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**UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA**

**THE APPLE IPOD ITUNES ANTITRUST  
LITIGATION**

**Case No.: 05-CV-0037 YGR**

**This Order Relates to:  
All Actions**

**ORDER DENYING: (1) DEFENDANT'S  
COMBINED MOTION FOR SUMMARY  
JUDGMENT AND *DAUBERT* MOTION; (2)  
PLAINTIFFS' *DAUBERT* MOTION; AND (3)  
PLAINTIFFS' MOTION TO STRIKE EXPERT  
REPORT**

**I. INTRODUCTION**

The remaining plaintiffs in this long-running antitrust case allege that defendant Apple, Inc. ("Apple"), after lawfully acquiring monopoly power in the market for portable digital music players with the introduction of the iPod, unlawfully maintained its monopoly power in violation of Section 2 of the Sherman Antitrust Act, 15 U.S.C. § 2. These plaintiffs represent a certified class of direct purchasers, specifically, individuals and businesses who purchased certain enumerated models of iPods directly from Apple between September 12, 2006 and March 31, 2009.

Now before the Court are three substantive motions, as well as numerous administrative motions to seal the moving papers and supporting evidence. This Order resolves the substantive motions: (1) Apple's Motion for Summary Judgment and to Exclude Expert Testimony of Roger G. Noll (Dkt. No. 740-4 ("MSJ")); (2) plaintiffs' *Daubert* Motion to Exclude Certain Opinion Testimony of Kevin M. Murphy and Robert H. Topel (Dkt. No. 737-4 ("*Daubert* Motion")); and (3)

1 plaintiffs' Motion to Strike Supplemental Expert Report of Kevin M. Murphy and Robert H. Topel,  
2 Dated December 20, 2013 (Dkt. No. 750-3). The Court addresses the administrative motions to  
3 seal in a separate Order.<sup>1</sup>

4 The motions are fully briefed and the Court held hearings in connection with them on  
5 February 7, 2014 (Dkt. No. 775) and August 13, 2014 (Dkt. No. 787 ("Tr.")). For the reasons set  
6 forth below, the Court **DENIES** all three motions.

7 **II. BACKGROUND**

8 The lengthy procedural history of this case has been recounted in prior opinions.<sup>2</sup> Here the  
9 Court sets forth only those background facts necessary to understand the case's present posture and  
10 the motions at bar. The facts supplied herein are undisputed unless otherwise noted.

11 During the class period, Apple provided to iPod owners a software program for loading and  
12 managing digital song files on their iPods, as well as for purchasing digital song downloads from  
13 Apple. That program is "iTunes" and Apple's online music store is the "iTunes."<sup>3</sup> One feature of both  
14 iTunes and iPods during the class period was their use of a digital rights management ("DRM")  
15 system unique to Apple, called "FairPlay." FairPlay made certain iPods distributed during the class  
16 period incapable of playing digital songs downloaded from an online music store unless they had  
17 been downloaded from the iTunes.<sup>4</sup>

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19 <sup>1</sup> The parties submitted all of their briefs and the bulk of their supporting evidence under  
20 seal pursuant to this Court's Civil Local Rule 79-5, albeit in a procedurally defective manner. The  
21 Court cites the unredacted, nonpublic version of the briefs and evidence, taking pains, however, to  
22 place in the public record no material designated as sealable. This does not suggest that the  
23 materials so designated are in fact sealable.

24 <sup>2</sup> See generally *Tucker v. Apple Computer, Inc.*, 493 F. Supp. 2d 1090 (N.D. Cal. 2006)  
25 ("*iPod I*"); *In re Apple iPod iTunes Antitrust Litig.*, C05-00037 JW, 2008 WL 5574487 (N.D. Cal.  
26 Dec. 22, 2008) amended, C05-00037 JW, 2009 WL 249234 (N.D. Cal. Jan. 15, 2009) ("*iPod II*");  
27 *In re Apple iPod iTunes Antitrust Litig.*, 796 F. Supp. 2d 1137 (N.D. Cal. 2011) ("*iPod III*").

28 <sup>3</sup> Apple initially called its online digital-music retailer the iTunes Music Store but later in  
the class period rechristened it simply the iTunes Store. The Court refers to both as "iTunes."

<sup>4</sup> The Court earlier granted Apple judgment on the pleadings as to a Section 1 tying claim  
challenging its creation of a so-called "walled garden" through its implementation of FairPlay.  
(Dkt. No. 274.)

1           In July 2004, an Apple competitor in the online music market, third party Real Networks  
2 ("Real"), introduced a new version of its own digital-song manager, RealPlayer. RealPlayer  
3 included a feature called Harmony. Harmony made songs downloaded from Real's online music  
4 store mimic FairPlay, and thus made music purchased from Real playable on iPods.

5           Apple responded to Harmony by taking technological countermeasures to stop Harmony  
6 from mimicking FairPlay. First, in October 2004, Apple issued an iTunes update denominated  
7 "4.7." The 4.7 update, among other things, thwarted Harmony's ability to mimic FairPlay. The  
8 Court previously held 4.7 to be a genuine product improvement and therefore lawful, and entered  
9 summary judgment in favor of Apple to the extent plaintiff's Section 2 claim rested on Apple's  
10 introduction of 4.7. *iPod III*, 796 F. Supp. 2d at 1146.

