it was more difficult for self-published authors to offer their e-books for free on the Kindle Store.¹⁶⁵

B. E-book Sales at Barnes & Noble and the iBookstore

69. Professor Noll's damages model assumes that all of Apple's and Barnes & Noble's sales of e-books would have occurred in the but-for world.¹⁶⁶ In his deposition, Professor Noll admitted that if, for example, the iBookstore were not present in the but-for world, an adjustment would need to be made to his model.¹⁶⁷ I noted in my initial declaration that Plaintiffs' and Defendant's experts have assumed that, in the absence of agency agreements, Apple would have likely launched the iPad without introducing the iBookstore. I also presented abundant evidence that Barnes & Noble would likely would have reduced its operations or exited the e-book business.

70. In his Reply, Professor Noll did not adjust his model to account for this potential loss in sales. Instead, Professor Noll presented a new theory that contradicts a large body of economic literature, and common sense.¹⁶⁸ Professor Noll contends that because customers are indifferent to the e-retailer, all purchases would have been made in the absence of Barnes & Noble and Apple's iBookstore: "[A]n e-book is the same regardless of which e-retailer sells it. For this reason, customers are likely to be largely indifferent about the identity of the e-retailer that sells them an e-book."¹⁶⁹

71. Economists have long analyzed customers' resistance to switch between sellers (commonly referred as "switching costs").¹⁷⁰ More recent research has focused in particular on consumer loyalty to

¹⁶³ *Noll Reply* at 52-53.

¹⁶⁴ *Orszag Declaration*, ¶¶106-107.

¹⁶⁵ *Orszag Declaration*, ¶107.

¹⁶⁶ *Noll Deposition*, 95:17-25, 98:22-99:8.

¹⁶⁷ *Noll Deposition*, 97:22-98:21.

¹⁶⁸ Previously, Professor Noll had dismissed the issue of whether Apple would have distributed e-books in the but-for world as irrelevant. (See *Noll Deposition*, 53:13-25.)

¹⁶⁹ *Noll Reply* at 57. I note that at times Professor Noll incorrectly states that I claim that all or nearly all e-book sales from the iBookstore and Barnes & Noble should be excluded. (*Noll Reply* at 6-7.)

¹⁷⁰ See, e.g., Joseph Farrell and Paul Klemperer (2007), "Coordination and Lock-in: Competition with Switching Costs and Network Effects," in *Handbook of Industrial Organization*, Ed. M. Armstrong and R. Porter, Vol. 3, Chapter 31. Shapiro (1995) notes that switching costs are "the essence" of complementary products markets in which customers purchase hardware and software, or equipment and aftermarket services. See *Shapiro (1995)* at 486.

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online retailers.¹⁷¹ Simply put, many consumers do not see goods sold by different retailers as identical. The context of the purchase process, the investment customers make in familiarizing themselves with the retailer, and the history of purchases are factors that matter.

72. Professor Noll's new claim ignores obvious differences in the purchase process and reading experience at each retailer that may matter to customers and, as a result, would mean that in the absence of one retailer *some* e-book sales would be lost. For instance, at the time of its release, the iPad's reading application was visually different than that of other e-reading apps. Unique features such as the 3-D page look, the animated page turning feature, and the ability to change the book font offered readers a more similar experience to physical books.¹⁷² Contemporary third-party accounts highlighted specific features, such as audio options, touch-powered extras, and pages rendered in 3-D that made the iPad ideal for certain genres such as children's books.¹⁷³ The iPad "library," where iPad users could see and categorize their e-books on a "virtual bookshelf," was also unique to e-books purchased from the iBookstore.¹⁷⁴ There are also differences in the purchase process, both between the iBookstore and the Kindle Store and between different e-reading apps available on the iPad.¹⁷⁵
73. Customers who purchased Apple e-books preferred the iBookstore experience and would have obtained less utility from purchasing from another retailer. It is reasonable to conclude that some readers were drawn to specific features and would have preferred physical books (or refrained from reading) if the option of a more comparable experience were not available. A similar reasoning applies to authors that may not want to make books available in electronic format in the absence of certain features.¹⁷⁶ I present evidence in my initial declaration that some e-books, especially free self-published e-books, were available exclusively on the iBookstore.¹⁷⁷

¹⁷¹ A wealth of academic literature analyzes how switching costs and customer loyalty reduce customers' willingness to switch between online retailers. See, e.g., George Balabanis, Nina Reynolds, and Antonis Simintiras (2009), "Bases of E-store Loyalty: Perceived Switching Barriers and Satisfaction," *Journal of Business Research*, 59, 214-224; Srin S. Srinivasan, Rolph Anderson, and Kishore Ponnayolu (2002), "Customer Loyalty in E-commerce: An Exploration of its Antecedents and Consequences," *Journal of Retailing*, 78, 41-50; Frederick F. Reichheld and Phil Schefter (2000), "E-Loyalty: Your Secret Weapon on the Web," *Harvard Business Review*, July-August; and David J. Reibstein (2002), "What Attracts Customers to Online Stores, and What Keeps Them Coming Back?" *Journal of the Academy of Marketing Science*, 30:4, 465-473.

¹⁷² See Yaara Lancet, "iBooks Vs. Kindle – Which is Better?" *Makeuseof.com*, September 8, 2011; and Michael J. Miller, "Reading Books on the iPad: iBooks Versus Kindle," *PCMag*, April 26, 2010.

¹⁷³ See Rick Broida, "5 Amazing iPad E-books for Kids," *CNET*, April 14, 2010.

¹⁷⁴ See Yaara Lancet, "iBooks Vs. Kindle – Which is Better?" *Makeuseof.com*, September 9, 2011.

¹⁷⁵ See Michael Kozlowski, "Kindle Store VS iBook Store," *Good e-Reader*, April 9, 2010.

¹⁷⁶ For example, David Shanks of Penguin noted that the Winnie the Pooh book was not offered on the Kindle or Sony e-readers because those devices did not offer e-books in color. With the introduction of the iPad,

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74. Professor Noll also argues that there is no reason to believe that, in the absence of Barnes & Noble, its customers would not have switched to another retailer.¹⁷⁸ Again, Professor Noll ignores the switching costs associated with changing retailers, including the cost of a new e-reader if one is needed, the possibility of losing the customer's library, and the differences between the Nook format and buying experience and those of the new retailer.¹⁷⁹
75. Moreover, despite previously considering this issue irrelevant, Professor Noll's Reply includes a number of new arguments in response to the evidence I presented that, at the but-for prices proposed by Professor Noll, Barnes & Noble would have reduced its operations or exited the business.¹⁸⁰ First, Professor Noll changed his previous testimony that retailers had to be profitable in order to stay in business.¹⁸¹ In his Reply, Professor Noll speculates that retailers would have lost money for a while. As in his previous declaration, he does not provide any analysis of Barnes & Noble's financial data. The only evidence provided by Professor Noll is an internal document from Sony, which suggests that [REDACTED].¹⁸² As I noted in my initial declaration, Sony has exited the e-reader business in the U.S, a fact which Professor Noll ignores in his Reply.¹⁸³ Second, Professor Noll relies on selective pieces of testimony from one Barnes & Noble executive, Mr. Astarita. [REDACTED]

[REDACTED]¹⁸⁴

it was "the first time that a children's book could be offered electronically in [full] color." *Trial Transcript*, David Shanks, June 4, 2013, 422:11-423:14.

