Robert A. Mittelstaedt #60359
ramittelstaedt@jonesday.com
Craig E. Stewart #129530
cestewart@jonesday.com
David C. Kiernan #215335
dkiernan@jonesday.com
Michael Scott #255282
michaelscott@jonesday.com
555 California Street, 26th Floor
San Francisco, CA 94104
Telephone: (415) 626-3939
Facsimile: (415) 875-5700

Attorneys for Defendant
APPLE INC.

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

THE APPLE iPOD iTUNES ANTI-TRUST LITIGATION

This Document Relates To:

ALL ACTIONS

Lead Case No. C 05-00037 JW (HRL)
[Class Action]

EXPERT REPORT OF DR. MICHELLE M. BURTIS IN SUPPORT OF APPLE INC.'S OPPOSITION TO PLAINTIFFS' MOTION TO EXCLUDE

Date: May 2, 2011
Time: 9:00 a.m.
Place: Courtroom 8, 4th Floor

REDACTED PUBLIC VERSION

I. INTRODUCTION

1. I previously filed three reports in this case related to the issue of whether Plaintiffs' expert, Professor Noll, had established that the methodologies he proposed to show impact and damages would work.[1] Professor Noll claimed that a common method for determining and measuring impact is feasible in this case.[2] I concluded in each of my reports that the methodologies proposed by Professor Noll would not work. In his most recent report filed March 28, 2011 ("Noll Reply Declaration"), Professor Noll has produced a "preliminary regression" analysis based on wholesale prices to support his claim that impact can be determined on a class-wide basis.[3] Counsel for Apple has asked me to review the Noll Reply Declaration and address whether his "preliminary regression analysis" can be used to determine class-wide impact and to estimate class-wide damages.

2. In preparing this report, I considered the Noll Reply Declaration and the materials produced in connection with that Declaration, including the datasets and computer programs used in generating Professor Noll's preliminary regression. I summarize my conclusions in Section II and describe the basis and reasons for my conclusions in Section III, IV, and V.

II. SUMMARY OF CONCLUSIONS

3. The principal issue Professor Noll and I address is whether it is possible to reliably determine and measure impact on proposed class members with common evidence and a common methodology. Professor Noll has produced a "preliminary" regression model that he claims is an "example" of a common model.[4] He is explicit that he is not reaching, and could not reach, any

---

[1] Expert Report of Dr. Michelle M. Burtis, Apple iPod iTunes Antitrust Litigation, Case No. C 05-00037 JW, August 31, 2009 ("2009 Burtis Report"), Reply Expert Report of Dr. Michelle M. Burtis, Apple iPod iTunes Antitrust Litigation, Case No. C 05-00037 JW, November 9, 2009 ("2009 Burtis Reply Report") and Expert Report of Dr. Michelle M. Burtis Apple iPod iTunes Antitrust Litigation, Case No. C 05-00037 JW, February 28, 2011 ("2011 Burtis Report"). My background and experience are summarized in my expert report of June 17, 2009, and I attach my most current curriculum vitae as Exhibit A.

[2] Declaration of Roger G. Noll, filed January 18, 2011 ("Noll Declaration).

[3] Noll Reply Declaration at p. 1.

[4] Noll Reply Declaration at p. 1; Deposition of Roger Noll taken April 7, 2011 attached as (continued)

conclusions about impact based on the produced regression, that it is not the correct specification, and that it was not his intent to produce a "reliable model."[5] Professor Noll relies on the produced regression to opine that with sufficient, reliable data, a regression model may at some point be specified and estimated in this matter.[6] Professor Noll's opinion in this regard is meaningless. That he was able to construct an unreliable, invalid model does not demonstrate much less suggest that he will be able to specify a valid regression that reliably addresses the questions in this case.

4. In addition, Professor Noll's preliminary regression supports my opinion that his proposed methodology will not work. For example, Professor Noll's regression does not, and indeed cannot, be used to measure impact for iPod models that were introduced for the first time *after* the introduction of Harmony (e.g., the iPod nano, iPod shuffle, etc.) because there is no "before" benchmark period for those models.[7] Consequently, his results related to Harmony's introduction and "disabling" are driven solely by price differences in classes of particular iPod models that were sold both before and after Harmony. To illustrate this, I re-estimated Professor Noll's model with data that ended in 2004. The results of that re-estimation are the same as Professor Noll's results in his Reply Declaration. This shows that his model is simply extrapolating the effect of the price changes on models sold before and after the entry of Harmony to models that were introduced for the first time after Harmony. As a matter of statistics, his model cannot estimate impact on products introduced after Harmony entered. Indeed, as discussed more fully below, it is not statistically possible to estimate his model and obtain different "Harmony coefficients" for different iPod products. These basic problems with

---

Exhibit D ("Noll Dep.") at 141 – 142 ("It's an attack on it's a regression model that was used as an example of a method but that is based upon incomplete data and incomplete specification can be interpreted as a damage model, and it can't.).

