FOR PUBLICATION

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

ADRIANA M. CASTRO, et al., on behalf of themselves and all others similarly situated, ***Plaintiffs,*** **v.** **SANOFI PASTEUR INC.,** ***Defendant.***	**Civil Action No. 11-7178** **OPINION**

ARLEO, UNITED STATES DISTRICT JUDGE.

Before the Court are Defendant's Motion to Exclude Plaintiffs' Class Experts [Dkt. No 337] and Plaintiffs' Motion for Class Certification [Dkt. No. 309]. The Court conducted a Daubert hearing from September 9th to September 11th, 2015. Considering the testimony and briefing, the Court is convinced that Plaintiffs' expert, Professor Einer Elhauge, cannot be excluded as unreliable. Plaintiffs have also presented proof common to the proposed class on all elements of their antitrust claim, so this class will be certified.

I. FACTS

A. General Background

This case concerns bundling of pediatric vaccines by Sanofi Pasteur Inc. ("Sanofi" or "Defendant"). For many years, Sanofi had a 100% monopoly over the conjugate quadrivalent meningococcal vaccine ("MCV4") market. Sanofi's MCV4 vaccine, Menactra, usually is administered to children to inoculate against four strains of meningitis bacterium. Sanofi also had dominant market share in several other pediatric vaccine markets, including: (1) Diphteria,

Tetanus, and Pertussis ("DTaP") vaccines; (2) Inactivated Polio Virus ("IPV") vaccines; and Haemophilus influenzae type B ("HIB") vaccines.

Novartis—which did not sell other pediatric vaccines—planned to bring a competing MCV4 vaccine, Menveo, to market by late 2009. In mid-2009, Sanofi became aware of the potential competition. It responded by bundling Menactra with its other pediatric vaccines and substantially increasing its prices. Customers who purchased from Sanofi a certain percentage of all four pediatric vaccines—MCV4, DTaP, IPV, and HIB—received a "loyalty discount" that dropped prices back to what those customers had paid immediately before Menveo entered the market. Customers who did not purchase a sufficient percentage of the relevant vaccines from Sanofi paid substantially higher prices on all four vaccines. This loyalty discounting scheme is referred to throughout this Opinion as the "Sanofi bundle" or "the bundle." Prices for MCV4 vaccines subsequently rose when Novartis entered the market.

Plaintiffs are three pediatric physician practices—Adriana M. Castro, M.D., P.A., Sugartown Pediatrics, LLC, and Marquez & Begochea, M.D., P.A.—who seek to represent the following proposed class:

> All persons or entities in the United States and its territories that purchase Menactra directly from defendant Sanofi Pasteur Inc. ("Sanofi") or any of its divisions, subsidiaries, predecessors or affiliates, such as VaxServe, Inc., during the period from March 1, 2010 through such time as the effects of Sanofi's illegal conduct have ceased ("Class Period"), and excluding all governmental entities, Sanofi, Sanofi's divisions, subsidiaries, predecessors, and affiliates, Kaiser Permanente and the Kaiser Foundation (collectively "Kaiser"), and any purchases by entities buying Menactra pursuant to a publicly-negotiated price (i.e., governmental purchasers).

Most of the physicians in the proposed class are members of physician buying groups ("PBGs") or group purchasing organizations ("GPOs"), which buy the vaccines from Sanofi or Novartis and then distribute them to member doctors or hospitals.

B. Procedural Posture

This case was initially filed on December 9, 2011. Dkt. No. 1. The first consolidated amended complaint was filed on January 20, 2012. Dkt. No. 28. Sanofi moved to dismiss the case and filed a counterclaim for violation of the Sherman Act on February 27, 2012. Dkt. Nos. 50, 54. Plaintiffs subsequently moved to strike the counterclaim. Dkt. No. 74. Judge Jose Linares denied the motion to dismiss. Dkt. No. 106, Mot. To Dismiss Opinion (hereinafter "MTD Op."). He later granted in part Plaintiffs' motion to dismiss, eliminating the counterclaim and certain affirmative defenses from this case. Dkt. No. 135. A request for interlocutory appeal of Judge Linares' dismissal of Sanofi's counterclaim was denied. Dkt. No. 169. The parties then proceeded through fact and expert discovery for class certification purposes. Plaintiffs filed their motion for class certification on December 15, 2014. Dkt. No. 309. Sanofi opposed and filed a motion to exclude Plaintiffs' class experts, particularly Professor Einer Elhauge, on February 13, 2015. Dkt. No. 337.

The Court held Daubert hearings on the admissibility of Professor Elhauge's reports on September 9 to September 11, 2015. During these hearings, the Court heard testimony from Professor Elhauge and Mr. Kaplan and attorney argument on either side regarding the admissibility of Professor Elhauge's testimony.

C. Expert Reports of Einer Elhauge

Professor Einer Elhauge, a preeminent antitrust scholar at Harvard Law School, presented expert reports for Plaintiffs.[1] He opines on five issues. First, he defines the markets relevant to this case: (1) DTaP vaccines; (2) IPV vaccines; HIB vaccines; and (4) MCV4 vaccines. Elh. Rpt. ¶¶ 32-34, 72-97. Sanofi has monopoly power in each of these markets during the relevant period due to its market share: 55-71% DTaP, 63-73% IPV, 82-90% HIB, and 81-90% MCV4. Id. ¶¶ 50, 79, 88, 95.