11           It is Apple's second instance of disabling Harmony that forms the basis of plaintiff's present  
12 Section 2 claim. Following Apple's release of 4.7, Real modified Harmony such that it could again  
13 mimic FairPlay and make any new songs purchased from Real's online music store playable on  
14 iPods. Thereafter, in September 2006, Apple released another iTunes update that introduced a  
15 variety of features while also disabling Harmony—namely, "7.0." In an earlier summary judgment  
16 order, the Court found a triable issue of fact as to whether 7.0 was a genuine product improvement  
17 so as to not be anticompetitive. *Id.* at 1147. Apple's present motion seeks summary judgment on  
18 two different bases: (1) a lack of admissible evidence of antitrust impact, and (2) a lack of  
19 admissible evidence as to the definition of the relevant market. To understand these arguments, it  
20 is necessary to articulate plaintiff's theory of liability.

21           That theory is intricate, but ultimately it amounts to a charge that Apple's release of 7.0  
22 unlawfully maintained Apple's monopoly in the market for portable digital media players by  
23 making demand for iPods less elastic. Specifically, plaintiffs claim that 7.0 resulted in an increased  
24 "lock-in" effect for iPod owners who purchased songs online. Lock-in, according to plaintiffs'  
25 principal economics expert, "is a form of foreclosure that arises from actions that increase the cost  
26 to consumers of switching to a product that has better quality and/or a lower price." (Noll Merits  
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1 Report at 4.)<sup>5</sup> Plaintiffs offer expert opinion that Apple, by counteracting Harmony, "raised the  
2 cost of switching from iPods to competing portable digital media players by eliminating the ability  
3 of consumers to collect a library of downloads that could be played on all players." (*Id.*) That is,  
4 7.0 made iPod owners unable to play songs purchased from iTunes competitor Real and thus pushed  
5 them to make their online song purchases only on the iTunes. As a result, it discouraged iPod owners  
6 from buying a competing, non-iPod digital portable music player when it came time to replace their  
7 iPods due to loss, breakage, or a desire to upgrade. (*Id.*) Such owners would have to either forego  
8 use of the songs they had purchased through Real (as well as any other online music store besides  
9 iTunes, though that is not part of the damages alleged in this case), repurchase such songs through  
10 other, iPod-compatible means (for instance, iTunes or physical CDs), or convert music bought from  
11 Real into a non-DRM format, for example, by "burning" that music to a CD and then "ripping" the  
12 CD onto their computers in a file format with no DRM, from whence the songs could then be  
13 loaded on their iPods. These increased "switching costs," plaintiffs argue, locked iPod owners into  
14 continuing to purchase iPods, notwithstanding the allegedly similar or better quality of and lower  
15 prices of competing products. They also locked out owners of non-iPod portable digital media  
16 players who had downloaded songs from the Real store. The effect of both lock-in and lock-out,  
17 plaintiffs say, was to reduce competition in the market for digital portable music players and to  
18 reduce the price elasticity of iPods, which permitted Apple to charge a supracompetitive price  
19 therefor. (Noll Merits Report at 4-5; Noll Merits Rebuttal at 27.) According to plaintiffs' expert,  
20 "[t]he damages in this case are the overcharge on iPods during the class period due to the  
21 incompatibility that was created by iTunes 7.0." (Noll Merits Report at 5.) Plaintiffs' expert  
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23 <sup>5</sup> The parties submitted numerous expert reports in connection with the motions at bar. In  
24 referring to those reports, the Court adopts the nomenclature generally used by the experts  
25 themselves. The reports are listed here in chronological order: Dkt. Nos. 751-4, Ex. 1 (Noll report  
26 of April 3, 2013 ("Noll Merits Report")); 740-14 (Noll report of May 13, 2013 ("Noll Corrections  
27 Report")); 737-8 (Murphy report of August 19, 2013 ("Murphy Report")); 737-9 (Topel report of  
28 August 19, 2013 ("Topel Report")); 751-4, Ex. 2 (Noll rebuttal report of November 25, 2013 ("Noll  
Merits Rebuttal")); 740-23 (joint Murphy and Topel supplemental report of December 20, 2013  
("Joint Report")); 751-15, Ex. 54 (Wooldridge report of December 20, 2013 ("Wooldridge  
Report")); 751-5 (Noll supplemental rebuttal report of January 13, 2014 ("Noll Supp. Rebuttal"));  
and 763-5 (Wooldridge supplemental report of January 31, 2014 ("Wooldridge Supp. Report")).

1 estimates damages to the class of \$351,631,153, "consisting of \$148,947,126 for resellers,  
2 \$194,655,141 for direct purchasers, and \$8,028,886 for additional iPod sales from the additional  
3 transactions." (Noll Merits Rebuttal at 51.)

4 Apple strenuously disputes the sufficiency of plaintiffs' evidence of this theory. Apple  
5 contends that it is entitled to summary judgment because plaintiffs lack admissible evidence of  
6 either antitrust impact or the relevant product market, both of which are required elements of  
7 plaintiffs' Section 2 claim. The linchpin, and Achilles' heel, of Apple's argument is the word  
8 "admissible." Apple disputes the admissibility of the opinions of plaintiffs' principal economics  
9 expert, Professor Roger G. Noll. Noll has conducted both (i) a complex statistical analysis that  
10 plaintiffs offer as proof of both the fact and the amount of antitrust damages suffered by the class,  
11 and (ii) an analysis of the relevant market. In response, Apple offers its own experts, Professors  
12 Kevin M. Murphy and Robert H. Topel, who criticize the design and execution of Noll's statistical  
13 analyses and fault his relevant market findings. Plaintiffs counter with rebuttal opinion from Noll,  
14 as well as opinion testimony from a second expert with special expertise in statistics, Professor  
15 Jeffrey M. Woodridge, whose opinions corroborate those of Noll. All of these opinions are subject  
16 to *Daubert* motions or procedural objections. It is to those matters that the Court now turns.