¹⁷⁷ *Orszag Declaration*, ¶¶105-107.

¹⁷⁸ *Noll Reply* at 7, 59.

¹⁷⁹ Professor Noll also speculates that the proprietary software for the Nook system could have been sold to another retailer. (*Noll Reply* at 59.) Even in such scenario, there is no guarantee that the acquiring company would have continued to expand the Nook Library in the same manner that Barnes & Noble did and would have allowed users to continue using their Nook devices.

¹⁸⁰ See *Noll Deposition*, 82:15-22 and *Noll Reply* at 58-59.

¹⁸¹ *Noll Deposition*, 75:25-76:6.

¹⁸² *Noll Reply*, note 27.

¹⁸³ *Orszag Declaration*, ¶15.

¹⁸⁴ Deposition of Anthony Astarita (Barnes & Noble), February 27, 2013, 132:10-135:2. With respect to the testimony of other executives (i.e., Theresa Horner and former CEO William Lynch), Professor Noll speculates that they would have an incentive to misrepresent facts. (*Noll Reply* at 58.)

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76. Finally, Professor Noll speculates that my analysis is contradicted by the fact that Barnes & Noble still survives after the collusive agreements have come to an end.¹⁸⁵ Professor Noll's statement is not based on any analysis of e-book prices or financial data. Such analysis would be necessary to assess how current prices relate to pre-agency prices and whether any other factors that affected the market allowed Barnes & Noble to maintain its operations. In addition, Professor Noll mischaracterizes my testimony. I did not claim that the agency model was necessary to the survival of Barnes & Noble. Instead, I explained that "[t]he evidence in the record is clear that Barnes & Noble would not have been profitable and likely would have reduced its operations *at the but-for prices proposed by Professor Noll.*"¹⁸⁶ The fact that Barnes & Noble still survives is consistent with my argument that e-book prices would have increased regardless of the conspiracy.

V. Conclusion and Updated Damages Calculations

77. After incorporating Professor Noll's updated econometric analysis, and the corrections described in my initial declaration, damages to consumers were no larger than approximately 2.4 percent of e-book sales by Publisher Defendants – which would imply damages of approximately \$35 million (\$37 million including sales to "unidentified" locations).¹⁸⁷ As in my initial declaration, in Appendix C, I apply Professor Noll's methodology to allocate these damages by state:

- Consumers who reside in and are represented by the states and territories that are plaintiffs in this litigation account for 55.4 percent (\$20.5 million) of damages.
- Consumers who reside in other states and territories account for 37.9 percent (\$14.0 million) of damages.
- Armed forces personnel stationed overseas account for 0.3 percent (\$0.1 million) in damages.
- Consumers in the unidentified category (including non-U.S. residents) account 6.3 percent (\$2.3 million) in damages.
- Residents of Micronesia, Palau, and the Marshall Islands (who are not represented in this litigation) account for \$392 in damages.

¹⁸⁵ *Noll Reply* at 58: "But the biggest problem with Mr. Orszag's confident prediction that the agency model was necessary to the survival of Barnes & Noble is that the business still survives, after the collusive agency agreements have come to an end."

¹⁸⁶ *Orszag Declaration*, ¶117 (*emphasis added*).

¹⁸⁷ My estimate does not include any deduction to reflect offsets associated with Publisher Defendants' settlements, which I understand provided for monetary payments to consumers, to the extent that any consumer has received a settlement payment.

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



Jonathan Orszag

Executed on January 21, 2014, in Los Angeles, CA.

Appendix A: Curriculum Vitae



January 2014

CURRICULUM VITAE

Jonathan M. Orszag

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PROFESSIONAL EXPERIENCE:

- **Senior Managing Director**, Compass Lexecon, previously Competition Policy Associates, Inc. (“COMPASS”) and FTI Consulting, Inc. January 2006-Present; Competition Policy Associates, Inc./Sebago Associates, Inc., March 2000-January 2006. Manage economic consulting firm specializing in antitrust, economic policy, and litigation matters. Member of the firm’s Executive Committee. Conduct economic and financial analysis on a wide range of complex issues in policy and regulatory for corporations and public-sector entities. Serve as expert witness in proceedings before U.S. and international courts and administrative agencies and the European Court of First Instance on competition policy issues, including industry structure, vertical relationships, and intellectual property rights. Consult on international projects in Argentina, Australia, The Bahamas, Canada, Ecuador, the European Union, New Zealand, South Korea, Trinidad and Tobago, and the United Kingdom.
- **Assistant to the Secretary and Director of the Office of Policy and Strategic Planning**, U.S. Department of Commerce (Washington, D.C.), March 1999-March 2000. Served as the Secretary of Commerce’s chief policy adviser. Responsible for coordinating the development and implementation of policy initiatives within the Department. Worked on a wide range of issues, from implementing the steel loan guarantee program to telecommunications and e-commerce issues. Represented the Secretary of Commerce in meetings with other government officials and outside organizations, and testified before Congress on behalf of the Department on budget and Native American economic development issues.
- **Economic Policy Advisor**, National Economic Council, The White House (Washington, D.C.), August 1997-March 1999; Assistant Director, January 1996-November 1996. Coordinated policy processes on a wide range of issues, from Social Security reform to job training reform, unemployment insurance reform, homeownership and low-income

housing issues, the minimum wage, and Individual Development Accounts. Responsible for helping to coordinate the Administration's daily economic message and to promote (and defend) President Clinton's economic record.

- **Economics Teacher**, Phillips Exeter Academy Summer School (Exeter, New Hampshire), June 1997-August 1997. Taught introductory economics at Phillips Exeter Academy Summer School.
- **Economic Consultant**, James Carville (Washington, D.C.), August 1995-January 1996. Helped James Carville, President Clinton's 1992 campaign strategist, research and write his *New York Times* #1 best-selling book, *We're Right, They're Wrong: A Handbook for Spirited Progressives*.
- **Special Assistant to the Chief Economist**, U.S. Department of Labor, (Washington, D.C.), August 1994-August 1995. Served as an economic aide to the Chief Economist (Alan B. Krueger) and the Secretary of Labor (Robert B. Reich).