[5] Noll Dep. at 186 ("That's not what the purpose of this was, to produce a reliable damages model. That's not its purpose.").

[6] Noll Dep. at 91-92 ("Remember this is about answering an assertion that Dr. Burtis made and you made in your opposition brief in which you said these regressions can't be done. And this is proof they can be done. But it is not a proof this is the right specification.").

[7] The lack of appropriate benchmarks is described in 2009 Burtis Report at ¶¶20-21.

Professor Noll's approach are not solvable with additional transaction data or more information about existing transactions. These are fundamental problems that make his methodology unreliable.

5. In addition, Professor Noll admits that he cannot construct a similar model based on Apple's retail prices because there is insufficient variation among those prices. [redacted] Similarly, his model does not account for the price changes that are unrelated to Harmony or the alleged conduct, including the changes that occurred a week before Harmony was announced. Nor does it account for the impact that new product introductions would have on price that occurred at the time of Apple's challenged software update. While he admitted that the timing of the price changes could cause "spurious correlation" that bias the results, he had not considered these timing issues and could not offer a way to address them and obtain a proper specification.

6. Professor Noll admits that there is not one common model or method for all proposed class members; *i.e.* wholesalers and consumers. He further admits that he cannot use his proposed model for consumers because there are too few retail observations.[8] Accordingly, he must "think of a different way to get at the retail transactions."[9] He has vaguely described a method for consumers that relies on NPD data for iPod products and competitors' products and that would depend on competitors' price changes "to create variance."[10] However, the methodology that he describes is another "before and after" model, and thus suffers from the same fatal flaws as his wholesaler model. Not only has Professor Noll admitted that there is not a common method that could be used for all proposed class members, but also that he has not determined a reliable model to estimate impact on the consumer class members.

---

[8] Noll Dep. at 44.

[9] Noll Dep. at 31.

[10] Noll Dep. at 44.

III. PROFESSOR NOLL' REGRESSION MODEL DOES NOT DEMONSTRATE WHETHER IMPACT CAN BE SHOWN WITH COMMON PROOF

7. Professor Noll is clear that the model included in his Reply Declaration is not to be relied upon.[11] He admits it is incomplete,[12] has omitted variables,[13] may be biased,[14] may be affected by "spurious correlation,"[15] and has not taken Apple's pricing strategy into account.[16] He does not and cannot draw any conclusions or inferences from the model or its results.[17] In particular, Professor Noll cannot draw any inferences about fundamental issues in this case, including whether iPod prices were higher or lower as a result of the introduction of iTS,[18] the

---

[11] Noll Dep. at 130-131 ("I cannot rule out anything based on the regression I have because I'm not relying on it for anything."); 148 ("Of course I'm not assuming it was specified correctly."); 186 ("That's not what the purpose of this was, to produce a reliable damages model. That's not its purpose.").

[12] Noll Dep. at 110 ("I am not here to defend as the final damages equation that which I have done because it's obviously incomplete."); 141 ("It is not a damages model because it is incomplete").

[13] Noll Dep. at 120 – 121 ("[I]f this is a systematic problem over the entire data set, it would say you need some more variables, which I readily conclude, you need more variables. This isn't a regression that I would use to calculate damages because I don't have enough information in it or enough variables in it.").

[14] Noll Dep. at 164 ("If someone presented that regression as a damages model and had made no attempt to specify the equation to pick up other sources of price changes, then it would be completely correct to say they had a biased estimate of the effect of Harmony.").

[15] Noll Dep. at 89 ("What I would say is an econometrician, the right way to deal with that is what is the causal effect that would lead to a price reduction before Harmony was introduced that is causing this spurious correlation that if I put it in the regression, it would cause the coefficient of the Harmony period to disappear. That actually is how I, as an economist would think about dealing with the problem you've just described."), 95 ("That's the same question, if there's spurious correlation going on with an excluded variable, it will bias the coefficients.")

[16] Noll Dep. at pp. 185 (Q. [redacted] A. No, that's why its not a damage model. Remember, this is in response to the claim I can't estimate this regression. And I can, but to go from there to a damage model, you would take this stuff into account."); *see also* 2011 Burtis Report at ¶35 and 2009 Burtis Report at ¶18.

[17] Noll Dep. at 90 ("I drew no causal inferences from that regression.").

[18] Noll Dep. at 17 ("At that point I will try to develop a specification that is appropriate for trying to measure price differences between the pre-iTMS period and the post-iTMS period. The equation that's in this report is not appropriate for measuring that.") [redacted] Noll Reply Declaration, Exhibit 3. This (continued)

entry of Harmony, the disabling of Harmony, or any other event.[19] Professor Noll's unwillingness to stand behind the model or its results indicates that it is useless to determine impact or damages.