### 17 **III. DISCUSSION**

18 "A trial court may only consider admissible evidence in ruling on a motion for summary  
19 judgment." *Ballen v. City of Redmond*, 466 F.3d 736, 745 (9th Cir. 2006). Accordingly, before  
20 turning to the substance of Apple's summary judgment motion, the Court first resolves the parties'  
21 challenges to the admissibility of the proffered expert opinions.

#### 22 **A. CHALLENGES TO ADMISSIBILITY OF EXPERT OPINIONS**

23 The principal focus of Apple's *Daubert* motion is a set of opinions offered by Noll as to  
24 both the fact and amount of antitrust damages suffered by the class. These opinions have as their  
25 bases econometric analyses Noll performed on a dataset supplied by Apple. The dataset consists of  
26 Apple's complete sales records for the models of iPod covered by the class definition and sold  
27 during the class period, stripped of obvious outliers (e.g., sales where the price was zero or  
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1 negative, or many times the listed retail price) and incomplete records.<sup>6</sup> Noll used this dataset to  
2 perform a hedonic multiple-regression analysis. Multiple-regression analysis is a statistical tool  
3 that "permits the comparison between an outcome (called the dependent variable) and one or more  
4 factors (called independent variables) that may be related to that outcome." *Manpower, Inc. v. Ins.*  
5 *Co. of Pennsylvania*, 732 F.3d 796, 808 (7th Cir. 2013). The term "hedonic" denotes that the  
6 analysis sought to "isolate the effect of one or more product attributes on the price of a product." *In*  
7 *re ConAgra Foods, Inc.*, --- F. Supp. 2d ---, 2014 WL 4104405, at \*4 (C.D. Cal. 2014). In short,  
8 the attributes of particular models of iPod constituted some (not all) of the independent variables in  
9 Noll's regression analysis. Noll's regressions purport to isolate the effect on iPod pricing  
10 attributable to Apple's release of 7.0 and the security feature embedded therein. According to  
11 plaintiffs and Noll, that pricing effect is the illegal overcharge in this case, and constitutes proof of  
12 both the fact of damages and their amount. (*See, e.g.*, Noll Merits Report at 5.) Noll also offers an  
13 opinion as to the relevant product markets, identifying two: a market for portable digital media  
14 players and a market for digital audio files.

15 In response to Noll's opinions, Apple submits reports from Murphy and Topel, who purport  
16 to identify flaws in Noll's damages analysis that render it so unreliable as to be inadmissible under  
17 the familiar standard of *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993). Their three  
18 main criticisms are summarized as follows: Noll (i) failed to account for "clustering" problems in  
19 his regression analysis, (ii) omitted from his hedonic model certain variables that measure product  
20 attributes affecting iPod prices, and (iii) used the wrong "but-for" world to calculate damages by  
21 turning off the variable for 4.7 on the date that 7.0 was introduced.<sup>7</sup> As to Noll's market definition,

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22 <sup>6</sup> The class period in this case covers the time period beginning with Apple's initial release  
23 of 7.0 and ending the date that Apple—following a shift in business strategy by the record  
24 companies—entirely stopped using DRM. *See iPod IV*, 2011 WL 5864036, at \*4 nn. 22-23. The  
25 class is comprised of individuals and businesses who, during the class period, purchased directly  
from Apple any of 29 individual iPod models distributed among 4 model types. *Id.* at \*4-5.

26 <sup>7</sup> It is common in antitrust cases to estimate damages by comparing the price actually  
27 charged to an expert economist's estimation of the price that would have been charged "but for" the  
28 asserted anticompetitive conduct. *E.g., In re Hydrogen Peroxide Antitrust Litig.*, 552 F.3d 305, 313  
(3d Cir. 2008); *In re Elec. Books Antitrust Litig.*, 11 MD 2293 DLC, 2014 WL 1282298, at \*3  
(S.D.N.Y. Mar. 28, 2014).

1 Apple's expert Murphy opines that because Noll failed to use the proper mode of analysis in  
2 deriving his market definition, his opinions are inadmissible as merely "untested, subjective  
3 opinions." (MSJ at 24.) In response to these criticisms, plaintiffs offer supplemental rebuttal  
4 opinion from Noll on damages and market definition and, with respect to the clustering criticism  
5 only, the opinions of Wooldridge.

6 The parties have not challenged any of these experts as unqualified to give their respective  
7 opinions.<sup>8</sup> Rather, the parties have objected to the opinions themselves. As set forth herein, the  
8 Court finds that the objections to the content of the challenged opinions go to weight rather than  
9 admissibility, and that the parties' procedural and other technical objections are insufficient to  
10 persuade the Court to exercise its discretion to exclude the opinions.