Volunteer Positions

- **Director of Policy Preparations for Vice Presidential Debate**, Gore-Lieberman Presidential Campaign, September 2000-October 2000. Oversaw policy preparations for Democratic Vice Presidential candidate before his debate with the Republican Vice Presidential candidate.
- **Weekly Commentator**, *Wall Street Journal Online*, September 2004-November 2004. Commented on economic issues during the 2004 presidential campaign. Topics of weekly commentary included jobs, health care, energy, trade, taxes, tort reform, appointments, and fiscal policy.

EDUCATION:

- Oxford University, M.Sc. in Economic and Social History, 1997
- Princeton University, A.B. *summa cum laude* in Economics, 1996
- Phillips Exeter Academy, graduate with High Honors, 1991

HONORS, PROFESSIONAL ASSOCIATIONS, AND APPOINTMENTS:

- Phi Beta Kappa, inducted June 1996
- Marshall Scholar, 1996
- *USA Today* All-USA College Academic Team, 1996
- Corporation for Enterprise Development Leadership Award for "Forging Innovative Public Policies to Expand Economic Opportunity in America," 1999
- *Who's Who in America*, 2001-Present; Also, *Who's Who in the World*; *Who's Who in Science and Engineering*; *Who's Who in Finance and Business*; and *Who's Who of Emerging Leaders*
- California Workforce Investment Board, 2000-2003

- California Governor's Technology Advisory Group, 2000-2003
- Adjunct Lecturer, University of Southern California (Los Angeles, CA), January 2002-June 2002.
- *Global Competition Review's* "40 under 40: The World's 40 Brightest Young Antitrust Lawyers and Economists," 2004
- *Global Competition Review's* "Best Young Competition Economists," 2006
- *The International Who's Who of Competition Economists*, 2007-Present
- LawDay Leading Competition Economics Experts, 2009-Present.
- Expert Guides, Best of the Best USA, 2011-Present.
- Fellow, University of Southern California's Center for Communication Law & Policy, 2007-Present.
- FTI Consulting Inc., Founders Award, 2008.
- Senior Fellow, Center for American Progress, 2009-Present
- Board of Directors, Sebago Associates, Inc., 2000-2007; Competition Policy Associates, Inc., 2003-2006; The First Tee of Washington, DC, 2005-2011; Ibrix, Inc. (Sold to Hewlett-Packard), 2006-2007; JMP Securities, Inc. (NYSE: JMP), 2011-Present; Tiger Woods Foundation, Board of Governors, 2012-Present; Children's Golf Foundation, 2013-Present.
- Clinton Global Initiative, Member, 2008-Present; Grassroot Soccer, Ambassadors Council, 2010-Present; The First Tee, Trustee, 2013-Present.
- Member of the American Economic Association, the Econometric Society, the American Finance Association, and the United States Golf Association.

REPORTS, PAPERS, AND NOTES:

- "The Impact of Federal Revenues from Limiting Participation in the FCC 600 MHz Spectrum Auction," with Philip Haile and Maya Meidan, Commissioned by AT&T, October 30, 2013.
- "The Definition of Small Business in the Marketplace Fairness Act of 2013," Commissioned by eBay, Inc., October 8, 2013.
- "The Benefits of Patent Settlements: New Survey Evidence on Factors Affecting Generic Drug Investment," with Bret Dickey, Commissioned by the Generic Pharmaceutical Association, July 23, 2013.
- "The Liftoff of Consumer Benefits from the Broadband Revolution," with Mark Dutz and Robert Willig, *Review of Network Economics*, Volume 11, Issue 4, Article 2, 2012.
- "Antitrust Guidelines for Private Purchasers Engaged in Value Purchasing of Health Care," with Tim Muris and Bilal Sayyed, Commissioned by Buying Value, July 2012.
- "The Economic Benefits of Pharmacy Benefit Managers," with Kevin Green, Commissioned by Express Scripts and Medco, December 5, 2011.

- “An Analysis of the Benefits of Allowing Satellite Broadband Providers to Participate Directly in the Proposed CAF Reverse Auctions,” with Bryan Keating, Commissioned by ViaSat, Inc., April 18, 2011.
- “A Preliminary Economic Analysis of the Budgetary Effects of the Proposed Restrictions on ‘Reverse Payment’ Settlements,” with Bret Dickey and Robert Willig, August 10, 2010.
- “An Economic Assessment of Patent Settlements in the Pharmaceutical Industry,” with Bret Dickey and Laura Tyson, Volume 10, Issue 2, *Annals of Health Law*, Winter 2010.
- “An Economic Analysis of Consumer Harm from the Current Retransmission Consent Regime,” with Michael Katz and Theresa Sullivan, Commissioned by the National Cable & Telecommunications Association, DIRECTV, and DISH Network, November 12, 2009.
- “Intellectual Property and Innovation: New Evidence on the Relationship Between Patent Protection, Technology Transfer, and Innovation in Developing Countries,” with Mark Dutz and Antara Dutta, October 2009.
- “Intellectual Property and Innovation: A Literature Review of the Value of Patent Protection for Developing Countries,” with Mark Dutz and Antara Dutta, October 2009.
- “An Economic Perspective on the Antitrust Case Against Intel,” with Robert Willig and Gilad Levin, October 2009.
- “The Substantial Consumer Benefits of Broadband Connectivity for U.S. Households,” with Mark Dutz and Robert Willig, July 2009.
- “An Economic Assessment of the Homeowners’ Defense Act of 2009,” with Doug Fontaine, July 2009.
- “A Preliminary Economic Analysis of FTC Chairman Leibowitz’s June 23rd Speech,” with Robert Willig, June 24, 2009.
- “Assessment of Microsoft’s Behaviour in the Browser Market,” with Assaf Eilat, Gilad Levin, Andrea Lofaro, and Jan Peter van der Veer, Submitted to the Commission of the European Communities, COMP/C-3/39.530, May 27, 2009.
- “An Economic Perspective on the Microsoft Internet Explorer Tying Case,” with Assaf Eilat, Gilad Levin, Andrea Lofaro, and Jan Peter van der Veer, Submitted to the Commission of the European Communities, COMP/C-3/39.530, April 24, 2009.
- “The Empirical Effects of Collegiate Athletics: An Update Based on 2004-2007 Data,” with Mark Israel, February 2009.
- “An Econometric Analysis of the Matching Between Football Student Athletes and Colleges,” with Yair Eilat, Bryan Keating, and Robert Willig, January 2009.
- “An Economic Assessment of Regulating Credit Card Fees and Interest Rates,” with Susan H. Manning, October 2007.
- “An Assessment of the Competitive Effects of the SKY-Prime Merger: Lessons from the Recent News Corp.-DIRECTV Merger,” with Cristian Santesteban, Submitted to New Zealand Commerce Commission, January 23, 2006.
- “Closing the College Savings Gap,” with Peter Orszag and Jason Bordoff, November 2005.