8. Professor Noll's claim that the regression is "proof that [regressions] can be done" has little, if any, value.[20] All he has shown is that he can run data through a computer software package. And he admits that, if the model is misspecified like the one he used, it will produce unreliable results. In short, Professor Noll's opinion is that he can create a model that produces unreliable results. The relevant issue here, however, is whether a correctly specified and reliable regression can be used to determine impact for all proposed class members. Professor Noll admits he has not achieved this objective.[21]

---

results contradicts the fundamental premise of Plaintiffs' allegation in this case – that Apple obtained market power as a result of the interoperability between iTS and iPods, allowing Apple to raise iPod prices, and that certain alleged conduct allowed Apple to maintain that market power and maintain higher iPod prices. Professor Noll's model indicates there was no such market power to maintain. Professor Noll attempted to dispute the interpretation of the coefficient on the iTS variable. See Noll Dep. at 59 – 61. However, the interpretation of a dummy variable, like the iTS variable in Professor Noll's regression, is not controversial. See for example, Introductory Econometrics: A Modern Approach, Jeffrey M. Wooldridge, 3rd ed., 2006, pp. 230 - 237.

[19] Noll Dep. at 63 ("I'm not going to draw conclusions from [the Harmony coefficient] because, as I said earlier the specific quantitative results of this regression, the actual point estimates as opposed to the qualitative concept that this whole approach is going to work, I'm completely reluctant to draw conclusions.").

[20] Noll Dep. at 91.

[21] "When regression analysis is used improperly, it can provide misleading information. By their very nature, regressions summarize data. In the process of summarizing, they can overlook crucial detail. For example, it is always possible to perform a regression with the price as the dependent variable and with a variety of independent variables. The regression can be estimated, and a line can be fitted to the data. This does not mean, however, that impact can be shown with common proof, or that damages can be calculated in a formulaic manner. More careful analysis of the data is necessary to make sure that when the regression captures trends, it is not missing important information specific to individual customers that runs counter to those trends." ABA Section of Antitrust Law, Econometrics (2005) p. 221.

IV. PROFESSOR NOLL'S BEFORE AND AFTER APPROACH DOES NOT INCLUDE BENCHMARKS FOR IPOD MODELS INTRODUCED AFTER HARMONY AND THEREFORE CANNOT BE USED TO MEASURE IMPACT ON A CLASS-WIDE BASIS

9. Professor Noll's model purports to compare prices of iPods before and after the introduction of the iTS, the introduction of Harmony, and the October 2004 iTunes 4.7 software update. This is Professor Noll's attempt to implement a "before and after" model. Professor Noll's model contains one coefficient that is supposed to measure the impact of the iTS on prices of all iPods (the coefficient associated with the "post-iTMS" dummy variable), one coefficient that is supposed to measure the impact of Harmony's introduction on prices of all iPod models (the coefficient associated with the "Harmony" dummy variable (the "Harmony-on coefficient")), and one coefficient that is supposed to measure the impact of Apple's October 2004 iTunes 4.7 software update on all iPod products' prices (the coefficient associated with the "Harmony disabled" dummy variable (the "Harmony-disabled coefficient")).[22] [redacted][23]

10. The model contains no benchmarks for products that were introduced after Harmony entered in July 2004 or after the October 2004 iTunes 4.7 software update. For example, the iPod nano and iPod shuffle were not sold prior to either of these events and therefore are not included in Professor Noll's "before" period. Rather than estimating the impact

---

[22] Noll Reply Declaration, p. 37.

[23] 2011 Burtis Report ¶¶16, 24.

of Harmony on the prices of these products by comparing their prices before and after Harmony, the model *presumes* that iPod products introduced after the entry of Harmony were impacted in the same way that models that were sold both before and after Harmony were allegedly impacted.[24] For example, it presumes that the price of the iPod nano first introduced in September 2005 would be impacted by Harmony by the same dollar amount as the iPod Classic 4th generation would be, which existed at the time Harmony was disabled.

11. Professor Noll admits that the Harmony-on and Harmony-disabled coefficients measure averages across all iPod products.[25] Impact on different products purchased by different proposed class members, however, cannot be inferred based on an average. An average masks variation across the components used to calculate the average and may hide that certain products' prices were not impacted while others were impacted.[26] In this case, the problems associated with relying on average results based on the use of a before and after approach are particularly severe because the average returned by Professor Noll's model does not include products that were not sold in the "before" period (e.g., iPod nano, iPod shuffle, etc.). Indeed, the Harmony-on and Harmony-disabled coefficients are averages related only to iPods that were sold **both** before and after Harmony. This is a small portion of the transactions used in the regression and a small portion of iPods sold to proposed class members.