### 11 1. Applicable Legal Standard

12 "In federal courts, the admission of expert testimony is governed by Federal Rule of  
13 Evidence 702, as elucidated by the Supreme Court in *Daubert*." *Barabin v. AstenJohnson, Inc.*,  
14 700 F.3d 428, 432 (9th Cir. 2012). Federal Rule of Evidence 702 allows expert testimony only if  
15 the expert's "scientific, technical, or other specialized knowledge will help the trier of fact to  
16 understand the evidence or to determine a fact in issue." Rule 702 permits experts to testify if their  
17 testimony is: (i) based upon sufficient facts or data, (ii) the product of reliable principles and  
18 methods, and (iii) the result of applying those principles and methods reliably to the facts of the  
19 case. *Id.* In determining whether an expert's testimony meets the standards of Rule 702, the court  
20 acts as a "gatekeeper" that "ensur[es] that [the] expert's testimony both rests on a reliable  
21 foundation and is relevant to the task at hand." *Daubert*, 509 U.S. at 597; *see also Kumho Tire Co.*  
22 *v. Carmichael*, 526 U.S. 137, 148-49 (1999). In addition, the court may exclude expert testimony  
23 that is "otherwise admissible may be excluded under Rule 403 if its probative value is substantially  
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26 <sup>8</sup> The Court finds all four professors qualified to render expert opinions on economics and  
27 econometrics. All four hold distinguished positions as economics professors—Noll at Stanford  
28 University, Murphy and Topel at the University of Chicago, and Wooldridge at Michigan State  
University. All four have also written and taught extensively concerning the subjects upon which  
they have opined. *See* Noll Merits Report, Appendix A; Murphy Report, Appendix A; Topel  
Report, Appendix A; Wooldridge Report, Appendix A.

1 outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury." *U.S.*  
2 *v. Rincon*, 28 F.3d 921, 923 (9th Cir. 1994) (citing *Daubert*, 509 U.S. at 595).

3 The Ninth Circuit has reiterated that the "test of reliability is 'flexible' . . . . When an expert  
4 meets the threshold established by Rule 702 as explained in *Daubert*, the expert may testify and the  
5 jury decides how much weight to give that testimony." *Primiano v. Cook*, 598 F.3d 558, 564-65  
6 (9th Cir. 2010). "Shaky but admissible evidence is to be attacked by cross examination, contrary  
7 evidence, and attention to the burden of proof, not exclusion." *Id.* at 564.

## 8 **2. Apple's *Daubert* Motion to Exclude Opinions of Noll**

9 The Court first addresses Apple's challenges to Noll's opinions, specifically: (i) his opinions  
10 regarding antitrust impact and damages, as based on his regression model, and (ii) his opinion as to  
11 which products comprise the relevant market in which iPods reside.

### 12 *a. Regression Model*

13 Proof of an injury caused by Apple's alleged antitrust conduct is a required element of  
14 plaintiffs' Section 2 claim. *Rebel Oil Co. v. Atl. Richfield Co.*, 51 F.3d 1421, 1432-33 (9th Cir.  
15 1995). In this case, plaintiffs seek to demonstrate the required antitrust injury with Noll's  
16 regression model. The model purports to isolate the effect on iPod pricing during the class period  
17 attributable to the alleged anticompetitive conduct, that is, the effect of Apple's introduction of 7.0  
18 and the consequent inability of iPods loaded with 7.0 to play songs downloaded from Real. As a  
19 threshold matter, the Court finds that the dataset relied upon by Noll, as the complete record of  
20 sales transactions for covered models of iPods during the class period, constitutes sufficient data  
21 upon which to base expert testimony. The Court also finds that hedonic multiple-regression  
22 analysis is a sound and, indeed, commonplace method for isolating the pricing effects of alleged  
23 anticompetitive conduct. *E.g., In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 660-  
24 61 (7th Cir. 2002) ("*Corn Syrup*"); *Conwood Co., L.P. v. U.S. Tobacco Co.*, 290 F.3d 768, 793 (6th  
25 Cir. 2002); *Petruzzi's IGA Supermarkets, Inc. v. Darling-Delaware Co.*, 998 F.2d 1224, 1238 (3d  
26 Cir. 1993). Accordingly, Noll's opinions are admissible under Rule 702 unless they are the result  
27 of an unreliable application of otherwise sound methods or would be unhelpful to the trier of fact.

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1 Apple contends that Noll's regression model is inadmissible because (i) it lacks a sufficient  
2 "fit" with the facts of the case, (ii) it does not account for all the relevant factors that affect iPod  
3 pricing, and (iii) it does not supply statistically significant results (once one modifies the model in  
4 the manner suggested by Apple's experts). The Court has weighed Apple's objections carefully and  
5 finds that none establish such a level of unreliability or unhelpfulness that would justify wholesale  
6 exclusion of Noll's opinions. Rather, they go to the weight of Noll's opinions.

7 The Court turns first to Apple's arguments as to fit. As a threshold matter, the Court notes  
8 that the challenged opinions rest on a regression analysis conducted on data consisting of Apple's  
9 actual sales records for iPods during the class period. Given that Noll's regressions, and his  
10 opinions based thereon, purport to explain the prices charged in those sales, there is a sufficient fit  
11 between the facts and the opinion.

12 Apple offers four arguments as to fit, none of which persuade. These arguments posit that  
13 Noll's regression "rests on unsupported assumptions that conflict with the real world." (MSJ at 14.)  
14 First, Apple contends that the requisite fit is lacking because plaintiffs have marshaled no evidence  
15 of particular persons who used Harmony or suffered lock-in or lock-out. The lack of direct  
16 evidence of named individuals who used Harmony does not disprove their existence. The Court  
17 finds nothing unreasonable about an assumption that, among the millions of persons who used  
18 iPods during the class period, some may have purchased songs from Real. Under plaintiffs' theory,  
19 such purchases give rise to the lock-in effect and reduced elasticity of demand. No "indisputable  
20 record facts contradict or otherwise render the opinion unreasonable," *Brooke Grp. Ltd. v. Brown &*  
21 *Williamson Tobacco Corp.*, 509 U.S. 209, 242 (1993), nor are Noll's opinions "connected to  
22 existing data only by the *ipse dixit* of the expert," *Kumho Tire Co. v. Carmichael*, 526 U.S. 137,  
23 157 (1999). Rather, Noll's opinions derive from a dataset of transactions supplied by Apple itself.<sup>9</sup>  
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25 <sup>9</sup> Apple analogizes this case to *American Booksellers Association*, but that case is  
26 distinguishable. *Am. Booksellers Ass'n, Inc. v. Barnes & Noble, Inc.*, 135 F. Supp. 2d 1031 (N.D.  
27 Cal. 2001). In that case, plaintiffs' expert on antitrust damages "concededly made no effort to base  
28 his model on actual purchasing data" and "his model ma[de] no attempt to determine the actual  
prices paid . . . ." *Id.* at 1038. Not so here, where it is uncontested that Noll based his model on  
actual purchasing data and the actual prices paid.