- “Putting in Place An Effective Media Player and Media Server Remedy,” with Joseph E. Stiglitz, Submitted to the Korean Fair Trade Commission, October 10, 2005.
- “An Economic Analysis of Microsoft’s Tying of the Windows Media Player to the Windows Operating System and Its Impact on Consumers, Competition, and Innovation,” with Joseph E. Stiglitz, Submitted to the Korean Fair Trade Commission, September 12, 2005.
- “Economic Analyses of Microsoft’s Abusive Tie and Its Impact on Consumers, Competition, and Innovation,” with Joseph E. Stiglitz and Sangin Park, Submitted to the Korean Fair Trade Commission, September 12, 2005.
- “The Empirical Effects of Division II Intercollegiate Athletics,” with Peter R. Orszag, June 2005.
- “An Economic Analysis of Microsoft’s Abusive Tie and Its Impact on Consumers, Competition, and Innovation,” with Joseph E. Stiglitz and Jason Furman, Submitted to the European Court of First Instance, Case T-201/04 R, May 12, 2005.
- “The Physical Capital Stock Used in College Athletics,” with Peter R. Orszag, April 2005.
- “The Empirical Effects of Collegiate Athletic Spending: An Update,” with Peter R. Orszag, April 2005.
- “Putting in Place An Effective Media Player Remedy,” with Joseph E. Stiglitz, Submitted to the Commission of the European Communities, April 27, 2005.
- “The Empirical Effects of Collegiate Athletic Spending: An Interim Report,” with Robert E. Litan and Peter R. Orszag, the National Collegiate Athletic Association and Sebago Associates, Inc., August 2003 (reprinted in *The Business of Sports*, edited by Scott Rosner and Kenneth Shropshire (Jones and Bartlett Publishes, 2004)).
- “Learning and Earning: Working in College,” with Peter R. Orszag and Diane M. Whitmore, *Journal of Student Employment*, Volume IX, Number 1, June 2003.
- “The Impact of Asbestos Liabilities on Workers in Bankrupt Firms,” with Joseph E. Stiglitz and Peter R. Orszag, *Journal of Bankruptcy Law and Practice*, Volume 12, Issue No. 1, February 2003.
- “The Process of Economic Policy-Making During the Clinton Administration,” with Peter R. Orszag and Laura D. Tyson, in *American Economic Policy in the 1990s*, edited by Jeffrey Frankel and Peter R. Orszag (Cambridge, Massachusetts: MIT Press, 2002).
- “The Implications of the New Fannie Mae and Freddie Mac Risk-Based Capital Standard,” with Joseph E. Stiglitz and Peter R. Orszag, *Fannie Mae Papers*, Volume I, Issue 2, March 2002 (reprinted in *Housing Matters: Issues in American Housing Policy*).
- “Hispanics and the Current Economic Downturn: Will the Receding Tide Sink Hispanics?” with Alan B. Krueger, Pew Hispanic Center, January 2002.
- “Aging in America: A Policy Perspective,” with Jonathan Gruber and Peter R. Orszag, The Pew Charitable Trusts and Sebago Associates, Inc., January 2002.
- “An Economic Analysis of Spectrum Allocation and Advanced Wireless Services,” with Martin N. Baily, Peter R. Orszag, and Robert D. Willig, Cellular Telecommunications and Internet Association and Sebago Associates, Inc., October 2001.

- “A New Look at Incentive Effects and Golf Tournaments,” in *The Economics of Sports*, edited by Andrew Zimbalist (London: Edward Elgar Publishing, 2001). Original version in *Economics Letters*, 46, March 1994, p. 77-88.
- “Learning and Earning: Working in College,” with Peter R. Orszag and Diane M. Whitmore, UPromise, Inc. and Sebago Associates, Inc., August 2001.
- “The Impact of Potential Movie and Television Industry Strikes on the Los Angeles Economy,” with Ross C. DeVol, Joel Kotkin, Peter R. Orszag, Robert F. Wescott, and Perry Wong, The Milken Institute and Sebago Associates, Inc., April 19, 2001.
- “Would Raising IRA Contribution Limits Bolster Retirement Security for Lower- and Middle-Income Families?” with Peter R. Orszag, Center on Budget and Policy Priorities, April 2, 2001.
- “Computers in Schools: Domestic and International Perspectives,” California Technology, Trade, and Commerce Agency and Sebago Associates, Inc., March 2001.
- “The Impact of Paying for College on Family Finances,” with Laura D. Tyson, Joseph E. Stiglitz, and Peter R. Orszag, UPromise, Inc. and Sebago Associates, Inc., November 2000.
- “A Simple Analysis of Discarded Votes by Precinct in Palm Beach,” with Peter R. Orszag, Sebago Associates, Inc., November 10, 2000.
- “Analysis of Votes for Buchanan by Precinct within Palm Beach and Broward Counties,” with Peter R. Orszag, Sebago Associates, Inc., November 9, 2000.
- “A Statistical Analysis of the Palm Beach Vote,” with Peter R. Orszag, Sebago Associates, Inc., November 8, 2000.
- “The Role of Government in a Digital Age,” with Joseph E. Stiglitz and Peter R. Orszag, Computer and Communications Industry Association and Sebago Associates, Inc., October 2000.
- “Quantifying the Benefits of More Stringent Aircraft Noise Regulations,” with Peter R. Orszag, Northwest Airlines and Sebago Associates, Inc., October 2000.
- “All That Glitters Is Not Gold: The Feldstein-Liebman Analysis of Reforming Social Security with Individual Accounts,” with Peter R. Orszag, Center on Budget and Policy Priorities, April 26, 2000.
- “Would Raising IRA Contribution Limits Bolster Retirement Security For Lower- and Middle-Income Families or Is There a Better Way?” with Peter R. Orszag, Center on Budget and Policy Priorities, April 12, 2000.
- “The Economics of the U.S.-China Air Services Decision,” with Peter R. Orszag, and Diane M. Whitmore, United Parcel Service and Sebago Associates, Inc., March 2000.

OP-EDS/LETTERS TO THE EDITOR:

- “Hitting Budget Numbers May Be Up for Auction,” *Roll Call*, December 19, 2013.
- “Jack Welch Could Help Improve U.S. Jobs Data,” with Peter Orszag, *Bloomberg*, October 9, 2012.
- “Giving Credit Where Credit Is Due,” *The Hill*, December 2, 2011.