12. A test that Professor Noll should have conducted to verify his result and test the reliability of his model demonstrates that his results are driven by price changes related to a small group of products sold before and after Harmony. Professor Noll's model is based on transactions data from August 15, 2002 through December 2010. I re-estimated Professor Noll's model with his data from August 15, 2002 through December 2004. In this way, my re-estimation focuses on iPods that were sold both before and after the introduction of Harmony and excludes products that were introduced after Harmony. The results of this re-estimation are the

---

[24] See 2011 Burtis Report at ¶30 and 2009 Burtis Report at ¶¶9, 19-20.

[25] Noll Dep. at 142 ("[The regression] does calculate the average effect of a specific variable on average iPod prices taking into account all the other sources of differences.").

[26] ABA Section of Antitrust Law, Econometrics (2005) pp. 220-222.

same as Professor Noll's results. [redacted][27] This demonstrates that Professor Noll's model, which he concedes is unreliable, extrapolates the effect of price changes on the few iPods sold in 2004 to all iPods that were introduced from 2005-present.

13. Professor Noll has offered no way to change the specification to fix this problem—i.e., to measure impact for specific iPods sold after Harmony. Nor could he. At deposition, Professor Noll claimed that the Harmony variables could be "interacted" with product-specific dummy variables and thus, yield product-specific measures of the effect of Harmony and the software update.[28] But this would fail as a matter of fundamental statistics. Interacting Professor Noll's "Harmony" variable with a product-specific variable means that the two dummy variables (the "Harmony" dummy variable and the product-specific variable) would be multiplied and separate "Harmony" coefficients would be found for specific products. For example, assume that Professor Noll attempted to interact a variable for iPod nano with the dummy variable for the entry of Harmony. The interacted variable for the iPod nano would be zero in time periods prior to Harmony for the iPod nano and zero for all products other than the iPod nano in all time periods. The variable would be equal to one only for iPod nano prices after Harmony. The problem is that the iPod nano was not available prior to Harmony so the interacted iPod nano variable would be identical to the iPod nano product variable. When two identical variables are included in a regression, it is not possible to statistically estimate the equation. This is the

---

[27] Regression results are produced in Exhibit B. [redacted]

[28] Noll Dep. at 125, 167 ("Q...So for example, you could interact Nano with Harmony and interact Nano with Harmony disabled? A. You could do that, yes.")

problem of perfect collinearity.[29] Professor Noll's claim that such a model could be estimated is wrong as a matter of statistics.

V. PROFESSOR NOLL'S APPROACH CANNOT OVERCOME THE COMPLEX FACTORS THAT AFFECT AND DETERMINE IPOD PRODUCT PRICES

14. [redacted] These two problems prevent Professor Noll's model from producing reliable results.[30]

A. Lack of Variability in Wholesale Price Data

15. Professor Noll acknowledges that, without price variation, a regression analysis is unreliable.[31] For that reason, he rejects the idea of running a regression using retail list prices, which changed only infrequently. [redacted][32]

[29] See for example, Introductory Econometrics: A Modern Approach, Jeffrey M. Wooldridge, 3rd ed., 2006, pp. 90 - 92. Professor Noll admitted that this was a problem and claimed it could be fixed if "you could make each period have an indicator variable that's on only during that period instead of forever." Noll Dep. at 167. Professor Noll is admitting that the before and after approach must be changed. I agree that the before and after approach suggested by Professor Noll is not workable. Professor Noll has not provided any guidance on a model that is.

[30] 2011 Burtis Report at ¶¶11, 35; 2009 Burtis Report at ¶18.

[31] Professor Noll rejected the idea of performing a before and after model like the one in his reply report using retail prices. Noll Dep. at 44 – 45 ("Running a regression on list prices would not be a particularly reliable thing to do because of the absence of the number of observations. So you would want to do something else that gave you more observations to create variance to be explained in a regression model and that's why you go to the comparisons as opposed to just the list prices."); 46 ("The hypothetical is everybody pays exactly the same price, then I wouldn't be able to do a hedonic regression on – with the attributes based on retail price, no I wouldn't be able to do that. I would have to figure out some other way to do it…It wouldn't sustain an econometric model because of the statistical properties of estimation. You'd have to do something else.").