1           Second, Apple argues that plaintiffs present no direct evidence of Apple's pricing committee  
2 taking into account any effects of the Harmony-disabling countermeasures contained in 7.0 when  
3 setting iPod prices. (MSJ at 13.) The Court is not persuaded that this is a valid reason to exclude  
4 Noll's testimony. The record contains testimony and documentary evidence sufficient to support an  
5 inference that the Apple executives on the pricing committee knew of and were concerned by  
6 Harmony. (Dkt. No. 751-13, Ex. 36 (submitted under seal); Dkt. No. 751-15, Ex. 48 at 45:9-19  
7 (submitted under seal).)

8           Third, the Court rejects Apple's related argument that Noll's opinions must be excluded  
9 because his prediction of a constant, immediate lock-in effect resulting in overcharge "is flatly  
10 contrary to how Apple set its prices." (MSJ at 13; *see also* Dkt. No. 762-5 ("MSJ Reply") at 6, 7-  
11 8.) Apple explains that its prices are set at particular times pursuant to a uniform pricing policy.  
12 However, the record contains non-trivial evidence that the actual prices charged were not in fact  
13 uniform and that pricing decisions may have incorporated factors above and beyond Apple's  
14 preference for so-called "aesthetic" prices. Apple's argument does not sufficiently undermine the  
15 reliability of Noll's model to warrant exclusion.

16           Finally, the Court rejects Apple's argument that the analysis predicts a constant, immediate  
17 overcharge that Apple claims is not consistent with the notion of a gradual lock-in over time.  
18 Apple purports to demonstrate that Noll's own admissions "are irreconcilable with the single,  
19 unchanging overcharge amount predicted by his damages model." (MSJ Reply at 7-8.) That  
20 argument ultimately is one of weight, not evidence of the unreliability of the regression analyses  
21 themselves.

22           Apple's second proffered basis for excluding Noll's opinions centers on his supposed failure  
23 to account properly for relevant pricing factors. (MSJ at 14-20.) Generally, such deficiencies in a  
24 statistical analysis raise issues of weight rather than admissibility. *E.g., Bazemore v. Friday*, 478  
25 U.S. 385, 400 (1986) (reversing lower court's exclusion of regression analysis based on its view  
26 that the analysis did not include proper selection of variables); *Hemmings v. Tidyman's Inc.*, 285  
27 F.3d 1174, 1188 (9th Cir. 2002) ("[I]n most cases, objections to the inadequacies of a study are  
28 more appropriately considered an objection going to the weight of the evidence rather than its

1 admissibility."); *Obrey v. Johnson*, 400 F.3d 691, 695 (9th Cir. 2005) (same principle); *Rudebusch*  
2 *v. Hughes*, 313 F.3d 506, 516 (9th Cir. 2002) (same); *Maitland v. Univ. of Minnesota*, 155 F.3d  
3 1013, 1017 (8th Cir. 1998) (same); *see also Manpower*, 732 F.3d at 808 (collecting cases). Here,  
4 Apple faults Noll for leaving "on" throughout the entire class period a variable representing Apple's  
5 introduction of 4.7, for purportedly failing to account for the impact on price of aspects of 7.0  
6 besides the allegedly anticompetitive security feature that disabled Harmony, and for failing to  
7 account for certain, though by no means all, of the product characteristics of iPods used in Noll's  
8 hedonic model. (MSJ at 14-20.) These criticisms do not persuade that Noll's regression analysis is so  
9 fundamentally unreliable as to warrant exclusion. Noll supplied cogent reasons for his inclusions  
10 and exclusions. Apple's criticisms reflect mere disagreement with those reasons. As such, they go  
11 to the weight that should be afforded Noll's opinions, not their admissibility.

12 Apple's third main reason for excluding Noll's opinions is that his regression, once  
13 "corrected" in the manner urged by Apple's experts, does not supply statistically significant results.  
14 (*See* MSJ at 20 (arguing Noll's results are statistically insignificant "[w]hen properly calculated").)  
15 The Court notes that Apple's argument relies on the Court's acceptance of Apple's experts'  
16 criticisms of Noll's methodology. While some of those criticisms are compelling, the Court is not  
17 persuaded, in light of Noll's rebuttal opinions and Wooldridge's opinions, that the battle between  
18 the economists of the University of Chicago school, on the one hand, and those from Stanford and  
19 Michigan State University, on the other, is properly resolved here. It is not lost on the Court that  
20 econometrics is in the family of social sciences and therefore necessarily contains certain value  
21 judgments and hypotheses that are tested and used in conjunction with statistics. Unless beyond the  
22 realms of reason and reliability, these issues are fully within the province of experts to debate and a  
23 jury to resolve.