- “PBMs Save Us Billions,” *The Hill*, November 28, 2011.
- “Drug Patent Settlements,” with Robert Willig, *New York Times*, July 19, 2010.
- “Homeowners Defense Act Could Lower Insurance Premiums,” *Treasure Coast Palm*, September 24, 2009.
- “Katrina Teaches Us To Financially Prepare Today for the Catastrophe of Tomorrow,” *San Angelo Standard-Times*, September 23, 2009.
- “A Catastrophe Waiting To Happen,” *The Daily Citizen*, September 15, 2009.
- “Broadband: Now A ‘Necessity’,” *Multichannel News*, August 10, 2009.
- “Forget the Estate Tax: America Needs An Inheritance Tax,” *Ideas Primary*, January 23, 2008, available at <http://www.ideasprimary.com/?p=442>
- “Credit Where It’s Due,” *Wall Street Journal*, October 25, 2007.
- “Congress Grounds Delivery Competition,” Sebago Associates, Inc., April 17, 2003.
- “Paul O’Neill Doesn’t Cry for Argentina,” Sebago Associates, Inc., August 3, 2001.
- “Do You Recognize The Clinton West Wing in *The West Wing*?” *The Atlantic Monthly Online*, March 2001.

SPEECHES AND PRESENTATIONS:

- “Office Superstores: What Changed in 15 Years?” Panelist on ABA Section of Antitrust Law, Economics and Mergers & Acquisitions Committees, Washington, DC, January 6, 2014.
- “Five Bars: Spectrum Policy and the Future of the Digital Economy,” Panelist at Third Way Briefing, House of Representatives, Washington, DC, December 11, 2013.
- “An Economic Perspective on Reverse Payment Settlements in the Pharmaceutical Sector,” Speech to the Generic Pharmaceutical Association 2013 Annual Meeting, Orlando, Florida, February 21, 2013.
- “Navigating Our Economic Challenges and the Role of Public Policy,” Speech to the South Carolina Manufacturers Alliance Fourth Annual Textile Summit, Spartanburg, South Carolina, January 10, 2013.
- “Upward Price Pressure and Merger Analysis: What Is UPP’s Proper Role and How Can UPP Deal With Real-World Issues?” Presentation to Gilbert + Tobin, Sydney, Australia, December 4, 2012.
- “Obama’s Second Term: What It Means for the U.S. and World Economies,” FTI Consulting, Inc., Brisbane, Australia, December 3, 2012.
- “Merger Substance: How to Conduct a Proper Analysis of a Merger’s Competitive Effects, and How to Frame Related Legal Standards?” Panelist at Antitrust in Asia, American Bar Association, New Delhi, India, December 1, 2012
- “Financial Issues in College Sports,” Panelist at the Third Annual Sports Law Symposium: What is the Proper Role of Sports in Higher Education?, Institute of Sports Law and Ethics, Santa Clara University, September 6, 2012.

- “Pricing and Bundling of IT Products: Drawing The Line Between Lawful and Unlawful Behaviour,” Panelist on GCR Live’s Antitrust and Technology 2012, London, England, March 14, 2012.
- “The Role of Economic Evidence in Cartel Enforcement,” Speaker on ABA Section of International Law Teleconference, February 28, 2012.
- “Reverse Payment Settlements in the Pharmaceutical Industry,” Presentation to the House Energy and Commerce Committee Staff, July 15, 2011.
- “Increased Government Intervention: The Good, The Bad, and the Ugly,” Panelist, Association of Management Consulting Firms, New York, NY, December 2, 2010.
- “The Economic Challenges and Trade-Offs Facing the Obama Administration,” Remarks to RBS Citizens, Boston, MA, June 8, 2010.
- “Competition Policy As Innovation Policy,” Panelist, Computer & Communications Industry Association, Washington DC, October 27, 2009.
- “State of the Market: Regulatory Evolution and Policy,” Moderator, Youth, I.N.C. and Piper Jaffray, New York, NY, September 29, 2009.
- “The Empirical Effects of Collegiate Athletics,” Presentation to the NCAA Leadership Advisory Board, Detroit, Michigan, April 4, 2009.
- “The Economic Challenges and Trade-Offs Facing the Obama Administration,” Remarks to the Junior Capital Group, Proskauer Rose, LLP, New York, NY, February 10, 2009.
- “Managing Communications During Unprecedented Economic Times,” Panelist, The California Club, Los Angeles, CA, January 27, 2009.
- Presentation to the Computer & Communications Industry Association’s Antitrust Summit on Innovation and Competition Policy in High-Tech Markets, Washington DC, October 24, 2008.
- Presentation to the Center for American Progress Action Fund Session on the “Avoiding the Pitfalls of Credit Card Debt,” Washington, DC, February 25, 2008.
- “Distribution Fund Planning and Management: Lessons Learned from the Global Research Analyst Settlement,” with Francis McGovern, Presentation to the Securities and Exchange Commission, Washington, DC, January 31, 2006.
- “The Empirical Effects of Division II Intercollegiate Athletics,” Presentation to the National Collegiate Athletic Association 2006 Annual Convention, Indianapolis, Indiana, January 8, 2006.
- “Rules of the Game: Defining Antitrust Markets in Cases Involving Sports,” Presentation to the Wilmer, Cutler, Pickering, Hale & Dorr Antitrust Lunch, Washington, DC, December 8, 2005.
- “Competition Policy, Antitrust, and The High-Tech Economy,” Keynote Address to the Computer & Communications Industry Association TechSummit 2005, Laguna Beach, CA, October 26, 2005.
- “The Empirical Effects of Division II Intercollegiate Athletics,” Presentation to the Division II Chancellors and Presidents Summit, Orlando, FL, June 25, 2005.