[32] [redacted]

[redacted][33]

[redacted][34]

B. Effect of Complexity of Factors Affecting iPod Product Prices

16. Professor Noll's model offers a clear demonstration of the omitted variables problem; when important variables are not included in a regression, the effect of those variables may be attributed to other variables in the equation. Professor Noll recognizes that product attributes affect iPod prices. His model includes some, but not all, product characteristics that he says affect iPod prices. For example, he includes storage capacity variables that differentiate a 20GB iPod from a 40GB iPod and variables that differentiate between a Classic iPod and a nano iPod. However, there are other variables that affect iPod prices that are not included in his model. For example, different generations of a 20GB Classic are not distinguished in the model and the "U2" version of the 20GB Classic is not distinguished from other 20GB Classic iPods. [redacted]

---

[33] [redacted]

[34] [redacted]

[redacted]

17. Excluding variables, especially when those variables change iPod prices just before July 2004 (when Harmony entered) and around October 2004 (when Apple updated its software), is particularly problematic for an approach designed to determine impact through a comparison of prices before and after those periods. The effect of the price changes due to a generational change in products, for example, may be picked up by Professor Noll's Harmony variable simply because those two events occurred at the same time. Professor Noll acknowledged that, if a variable that was correlated with the entry of Harmony were excluded from the model, the Harmony coefficient could be biased.[35]

18. Product introductions, like the ones described above, did in fact occur. As shown below, the price changes due to several product introductions are correlated with Professor Noll's "Harmony" and "Harmony disabled" variables. Specifically, in 2004, around the time Harmony entered, Apple sold a 20GB Classic iPod, a 40GB Classic iPod and an iPod mini. The prices of the iPod mini remained flat in 2004.

19. [redacted]

20. [redacted]

[35] Noll Dep. at 87-88 ("And yes, if there is an excluded variable from the regression, that is correlated with the Harmony period, then the Harmony coefficient could be biased.").

[redacted][36].

Wholesale Prices of iPod Classic 40GB
1/1/04 – 12/31/04

21. [redacted].

[36] Professor Noll was unaware of the U2 iPod introduction and claimed that it could not be identified in the data. Noll Dep. at 129. However, his dataset includes a variable that allows identification of the U2 iPod as well as other products.

Wholesale Prices of iPod Classic 20GB
1/1/04 – 12/31/04

22. The Harmony dummy variable, which is turned on in July 2004, picks up the price reduction in iPod Classic products due to the introduction of the new generation of products. The price reductions preceded the introduction of Harmony. Given that the price reduction preceded the introduction of Harmony, it cannot be related or attributed to Harmony. Yet that is what Professor Noll's model does. Similarly, the Harmony-disabled dummy variable is turned on beginning in October 2004 and thus picks up the effect of the introduction of new, more expensive products. The new products are introduced at nearly the same points in time as the introduction of Harmony and the Apple software update.

23. The introduction of new products at different price points explains why Professor Noll's dummy variable beginning in July 2004 is coincident with lower iPod prices and a dummy variable beginning in October 2004 is coincident with higher iPod prices.[37]

---

[37] The main iPod price changes that occurred during the period between July and October 2004 were those related to the 20GB iPod Classic and the 40GB iPod Classic. Professor Noll admitted that, if that was the case, the regression he produced in his reply report "possibly" captured the price changes due to the introduction of the new generation of those products. See Noll Dep. At 134 – 135. [redacted].

24. Professor Noll's method, based on using dummy variables for particular time periods of events, cannot reliably distinguish the impact of those two events on particular products. Professor Noll agreed that in this circumstance, the results would be affected by "spurious correlation" and be biased. [38]

VI. PROFESSOR NOLL'S REGRESSION MODEL DOES NOT INCLUDE CONSUMERS, AND HIS SEPARATE APPROACH TO A CONSUMER MODEL CANNOT SHOW IMPACT WITH COMMON PROOF

25. At deposition, Professor Noll stated that he is still working on an approach to establishing impact, and measuring damages, to individual class members who directly purchased an iPod at retail from Apple. He plans to use a "combination" of a yardstick method and a before-after method.[39] It is an entirely different approach from his resellers model. He has not provided any empirical "example" of this approach.[40] In fact, he doesn't yet know if it will work.[41]

26. Professor Noll claims that he is pursuing this approach because he does not have transaction level data for retail sales. [redacted].[42] His

---

[38] Noll Dep. at 89 ("What I would say is an econometrician, the right way to deal with that is what is the causal effect that would lead to a price reduction before Harmony was introduced that is causing this spurious correlation that if I put it in the regression, it would cause the coefficient of the Harmony period to disappear. That actually is how I, as an economist would think about dealing with the problem you've just described."), 95 ("That's the same question, if there's spurious correlation going on with an excluded variable, it will bias the coefficients.").

[39] Noll Reply Declaration, pp. 24-26, Noll Dep. at 26 – 28, 31 – 32, 29. ("It's a combination of yardstick, looking at price differentials between and iPod and a close competitor through time and doing a before and after test on that price differential."

[40] At his deposition, Professor Noll stated that he was "developing a data set" for the analysis. Noll Dep. at 26 – 27. See also Noll Dep. at 40 – 41.