24 Most significant are Apple's criticisms regarding clustering. Murphy and Topel argue that  
25 Noll vastly overstates the precision and reliability of his model by failing to account for clustering  
26 and thus generates an artificially high "t-statistic." By way of background, a t-statistic is one  
27 measure of confidence that a statistical result is statistically significant, that is, not the byproduct of  
28 chance. A t-statistic of 1.96 translates to a 95 percent confidence level that the result is statistically

1 significant, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 303, 343 (3d ed. 2011), or, inversely, a 5  
 2 percent chance that the figure is statistically *insignificant*. Using the inverse measure, confidence  
 3 levels of 1, 5, or 10 percent have all been treated as benchmark measures of reliability by statistics  
 4 experts. *See In re High-Tech Employee Antitrust Litig.*, 11-CV-02509-LHK, 2014 WL 1351040, at  
 5 \*15 (N.D. Cal. Apr. 4, 2014) ("*High-Tech*") (collecting authorities). Thus far though, courts have  
 6 been unwilling to mandate a particular *t*-statistic as a prerequisite for purposes of admissibility. *Id.*  
 7 (finding no cases legally requiring 10 percent or greater confidence to admit statistical evidence)  
 8 (citing *Cook v. Rockwell Int'l Corp.*, 580 F. Supp. 2d 1071, 1102 (D. Colo. 2006); *Kadas v. MCI*  
 9 *Systemhouse Corp.*, 255 F.3d 359, 362 (7th Cir. 2001)).

10 The Court is not persuaded that Apple's criticisms of Noll's approach to clustering merit  
 11 exclusion of Noll's opinions. While Murphy and Topel's modifications to Noll's regression to  
 12 account for clustering "properly" would, if accepted, dramatically change the *t*-statistics for the  
 13 iTunes 7.0 coefficient, Noll and Wooldridge make at least a colorable case that no clustering  
 14 problems exist where, as here, the data set constitutes the entire population of observations, as  
 15 opposed to a sampling. (*See* Noll Merits Rebuttal at 39 ("[C]luster analysis is irrelevant if the data  
 16 set is either representative of the entire population of observations or is not a sample at all, but in  
 17 fact is the entire population."); Noll Supp. Rebuttal at 3-7 (same principle); Wooldridge Report at  
 18 10 (same).) The question presented here is not whether Noll's analyses are correct, but whether  
 19 they are the product of a generally accepted method for demonstrating both the fact and the amount  
 20 of antitrust damages. In light of the opinions of Noll and Wooldridge, the Court finds that the  
 21 results of Noll's regression analyses do meet the threshold of reliability necessary for admissibility,  
 22 even if the proffered claim of accuracy strains credulity. *Obrey*, 400 F.3d at 696 ("As a general  
 23 matter, so long as the evidence is relevant and the methods employed are sound, neither the  
 24 usefulness nor the strength of statistical proof determines admissibility under Rule 702."). Given  
 25 the general acceptance of multiple-regression analysis, Noll's obvious qualifications for conducting  
 26 such analyses, and the unresolved threshold question of whether Noll's figures should be  
 27 "corrected" in the precise manner urged by Murphy and Topel, the Court finds Noll's multiple-  
 28 regression analyses admissible under Federal Rule of Evidence 702 and *Daubert*. Under these

1 circumstances, the issue is more appropriately one of weight and credibility. Accordingly, the  
2 Court **DENIES** Apple's *Daubert* motion insofar as it challenges the admissibility of Noll's regression  
3 analyses.

4 *b. Relevant Market*

5 Plaintiffs' Section 2 claim requires them to prove the contours of the "relevant market" in  
6 which Apple allegedly used unlawful means to maintain its monopoly power. *See Eastman Kodak*  
7 *Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 481 (1992); *Bhan v. NME Hospitals, Inc.*, 929  
8 F.2d 1404, 1413 (9th Cir. 1991); *Newcal Indus., Inc. v. Ikon Office Solution*, 513 F.3d 1038, 1044  
9 (9th Cir. 2008). "[A] 'market' is the group of sellers or producers who have the actual or potential  
10 ability to deprive each other of significant levels of business." *Rebel Oil Co. v. Atl. Richfield Co.*,  
11 51 F.3d 1421, 1434 (9th Cir. 1995) (internal quotation marks omitted). "The outer boundaries of a  
12 product market are determined by the reasonable interchangeability of use or the cross-elasticity of  
13 demand between the product itself and substitutes for it." *Newcal Indus.*, 513 F.3d at 1045 (quoting  
14 *Brown Shoe Co. v. United States*, 370 U.S. 294, 325 (1962)).

15 To prove their relevant market, plaintiffs rely exclusively on the opinions of Noll, who  
16 undertook a lengthy analysis of both relevant markets asserted by plaintiffs in this case,  
17 respectively, portable digital media players and digital audio files. (Noll Merits Report at 25-32  
18 (portable digital media players), 32-42 (digital audio files).) Noll opined that there are multiple  
19 ways of identifying a relevant market. One such method is to estimate cross-elasticity of demand  
20 using a formal econometric study. However, Noll further opined that "[i]n most cases data  
21 limitations preclude econometric estimation of cross-elasticity of demand" and that such estimation  
22 "is usually impossible for products that have extensive product differentiation and that are rapidly  
23 evolving, as was the case of portable digital media players during the class period." (*Id.* at 23-24.)  
24 Noll looked instead to internal Apple documents, employee testimony, and discovery responses,  
25 third-party information such as contemporaneous financial analysis and press coverage of the  
26 development of the portable digital media player market, and his own experience.