- “The Empirical Effects of Collegiate Athletic Spending: An Update and Extension,” Presentation to the President’s Task Force on the Future of Intercollegiate Athletics, Tucson, AZ, June 9-10, 2005.
- “The Empirical Effects of Collegiate Athletic Spending: An Update and Extension,” Presentation to the NCAA Division I Board of Directors, Indianapolis, IN, April 28, 2005.
- “An Analysis of Division II Athletic Expenditures: Preliminary Findings,” Presentation to the NCAA Division II Board of Directors, Indianapolis, IN, April 28, 2005.
- “An Analysis of Division II Athletic Expenditures: An Overview of Study Design,” Presentation to the National Collegiate Athletic Association 2005 Annual Convention, Grapevine, Texas, January 8, 2005.
- “The Empirical Effects of Collegiate Athletic Spending: An Interim Report,” Presentation to the National Association of State Universities and Land Grant Colleges Annual Conference, November 17, 2003.
- “The Impact of Asbestos Liabilities on Workers in Bankrupt Firms,” *South Texas Law Review*, “Symposium: Asbestos Litigation,” Fall 2003.
- “The Impact of Asbestos Liabilities on Workers in Bankrupt Firms,” Presentation to the Conference on “Understanding Asbestos Litigation: The Genesis, Scope, and Impact,” U.S. Chamber of Commerce, Washington, DC, January 23, 2003.
- “The Process of Economic Policy-Making During the Clinton Administration,” Presentation to the Conference on “American Economic Policy in the 1990s,” Center for Business and Government, John F. Kennedy School of Government, and Harvard University, Cambridge, MA, June 29, 2001.
- “The Impact of Paying for College on Family Finances,” Presentation to the Conference on “Funding Excellent Schools and Colleges for All Students,” National Conference of State Legislatures, Savannah, Georgia, February 17, 2001.
- “China and the Internet,” Remarks on Entertainment and the Internet in China at the EMASIA 2000 Forum, The Asia Society, Los Angeles, CA, May 23, 2000.
- “Is It The Star or Just an Extra? The Role Government Plays in a Digital Economy,” Remarks on the Regulation of Global Electronic Commerce at the eCommerce and Global Business Forum, The Anderson School at UCLA and the University of Washington Business School, Santa Cruz, CA, May 18, 2000.
- “Lessons Learned from the Emergency Loan Guarantee Programs,” Keynote Address at the Government Guaranteed Lending 2000 Conference, Coleman Publishing, Inc., May 4, 2000.
- “Don’t Just Think, Believe,” Remarks to the Assembly of Phillips Exeter Academy, Exeter, New Hampshire, February 9, 1999.

TESTIMONY:

- *Puerto Rico Telephone Company, Inc. v. San Juan Cable LLC d/b/a OneLink Communications*, In the United States District Court for the District of Puerto Rico (Civil No: 11-2135 (GAG)), (Expert Report: December 11, 2013; Supplemental Report: December 23, 2013; Deposition: January 10, 2014).

- *Sky Angel U.S., LLC v. Discovery Communications, LLC, et al.* In the United States District Court of Maryland, Southern Division (Civil Action No. 8:13-cv-00031-DKC), (Expert Report: December 6, 2013).
- *Oakley, Inc. vs. Nike, Inc. and Rory McIlroy*; In the United States District Court for the Central District of California (Case No. SACV12-02138 JVS-MLG), (Expert Report: November 26, 2013).
- *In re: Electronic Books Antitrust Litigation; The State of Texas, et al., v Penguin Group (USA), Inc., et al.*, In the United States District Court for the Southern District of New York (No. 11-md-02293 (DLC) and No. 12-cv-03394 (DLC)), (Declaration: November 15, 2013; Deposition: December 7, 2013).
- Hearing on “Pay-for-Delay Deals: Limiting Competition and Costing Consumers,” Testimony to the Senate Judiciary Committee, Subcommittee on Antitrust, Competition Policy, and Consumer Rights, July 23, 2013.
- *Federal Trade Commission v. Actavis, Inc., et al.*, Signatory, Brief of Antitrust Economists as *Amici Curiae* before the Supreme Court, No. 12-416, February 28, 2013.
- *VOOM HD Holding LLC v. EchoStar Satellite LLC*, In the Supreme Court of the State of New York, County of New York (Index No. 600292/08), (Expert Report: December 4, 2009; Deposition Testimony: March 5, 2010; Supplemental Expert Report: August 10, 2012; Supplemental Deposition Testimony: September 14, 2012; Jury Trial Testimony: October 11-12, 2012).
- *Hewlett-Packard Company v. Oracle Corporation*, In the Superior Court of the State of California, County of Santa Clara (Case No 1-11-CV-203163), (Expert Report: March 26, 2012; Rebuttal Report: April 9, 2012; Deposition Testimony: April 19, 2012, February 5, 2013; Supplemental Expert Report: December 10, 2012; Trial Testimony: March 18, 2013).
- *In The Matter of Game Show Network, LLC v. Cablevision Systems Corporation*, in File No. CSR-8529-P, Before the Federal Communications Commission (Expert Report: December 12, 2011; Reply Declaration: February 9, 2012; Expert Report: December 14, 2012; Deposition Testimony: February 7, 2013; Direct Testimony: March 12, 2013).
- Hearing on “The Express Scripts/Medco Merger: Cost Savings for Consumers or More Profits for the Middlemen?” Written Testimony to the Senate Judiciary Committee, Subcommittee on Antitrust, Competition Policy, and Consumer Rights, December 6, 2011.
- *In the Matter of Applications of AT&T Inc. and Deutsche Telekom AG For Consent To Assign or Transfer Control Licenses and Authorization*, in WT Docket No. 11-65, with Robert D. Willig and Jay Ezrielev, Submitted to the Federal Communications Commission, Commissioned by AT&T, June 9, 2011.
- *In The Matter of The Tennis Channel v. Comcast Cable Communications, LLC*, in File No. CSR-8258-P, Before the Federal Communications Commission (Declaration: February 11, 2010; Reply Declaration: April 13, 2010; Expert Report: February 25, 2011; Deposition Testimony: March 8, 2011; Written Direct Testimony: April 15, 2011; Rebuttal Declaration: April 26, 2011; Courtroom Testimony: April 27, 2011; Supplemental Deposition Testimony: May 1, 2011; Supplemental Rebuttal Declaration, May 12, 2011).