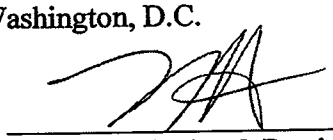
[41] Noll Dep. at 48 ("The issue is estimating an equation. The hard part is to decide given the data you actually can accumulate, what can you actually estimate and I don't know the answer to that yet.").

[42] Noll Dep. at 44 ("Running a regression on list prices would not be a particularly reliable thing to do because of the absence of the number of observations.").

combination yardstick and before and after method for determining impact on consumers attempts to create price variance by constructing price differences between iPod prices and competitor product prices using monthly NPD price data.[43] These price differences are what his model will attempt to explain, using a "similar" before after regression to the one that he has used in his reseller model.[44]

27. This methodology suffers from the same criticisms I discussed above. The before and after approach cannot be used to find measures of impact for the vast majority of iPod products that were introduced after the introduction of Harmony because there is no "before" benchmark period for those products. Further, there are numerous factors relevant to both the pricing of iPods and the pricing of "competitor" products that must be carefully taken into account in a robust model. Professor Noll has not specified his model, other than to say that he will need to account for all technical features of both products, as well as market conditions.[45] He has not shown that such a methodology will work.

I declare under penalty of perjury that the foregoing is true to the best of my knowledge and belief. Executed on April 11, 2011 in Washington, D.C.



Michelle M. Burtis, Ph.D.

---

[43] Noll Dep. at 40 ("And so I would run that – that would be the regression I would run without further information is differences in NPD surveyed prices on a monthly basis between iPods and the closest competitor models."), 42 ("And unless the relative proportions of those change substantially during the data period, then the NPD survey averages will be fine.").

[44] Noll Dep. at 43 ("No, it's a combination of yardstick and before after. You're calculating price differences at the model level between an Apple product and some other product… You take those price differences and you put them into a regression that is similar to but not the same as the regression that you've seen.").

[45] Noll Reply Declaration, pp. 25-26.

MICHELLE M. BURTIS, Ph.D.
Vice President

Cornerstone Research
1919 Pennsylvania Avenue NW, Suite 600 • Washington, DC 20006
202.912.8940 • fax 202.912.8999
mburtis@cornerstone.com

ACADEMIC BACKGROUND

1986	**University of Texas** *Ph.D., Economics*	Austin, Texas
1981	**University of Colorado** *B.A., Economics/ Political Science*	Boulder, Colorado

PROFESSIONAL EXPERIENCE

2006 – Present	**Cornerstone Research, Inc.** *Vice President*	Washington, D.C.
2004 – 2006	**LECG** *Managing Director, Competition Policy*	Washington, D.C.
1998 – 2006	**LECG** *Director*	Washington, D.C.
1988 – 1998	**Capital Economics** *Vice President*	Washington, D.C.
1986 – 1988	**ICF Incorporated** *Associate*	Washington, D.C.
1985 – 1986	**University of Texas** *Lecturer*	Austin, Texas

PUBLICATIONS

"Pass-Through, Common Impact and Structural Modeling in Indirect Purchaser Class Certification," with D. Neher, N. Norman, and M. Yan, ABA Economics Committee Newsletter, Summer 2010.

"Petroleum Refining Industry Business Interruption Losses due to Hurricane Katrina," with Kivanc Kirgiz and David Lunin, Journal of Business Valuation, 2009.

"Economics of Antitrust: An Economic Analysis of Resale Price Maintenance," with D. Garrett and V. Howell, The Antitrust Review of the Americas, 2008.

"Modern Industrial Organization: A Comment," *George Mason Law Review*, Fall 2003

"Vertical Integration and Agency Costs in the Gasoline Distribution Business," Working Paper presented at FTC Hearings on Gasoline Industry, June 2002.

PUBLICATIONS (cont.)

"Why an Original Can Be Better than a Copy: Intellectual Property, the Antitrust Refusal to Deal and ISO Antitrust Litigation," with B. Kobayashi, *Supreme Court Economic Review*, 2001.

"Intellectual Property and Antitrust Limitations on Contract," with B. Kobayashi, *Competition in Dynamic Economies*, Cambridge University Press, J. Ellig, ed., 2001.

"Analysis of Alternative Methods of Forecasting Residential Housing Starts," prepared for the U.S. Department of Housing and Urban Development, 1988.

"Residential Energy Use in North Carolina," prepared for the North Carolina Energy Conservation Group, 1987.

"Michigan Electricity Options Study, Socioeconomic Impact Analysis," prepared for the Michigan Department of Energy, 1987.

"The Effects of Defense Spending on the Texas Economy: An Example of Concave Programming," with S. Thore and G. Kozmetsky, *Journal of Policy Modeling*, 1984.