27 Apple argues that Noll's opinion on these matters is inadmissible because he failed to  
28 conduct either a formal econometric analysis of cross-elasticity of demand or a "hypothetical

1 monopolist" test. While such analyses may be possible or even desirable, Apple's assertion that  
2 such formal tests are *required* lacks legal support. Moreover, as plaintiffs point out, Apple's own  
3 expert did not measure the cross-elasticity of demand or engage in the hypothetical monopolist test  
4 in their own discussions of market definition. (*See generally* Murphy Report at 60-64.) Apple's  
5 attacks on Noll's opinion comprise mere disagreement with his conclusions.

6 For purposes of Rule 702, the district judge serves only as "a gatekeeper, not a fact finder."  
7 *Primiano*, 598 F.3d at 564-65 (internal quotation marks omitted). Apple has failed to persuade that  
8 Noll's opinion as to the relevant market must be excluded for lack of an accepted methodology.  
9 Accordingly, Apple's *Daubert* motion is **DENIED** on this ground.

### 10 **3. Plaintiffs' *Daubert* Motion to Exclude Opinions of Murphy and Topel**

11 Plaintiffs seek to exclude only those opinions of Murphy and Topel bearing on clustering  
12 problems. (*Daubert* Motion at 1.) As was the case with Murphy and Topel's criticisms of Noll's  
13 regression analysis, plaintiffs' criticisms of Murphy and Topel's clustering opinions also go to  
14 weight, not admissibility. Plaintiffs' motion is premised on a mere disagreement in expert opinion,  
15 not a showing that Murphy and Topel used unreliable methods, relied upon facts too far removed  
16 from those of this case to be relevant, or are unqualified to render their opinions.

17 The Court **DENIES** plaintiffs' *Daubert* motion to exclude the opinions of Murphy and Topel.

### 18 **4. Apple's Objection to Opinions of Wooldridge**

19 Apple argues in its opposition that Wooldridge's opinions must be excluded as having been  
20 untimely disclosed and inadmissible under *Daubert*. The Court disagrees on both counts.

21 First, as to timeliness, even assuming plaintiffs disclosed Wooldridge late, such late  
22 disclosure would be harmless under Federal Rule of Civil Procedure 37(c) because Apple had  
23 ample time not only to respond to Wooldridge's report (prompting, in turn, a supplemental report  
24 by Wooldridge), but also to depose him (which deposition Apple took, *see* Dkt. No. 754-10, Ex. 11  
25 ("Wooldridge Dep.")).

26 Second, as to Apple's *Daubert* objection to Wooldridge's opinions, Apple argues that  
27 Wooldridge's opinions must be excluded because they "are contrary to generally accepted  
28 econometrics," "have not been peer reviewed," and "were manufactured for this litigation." (Dkt.

1 No. 754-6 at 18-19.) The Court finds none of those points persuasive. The purported lack of peer  
2 review or common acceptance of Wooldridge's views does not necessarily justify exclusion of  
3 Wooldridge's opinions, given Wooldridge's own apparent status as a leading authority and his  
4 specific testimony as to the development of his theories. *See Daubert*, 509 U.S. at 593-94 (peer  
5 review and publication of an expert's views are relevant to, but not necessarily dispositive of,  
6 reliability determination). "[I]n some instances well-grounded but innovative theories will not have  
7 been published." *Id.* at 593. Here, Wooldridge testified, and Apple has not disputed, that  
8 Wooldridge himself is a leading authority on clustering theory, that he has been revisiting and  
9 refining his theories for at least two years, sometimes in collaboration with colleagues at Harvard  
10 and Stanford, and that he has of late modified his views such that he now disagrees with certainly  
11 commonly accepted views, including views encompassed in recommendations contained in an  
12 American Bar Association guide. (Wooldridge Dep. at 62:14-65:2, 91:7-92:10, 117:6-118:24,  
13 158:16-159:13.)<sup>10</sup> Nothing in these statements or elsewhere in the record before the Court  
14 establishes that Wooldridge's theories are unreliable, as opposed to merely new.

15 The same testimony undercuts Apple's contention that Wooldridge's rethinking of his  
16 theories predated his engagement as an expert witness in this case. (*See* Wooldridge Dep. at 8:10-  
17 9:2 (Wooldridge first contacted about and began working on case in December 2013); *see also id.*  
18 at 7:21-24 (Wooldridge never before served as expert witness).) Apple's argument that  
19 Wooldridge generated his opinions for the purposes of litigation amounts to an invitation to  
20 discredit Wooldridge's contrary testimony. The Court is unwilling to do so on the cold record now  
21 before it. Any concerns with Wooldridge's opinions are best addressed through contrary evidence  
22 and cross-examination and, if applicable, impeachment of Wooldridge. Should the Court determine  
23 at trial, following examination of Wooldridge or for any other reason, that his opinions are  
24 unreliable or ersatz, the Court has the option of giving the jury a limiting instruction. *Cf.*  
25 *Hemmings*, 285 F.3d at 1183 (affirming district court's denial of *Daubert* motion where district  
26  
27

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28 <sup>10</sup> It is not clear that the matter on which Wooldridge's views have changed is the same  
matter at issue here. (*See* Tr. at 95:5-12.)

1 court stated that "if it determined that portions of [the expert's] analysis were improper, it would  
2 give a limiting instruction to the jury").