- “Response to Supplementary Comments of Hubert Horan,” Submitted to the Department of Transportation, *Joint Application of Delta Airlines, Inc.; Virgin Blue Airlines PTY LTD; Virgin Blue International Airlines PTY LTD d/b/a V Australia; Pacific Blue Airlines (NZ) LTD; and Pacific Blue Airlines (Aust) PTY LTD*, with Mark Israel, Bryan Keating, and Robert Willig, Docket DOT-OST-2009-0155, Commissioned by Delta Air Lines, October 22, 2010.
- “Measuring Consumer Benefits from Antitrust Immunity for Delta Air Lines and Virgin Blue Carriers,” Submitted to the Department of Transportation, *Joint Application of Delta Airlines, Inc.; Virgin Blue Airlines PTY LTD; Virgin Blue International Airlines PTY LTD d/b/a V Australia; Pacific Blue Airlines (NZ) LTD; and Pacific Blue Airlines (Aust) PTY LTD*, with Mark Israel, Bryan Keating, and Robert Willig, Docket DOT-OST-2009-0155, Commissioned by Delta Air Lines, October 13, 2010.
- *In the Matter of Implementation of Section 224 of the Act; A National Broadband Plan for Our Future*, with Allan Shampine, Submitted to the Federal Communications Commission (WC Docket No. 07-245; GN Docket No. 09-51), Commissioned by the Edison Electric Institute, Declaration Submitted on October 4, 2010; Supplemental Declaration, Submitted on December 14, 2010.
- *In Re: Cable Subscribership Survey For the Collection of Information Pursuant to Section 612(g) of the Communications Act*, with Michael Katz and Theresa Sullivan, Submitted to the Federal Communications Commission (MB Docket No. 07-269), Commissioned by the National Cable & Telecommunications Association, DIRECTV, and DISH Network, December 16, 2009.
- *Caroline Behrend, et al. vs. Comcast Corporation, et al.*, In the United States District Court for the Eastern District of Pennsylvania (Civil Action No. 03-6604), (Declaration: August 21, 2009; Deposition: September 29, 2009).
- *In The Matter of TCR Sports Broadcasting Holding, LLP d/b/a Mid-Atlantic Sports Network v. Comcast Corporation*, in MB Docket No. 08-214, File No. CSR-8001-P, Before the Federal Communications Commission (Declaration with Jay Ezrielev: July 31, 2008; Expert Report: March 19, 2009; Deposition Testimony: April 23, 2009; Courtroom Testimony: May 26, 2009; Reply Declaration: June 1, 2009).
- *In The Matter of NFL Enterprises LLC v. Comcast Cable Communications, LLC*, MB Docket No. 08-214, File No. CSR-7876-P, Before the Federal Communications Commission (Declaration with Jay Ezrielev: June 20, 2008; Expert Report: March 13, 2009; Deposition Testimony: April 1, 2009; Written Direct Testimony: April 6, 2009; Courtroom Testimony: April 16, 2009).
- *In The Matter of Applications for the Transfer of Control of Licenses and Authorizations From Centennial Communications Corp. to AT&T*, with Robert D. Willig and J. Loren Poulsen, Submitted to the Federal Communications Commission, Commissioned by AT&T, November 21, 2008.
- *In The Matter of Implementation of the Cable Television Consumer Protection and Competition Act of 1992; Development of Competition and Diversity in Video Programming Distribution: Section 628(c)(5) of the Communications Act; Sunset of Exclusive Contract Prohibition; Review of the Commission’s Program Access Rules and Examination of Programming Tying Arrangements*, Filed in Conjunction With Reply Comments Submitted to the Federal Communications Commission (MB Docket No. 07-

29; MB Docket No. 07-198), Commissioned by Discovery Communications, Inc., February 12, 2008.

- *In Re: Intel Corp. Microprocessor Antitrust Litigation; Phil Paul et al v. Intel Corporation*, In the United States District Court for the District of Delaware (MDL Docket No. 05-1717 (JJF) and C.A. No. 05-485 (JJF), (Declaration: August 10, 2007; Declaration: April 23, 2007).
- *In The Matter of Applications for the Transfer of Control of Licenses and Authorizations From Dobson Communications to AT&T*, with Robert D. Willig, Submitted to the Federal Communications Commission, Commissioned by AT&T, July 12, 2007.
- *Microsoft Corporation v. Commission of the European Communities*, European Court of First Instance, Case T-201/04 R, April 24-25, 2006.
- *In The Matter of Satellite Home Viewer Extension and Reauthorization Act of 1994*, with Jay Ezrielev, Submitted to the Library of Congress, Copyright Office (Docket No. RM 2005-07), Commissioned by EchoStar Satellite L.L.C., September 1, 2005.
- *In The Matter of Rainbow DBS Company, LLC, Assignor, and EchoStar Satellite L.L.C., Assignee, Consolidated Application for Consent to Assignment of Space Station and Earth Station Licenses, and related Special Temporary Authorization*, with Simon J. Wilkie, Submitted to the Federal Communications Commission (IB Docket No. 05-72), Commissioned by EchoStar Satellite L.L.C. and Rainbow DBS Company, LLC, April 12, 2005.
- *In The Matter of Applications for the Transfer of Control of Licenses and Authorizations From Western Wireless Corporation to ALLTEL Corporation*, with Robert D. Willig and Yair Eilat, Submitted to the Federal Communications Commission (WT Docket No. 05-50), Commissioned by ALLTEL Corporation and Western Wireless Corporation, March 29, 2005.
- *In The Matter of A La Carte and Themed Tier Programming and Pricing Options for Programming Distribution on Cable Television and Direct Broadcast Satellite Systems*, with Robert D. Willig and Jay Ezrielev, Filed in Conjunction With Comments Submitted to the Federal Communications Commission (MB Docket No. 04-207), Commissioned by Discovery Communications, Inc., July 15, 2004.
- “An Economic Assessment of the Exclusive Contract Prohibition Between Vertically Integrated Cable Operators and Programmers,” with Peter R. Orszag and John M. Gale, Filed in Conjunction With Reply Comments Submitted to the Federal Communications Commission (CS Docket No. 01-290), Commissioned by EchoStar Satellite Corporation and DIRECTV, Inc., January 7, 2002
- Hearing on “The Department of Commerce Fiscal Year 2001 Budget and Its Native American Initiatives,” Testimony to the United States Senate Indian Affairs Committee, February 23, 2000.
- Hearing on “Testimony on S. 614: The Indian Tribal Regulatory Reform and Business Development Act,” Testimony to the United States Senate Indian Affairs Committee, May 19, 1999.

CONTAINS MATERIALS DESIGNATED AS HIGHLY CONFIDENTIAL PER PROTECTIVE ORDER

Appendix B: Materials Relied Upon

Government Documents, Pleadings, Legal Filings, and Orders

Memorandum of Law in Support of Class Plaintiffs' Motion to Exclude the Expert Opinions Offered by Apple's Expert Jonathan Orszag, December 18, 2013

Plaintiff States' Memorandum of Law in Support of Their Motion to Exclude Opinions Offered by Jonathan Orszag, December 18, 2013

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03_Add_BnN_to_bookData.sas

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Appendix C: Additional Tables

**Table C-1: Professor Noll's Damages after Adjusting for Several Corrections
(Alleged Damages Attributable to Each State)**