PRESENTATIONS

Antitrust Economic Fundamentals, American Bar Association Antitrust Law Spring Meeting, Washington DC, 2008, 2009, 2010.

Market Definition and Market Power in Technology Markets, 2009 Antitrust Intellectual Property Conference, Berkeley, California 2009.

Expert Presentation for Mock Trial, American Bar Association Antitrust Litigation Course, Philadelphia, 2007 and Washington DC, 2009.

"Supply and Demand Shocks in Energy Markets," Energy Markets in the 21st Century: Competition Policy in Perspective, FTC, 2007.

"Class Certification and Damages in Antitrust Litigation," NorthStar Conference, New York City, 2006.

"Economics and Robinson Patman," American Bar Association Antitrust Meetings, 2005.

"Economic Analysis of Pricing Issues in Gasoline Marketing," Petroleum Marketers Lawyers Association, 2005.

"Daubert and Economic Evidence," LECG Seminar Series, 2003.

"New Industrial Organization, from the Classroom to the Courtroom," George Mason Law Review Symposium, 2003.

"The Role of Economics in Antitrust," American Bar Association Antitrust Meetings, 2000 and 2001.

"Remedies for the Abuse of Market Power in High Technology Industries," American Bar Association Meetings, July 2000.

"Empirical Methods in Intellectual Property Disputes," LECG Intellectual Property Conference, Chicago, 1998.

TESTIMONY, EXPERT REPORTS AND DECLARATIONS

The Apple iPod iTunes Antitrust Litigation, on behalf of Apple Computer Inc., regarding class certification, 2009, 2011.

Lloyd Whaley, et al., v. Pacific Seafood Group, et al., on behalf of Pacific Seafood regarding allegations of conspiracy, 2011.

In Re Static Random Access Memory (SRAM) Antitrust Litigation, on behalf of Defendants regarding class certification and damages, 2009, 2010.

In Re Flash Memory Antitrust Litigation, on behalf of Defendants, regarding class certification, 2009.

In Re Western States Wholesale Natural Gas Antitrust Litigation, on behalf of Defendants regarding class certification, 2009.

SunOpta, Inc. and SunOpta Bioprocess, Inc. v. Abengoa Bioenergy New Technologies, Inc., and David Weidong He, on behalf of Defendants regarding alleged damages, 2009.

In Re Methyl Tertiary Butyl Ether ("MTBE") Products Liability Litigation, on behalf of Defendant Coastal Eagle Point Oil Company and El Paso Merchant Energy-Petroleum Company regarding measures of refining and distribution sales, 2009.

In Re Graphics Processing Units Antitrust Litigation, on behalf of Defendants regarding class certification in Direct and Indirect Purchaser Actions, 2008.

Molecular Diagnostics Laboratories v. Hoffman LaRoche and Applera Coporation, on behalf of Defendants regarding alleged monopolization, 2008.

U.S. Horticulture Supply v. The Scotts Company, on behalf of The Scotts Company regarding alleged conspiracy, 2007.

Proposed Class of Indirect Purchasers in Massachusetts v. U.S. Smokeless Tobacco Company, on behalf of U.S. Smokeless Tobacco Company, regarding allegations of monopolization, 2007.

Proposed Class of Indirect Purchasers in California v. U.S. Smokeless Tobacco Company, on behalf of U.S. Smokeless Tobacco Company, regarding class certification and liability issues related to monopolization allegations, 2003 and 2007.

In Re Natural Gas Commodity Litigation, on behalf of defendants American Electric Power and Coral Energy Resources, regarding claimed manipulation of natural gas prices, 2006.

Dassel's Petroleum v. Safeway Inc. on behalf of Safeway, regarding alleged below cost pricing and competitive injury, 2006.

Class of Consumers in New York and Kansas v. U.S. Smokeless Tobacco Company, on behalf of U.S. Smokeless Tobacco, regarding alleged effect of injunction on business performance, 2006.

Parish Oil v. Dillon Companies, on behalf of Dillon Companies regarding allegations of below cost pricing, 2005 and 2006.

Proposed Class of Indirect Purchasers in Wisconsin v. U.S. Smokeless Tobacco Company, on behalf of U.S. Smokeless Tobacco Company, regarding class certification and liability issues related to Section 2 allegations, 2004 and 2006.

Proposed Class of Indirect Purchasers in New Hampshire v. U.S. Smokeless Tobacco Company, on behalf of U.S. Smokeless Tobacco Company, regarding class certification, 2005.

U.S. Department of Justice v. Golan, on behalf of the U.S. Department of Justice, regarding copyright restoration of various artistic works, 2005.

Proposed Class of Indirect Purchasers in various state class action litigation v. U.S. Smokeless Tobacco Company, on behalf of U.S. Smokeless Tobacco Company, regarding antitrust damages, 2004.