3 The Court **OVERRULES** Apple's objections to the opinions of Wooldridge.

4 **5. Plaintiffs' Motion to Strike**

5 Plaintiffs move to strike the Joint Report, that is, the supplemental report submitted jointly  
6 by Murphy and Topel in response to the Noll Merits Rebuttal. Plaintiffs contend that the Joint  
7 Report is untimely and, because the Noll Merits Rebuttal contained no new opinion, unjustified.  
8 Plaintiffs claim they will be prejudiced if the Joint Report is admitted and ask that, if it is, the Court  
9 also admit Noll's response to the Joint Report, the Noll Supplemental Rebuttal. Apple raises  
10 several arguments in opposition to plaintiffs' motion to strike, but essentially acquiesces in the entry  
11 of plaintiffs' requested alternative relief, i.e., allowing *both* the Joint Report and the Noll  
12 Supplemental Rebuttal. (Dkt. No. 758-5 at 1.)<sup>11</sup>

13 The Court finds that permitting the Joint Report to stand, along with the Noll Supplemental  
14 Rebuttal, is harmless, given that Noll has responded to the Joint Report and plaintiffs deposed both  
15 Murphy and Topel after they issued the Joint Report. Additionally, in light of the new regression  
16 analysis contained in the Noll Merits Rebuttal, the Court cannot say that the Joint Report is  
17 unjustified. Noll modified several attributes of his regression analysis following the Murphy  
18 Report and Topel Report. The regression analyses presented in the Noll Merits Rebuttal cover the  
19 same subject matter as those presented in the earlier Noll Merits Report, but they are not the same  
20 analyses. Plaintiffs' argument that there was nothing new in the Noll Merits Rebuttal to which  
21

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22 <sup>11</sup> Apple argues that plaintiffs' motion to strike should be denied on procedural grounds as  
23 an evidentiary objection not contained in the body of plaintiffs' summary judgment opposition,  
24 which objections are prohibited by Civil Local Rule 7-3(a). (Dkt. No. 758-5 at 1.) Plaintiffs  
25 respond that the applicable rule is Local Rule 7-8 because plaintiffs move not for exclusion under  
26 *Daubert* but for evidentiary sanctions under Federal Rule of Civil Procedure 37, and Local Rule 7-8  
27 requires "[a]ny motion for sanctions, regardless of the sources of authority invoked," to be  
28 separately filed. The Court need not address this potential ambiguity in its Local Rules because  
Apple's acquiescence to plaintiffs' requested alternative relief moots the issue. The Court notes,  
however, that Apple's citation to *Apple, Inc. v. Samsung Electronics Co.*, 11-CV-01846-LHK, 2011  
WL 7036077, at \*3 (N.D. Cal. Dec. 2, 2011), is inapposite because, in that case, Samsung moved  
for *Daubert* exclusion, not, as here, Rule 37 sanctions.

1 Murphy and Topel could respond does not persuade in light of Noll's changes to the model of his  
2 regression analyses.

3 The Court **DENIES** plaintiffs' motion to strike the Joint Report. Both the Joint Report and  
4 the Noll Supplemental Rebuttal are allowed.

5 **B. APPLE'S MOTION FOR SUMMARY JUDGMENT**

6 Apple contends that: (1) Real's "insignificant" share of less than 3 percent of the online  
7 music market in 2006, when Apple released 7.0, makes it "implausible" that Harmony could have  
8 the effect ascribed to it by plaintiffs (MSJ at 9); (2) "plaintiffs have no evidence regarding what  
9 portion of Real's small sales was to iPod owners or potential iPod purchasers" (*id.* at 9-10); (3)  
10 "plaintiffs have no proof of the number of people who became locked in or locked out" after 7.0  
11 (*id.* at 10); (4) plaintiffs have not identified evidence showing that Apple's pricing committee "took  
12 into account the amount of sales from [Real] or any other online store in setting iPod prices" (*id.* at  
13 10-11); and (5) Apple always abides by an "aesthetic" pricing policy, by which Apple appears to  
14 mean a policy of setting prices in fifty-dollar increments, less one dollar (e.g., \$199, \$249, \$399)  
15 (*see id.* at 11-12).

16 The Court rejects these arguments because the admission of Noll's opinions alone supplies a  
17 triable issue of fact regarding the fact and amount of antitrust damages, as well as the definition of  
18 the relevant market. Apple's five grounds for entering summary judgment are insufficient bases  
19 upon which to enter summary judgment in the face of Noll's opinions. Those opinions constitute  
20 relevant *circumstantial* evidence of both the fact and amount of damages upon which a jury  
21 applying a preponderance standard reasonably could find for plaintiffs. Noll's opinions also supply  
22 non-trivial evidence of the relevant market. Apple's asserted bases for summary judgment merely  
23 point out possible gaps in plaintiffs' case.

24 Given that the Court may not intrude upon the province of the jury by weighing the  
25 conflicting evidence now before it, Noll's opinions preclude entry of summary judgment. *Cf. Corn*  
26 *Syrup*, 295 F.3d at 660-61 (after surveying each blow in a "battle of the statistical experts",  
27 reversing district court's entry of summary judgment in favor of defendant because plaintiffs had  
28

1 presented statistical evidence of price-fixing). The Court **DENIES** Apple's motion for summary  
2 judgment.

3 **IV. CONCLUSION**

4 For the foregoing reasons, the Court **DENIES** Apple's *Daubert* motion to exclude the  
5 opinions of plaintiffs' expert Noll, **DENIES** plaintiffs' *Daubert* motion to exclude certain opinions of  
6 Apple's experts Murphy and Topel, **OVERRULES** Apple's objections to the opinions of plaintiffs'  
7 expert Wooldridge, **DENIES** plaintiffs' motion to strike the December 20, 2013 joint report of  
8 Murphy and Topel, and **DENIES** Apple's motion for summary judgment.

9 **IT IS SO ORDERED.**

10  
11 Date: September 26, 2014

  
YVONNE GONZALEZ ROGERS  
UNITED STATES DISTRICT COURT JUDGE