State/Territory	Percent of Sales	Damages (\$M)
Alabama	1.1	\$0.4
Alaska	0.5	\$0.17
American Samoa	0.0	\$0.0
Arizona	2.1	\$0.8
Arkansas	0.7	\$0.3
California	10.8	\$4.0
Colorado	2.1	\$0.8
Connecticut	1.5	\$0.6
Delaware	0.3	\$0.1
District of Columbia	0.4	\$0.1
Florida	5.8	\$2.1
Georgia	2.7	\$1.0
Guam	0.0	\$0.0
Hawaii	0.4	\$0.2
Idaho	0.5	\$0.2
Illinois	3.7	\$1.4
Indiana	1.5	\$0.6
Iowa	0.8	\$0.3
Kansas	0.8	\$0.3
Kentucky	0.9	\$0.3
Louisiana	1.1	\$0.4
Maine	0.4	\$0.2
Maryland	2.2	\$0.8
Massachusetts	2.7	\$1.0
Michigan	2.4	\$0.9
Minnesota	1.7	\$0.6
Mississippi	0.5	\$0.2
Missouri	1.5	\$0.6
Montana	0.3	\$0.1
Nebraska	0.5	\$0.2
Nevada	0.8	\$0.3

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New Hampshire	0.6	\$0.2
New Jersey	3.2	\$1.2
New Mexico	0.6	\$0.2
New York	6.4	\$2.4
North Carolina	2.5	\$0.9
North Dakota	0.2	\$0.1
North Mariana Islands	0.0	\$0.0
Ohio	2.7	\$1.0
Oklahoma	1.0	\$0.4
Oregon	1.3	\$0.5
Pennsylvania	3.8	\$1.4
Puerto Rico	0.1	\$0.0
Rhode Island	0.3	\$0.1
South Carolina	1.3	\$0.5
South Dakota	0.2	\$0.1
Tennessee	1.6	\$0.6
Texas	7.6	\$2.8
U.S. Virgin Islands	0.0	\$0.0
Utah	0.8	\$0.3
Vermont	0.2	\$0.1
Virginia	3.3	\$1.2
Washington	3.0	\$1.1
West Virginia	0.4	\$0.2
Wisconsin	1.4	\$0.5
Wyoming	0.2	\$0.1
Armed Forces Americas	0.0	\$0.0
Armed Forces Africa, Canada, Europe, Middle East	0.2	\$0.1
Armed Forces Pacific	0.1	\$0.0
Federated States of Micronesia	0.0	\$0.0
Marshall Islands	0.0	\$0.0
Palau	0.0	\$0.0
Unidentified	6.3	\$2.3
<hr/>		
Subtotal for Plaintiff States	55.4	\$20.5
Subtotal for Class States	37.9	\$14.0
Subtotal for Armed Forces	0.3	\$0.1
Subtotal for Unidentified	6.3	\$2.3
Excluded Territories	0.0	\$0.0
Total Excluding Unidentified and Excluded Territories	93.7	\$34.6

Source: Percent of sales obtained from backup to Professor Noll's Exhibit 3 (Reply).

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Appendix D: Mischaracterizations in Professor Noll's Reply Declaration

In several places, Professor Noll mischaracterizes my analysis and then criticizes arguments that I did not make. The following table provides some examples:

<p>"Mr. Orszag criticizes the Noll Report for including transactions records involving other commercial publishers, self-publishers, data from the first three months of 2010, and transactions data from the iBookstore and Barnes & Noble." "Mr. Orszag and Professor Kalt argue that self-publishers and the iBookstore should be excluded from the analysis. Mr. Orszag also claims that data from Barnes & Noble should be excluded as well."¹</p>	<p>I did not claim that transaction data from the iBookstore and Barnes & Noble should be excluded from the regression analysis. Instead, I noted that Professor Noll's damages model assumes, incorrectly, that all of Apple's and Barnes & Noble's sales of e-books would have occurred in the but-for world.²</p>
<p>"Mr. Orszag argues that other publishers should be excluded because they are small..."³</p>	<p>I did not exclude other publishers for this reason. See Section II.B.1.</p>
<p>"Mr. Orszag's calculations that are intended to show that nearly all purchases from the iBookstore would not have switched to other vendors have no basis in fact and so are unreliable."⁴</p>	<p>I explicitly recognized that not all Apple sales would be lost in the but-for world. In fact, I provide an illustration in which I assume that a relatively modest share of Apple's e-book sales (15 percent) would not have occurred in the but-for world.⁵</p>
<p>"According to Mr. Orszag, the growth in self-publishing was due to the entry of the iBookstore and its plan for paying higher royalties to self-publishers, which would not</p>	<p>I explain in my initial declaration that the growth in self-publishing would not have occurred <i>to the same extent</i> in the absence of Apple's entry and the agency agreements with publishers.⁷</p>

¹ Noll Reply at 6.

² Orszag Declaration, Sections VII.C and VII.D.

³ Noll Reply at 6.

⁴ Noll Reply at 7.

⁵ Orszag Declaration, ¶¶114-116.

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have occurred in the absence of price collusion among the defendants.” ⁶	
“The [argument that because e-book prices rose due to price collusion among the defendants, Amazon cut the price of Kindles] ignores the effect on the price of Kindles from increased competition in the device market from not only the iPad but also the Nook and other tablet computers.” ⁸	I estimate the reduction in device prices that was the result of increased competition in my initial declaration. ⁹ In fact, I quantify the benefit to consumers that resulted from increased competition at ██████████ in 2010. (And I make it clear that this benefit is not related to the increase in e-book prices.)
“The [argument that entry of Apple’s iPad caused Kindle prices to fall, which would have caused Amazon to increase e-book prices anyway] switches the cause of changes in pricing strategy from price collusion to increased competition in devices, claiming that collusion was not a cause of increased e-book prices.” ¹⁰	I do not claim that the alleged collusion did not cause some of the observed increase in e-book prices. Instead, I show that, as a result of Amazon’s changed incentives, e-book prices would have shown some increase even in the absence of the alleged collusion.
“There is no evidence that Amazon changed its pricing strategy for Kindles on the basis of events in the e-book market, as opposed to changes in competition and technology in e-readers.” ¹¹	I explain in my initial declaration that Amazon changed its strategy in response to new competition (and technology). ¹² It is not clear what Professor Noll means by “events in the e-book market,” but to the extent that he refers to the conspiracy, I do not claim that Amazon’s change in business strategy was solely caused by the conspiracy.
██████████ raise questions about Mr.	I do not make such an assumption.

⁷ Orszag Declaration, Section VII.A.

⁶ Noll Reply at 49. See also Noll Reply at 50: “The claim that Apple is responsible for higher royalties for self-published authors and the growth of self-publishing is not even consistent with the reference that Mr. Orszag cites to support his assertion.”

⁸ Noll Reply at 60.

⁹ Orszag Declaration, ¶¶83, 88.

¹⁰ Noll Reply at 60.

¹¹ Noll Reply at 60.

¹² See Orszag Declaration, Sections VI.B and VI.C.

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Orszag's assumption that e-book prices overall (as opposed to just those of the publisher defendants) were increasing." ¹³	
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¹³

Noll Reply at 74.