Morrison, et al. v. Amway et al., on behalf of Amway, regarding damages from alleged misrepresentations and tortious interference, 2003.

General Supply Deck and Floor Underlayment Co. v. Maxxon Southwest, Inc., on behalf of Maxxon, regarding Robinson Patman damages, 2001.

Johnson & Johnson et al. MDL Litigation and related state cases, on behalf of Johnson & Johnson, regarding pricing issues related to disposable contact lenses, 1995-1997.

Heublein v. Gallo/Seagram, on behalf of Heublein, regarding market definition and competition among various alcoholic beverages, 1995.

Virgin Islands Water Authority v. Texaco, on behalf of Texaco, regarding damages associated with water supply issues on island, 1995.

Puerto Rico Department of Consumer Affairs v. Texaco, on behalf of Texaco, regarding competition in wholesale gasoline markets, 1994.

DMJM v. TAC, on behalf of DMJM, regarding damages associated with contract dispute, 1994.

Schumacher v. Silver Wallpaper, on behalf of Schumacher, regarding alleged vertical restraint, 1992.

ECONOMIC CONSULTING/ LITIGATION

Snapp v. Ford Motor Company, for Ford, regarding alleged abuse of monopsony power, 2005.

Chevron, regarding wholesale gasoline caps proposed by state legislature and Public Utilities Commission, 2005.

Prima and Par Mar v. Sam's Club, for Sam's Club, regarding alleged below cost pricing, 2004.

Proposed Class of Direct Purchasers v. 3M Company, for 3M Company, regarding class certification issues, 2003.

Proposed Class of Indirect Purchasers in Kansas v. U.S. Smokeless Tobacco Company, for U.S. Smokeless Tobacco Company, regarding class certification issues, 2003.

U.S. Federal Trade Commission on matter involving gasoline pricing issues, 2003.

Proposed Class of Indirect Purchasers v. BP-Amoco-Arco, for BP-Amoco-Arco, regarding class certification issues, 2002.

Monsanto v. Dupont, for Monsanto, regarding allegations of unfair competition in herbicides, 2002.

Dagher, et al. v. Shell, Texaco and Saudi Refining Inc., for defendants, regarding allegation of conspiracy, 2001.

Hawaii State Attorney General v. Chevron, et al., for Chevron, regarding alleged horizontal price fixing and market allocation, 2000-2001.

In Re Flat Glass Antitrust Litigation, for Ford, regarding issues of alleged price fixing in the flat glass industry regarding class certification issues, 1999-2001.

Allapattah v. Exxon, for Exxon, regarding issues of competition in wholesale gasoline markets and bundling of credit fees and gasoline, 1996-2001.

MERGERS AND ACQUISITIONS

Oracle/PeopleSoft, regarding business software in US District Court, Northern District of California (2004).

Sun Chemical/Bayer, regarding pigments before the Federal Trade Commission (2002).

FMC/Solutia, regarding chemical products before the Federal Trade Commission (1999-2000).
Keebler/Presidents regarding cookies before the Federal Trade Commission (1998).

Columbia Hospital Corporation/Medical Center Hospital regarding hospital services before the Federal Trade Commission and U.S. District Court (1993).

Rockwell/Sunstrand, for Rockwell regarding avionics (1993).

BP Oil/Exxon, regarding retail gasoline assets before the Washington State Attorney General (1992).

Carnaud-MetalBox/Anchor-Hocking, regarding closures before the Federal Trade Commission (1992).

Koch Industries/Elf Asphalt, regarding asphalt before the Federal Trade Commission (1992).

RTZ/Cyprus Minerals, regarding talc before the Federal Trade Commission (1992).

Cargill/Pillsbury, regarding flour mills before the Federal Trade Commission (1991).

3M/General Mills, regarding sponges before the Federal Trade Commission (1990).

Michelin/Uniroyal Goodrich, regarding tires before the U.S. Department of Justice (1990).

Martin Marietta/Georgia Marble, regarding quarries before the Federal Trade Commission (1989).

Republic Health/Parkway, regarding hospitals, before the Federal Trade Commission (1989).

Sun Oil/Atlantic Refining, regarding petroleum products before the Federal Trade Commission (1988).

Mobil/Tenneco, regarding retail and wholesale gasoline assets before the Federal Trade Commission (1988).

Mobil/BP Oil, regarding retail and wholesale gasoline assets before the Federal Trade Commission (1988).

Heinz/Bumble Bee, regarding tuna fish before the U.S. Justice Department (1988).

OTHER

Editor, Market Definition, *Antitrust Law Developments*, 2003-2004.

Lecturer, Mathematical Economics, Graduate Department of Economics, George Mason University, 2003.