Second, Professor Elhauge opines that the bundle had no procompetitive effects. He notes that it resulted in identical prices after the discount, simply imposing higher penalty prices (by 37-57% in the relevant vaccines) on disloyal customers. Id. ¶¶ 111-36, 158-60. No procompetitive benefit was mentioned in Sanofi's internal documents. Id. ¶¶ 128-36. And Sanofi added the bundle only after it learned Menveo would enter the market. Id. ¶¶ 158-69. Professor Elhauge therefore concludes that the bundle was a penalty, not a discount.

Third, this bundle divided the MCV4 market into customers receiving discounts under the bundle ("Sanofi-loyal customers") those who did not ("disloyal customers"). Id. ¶¶ 174-78. Professor Elhauge bases this conclusion on three forms of evidence: economic literature, Sanofi and Novartis internal documents and testimony, and data analysis and regressions. Professor Elhauge has previously published on how loyalty discounts can split markets, causing anticompetitive effects. See Einer Elhauge, How Loyalty Discounts Can Perversely Discourage Discounting, 5 J. Competition L. & Econ. 189, 218 (2009); Einer Elhauge & Abraham L. Wickelgren, Robust Exclusion and Market Division Through Loyalty Discounts (With/Without Buyer Commitment), Harvard Public Law Working Paper No. 14-12 (2014), available at:

[1] Plaintiffs' other expert, Dr. Leitzinger, is not at issue here. His report does not provide any independent basis for finding causation or price impact. For those propositions, he relies on Professor Elhauge's analysis.

http://ssrn.com/abstract=2419722. Sanofi and Novartis documents and testimony show that they believed the bundle divided the market. See Elh. Rpt. ¶¶ 179-89; Elh. Reb. ¶ 188. They also acknowledged that the bundle had a restraining effect. Elh. Rpt. ¶¶ 203-05.

Market division is apparent in the data, Elhauge testifies. Menveo's share with disloyal customers was 33%, while its share with Sanofi-loyal customers was only 6%. Elh. Reb. ¶ 129. The size of the loyalty discounts required Novartis to price below cost in order to compete for customers who were Sanofi-loyal; Novartis would have to price Menveo at $9.15 to attract Sanofi-loyal customers compared to $102.66 to attract disloyal customers. Elh. Rpt. ¶ 198, Table 10. Non-compliant sales (i.e. purchases of Menveo by Sanofi-loyal customers) were a rare 1.1% of all sales. Elh. Reb. ¶ 111. Furthermore, Professor Elhauge conducts a share regression which indicates that but-for the bundle, Menveo's share of restrained buyers would have been at least three times higher (20% instead of 6.6%). Elh. Rpt. ¶¶ 213-15; Elh. Reb. ¶¶ 41-63; Elh. Suppl. ¶¶ 89-102, 106-44. Based on this, he concludes that the bundle split the MCV4 market into Sanofi-loyal and disloyal customers. Elh. Rpt. ¶¶ 174-190. This enabled Novartis and Sanofi to avoid competition on price because there was a very large gap between the prices where disloyal customers would purchase Menveo versus those where Sanofi-loyal customers would do the same. See id. ¶¶ 183-86, 198. As a result, Novartis and Sanofi could coordinate on price and impose higher prices on the whole market.

Fourth, Elhauge opines that this market division inflated prices to the whole class by dis-incentivizing competition between Sanofi and Novartis and enabling the firms to reach a relatively stable price equilibrium, preventing price competition which would otherwise have resulted. Professor Elhauge points to three market changes that should have led to lower prices in the relevant period—change from monopoly to duopoly, lower marginal costs, and lower market

demand. Elh. Rpt. ¶¶ 168, 226-27; Elh. Reb. ¶¶ 155, 254, 324-27; Elh. Suppl. ¶¶ 1, 201, 227-28. But market prices increased. Elh. Rpt. ¶ 140, Fig. 17. Professor Elhauge also applied a differentiated Bertrand competition model to discern the but-for prices without the bundle. He gave three reasons for using this model. The market was differentiated, with distinct preferences making Menactra and Menveo meaningfully different, though they were substitutable. The market was Bertrand; firms competed in the market by setting prices, not quantity, and there were no relevant capacity constraints. Finally, the market would be (but-for the alleged conduct) characterized by competition, not coordination. Tr. 141:16-142:25. The last proposition Professor Elhauge supported by reference to product differentiation, price opacity, and market data showing that price coordination was actually never feasible. Elh. Rpt. ¶¶ 228-29; Elh. Reb. ¶¶ 148, 170, 202, 243-54; Elh. Suppl. ¶ 188. His differentiated Bertrand model showed that prices would be $64.58 for Menactra and $50.64 for Menveo in the but-for world. Elh. Rpt. ¶ 261, Fig. 21.

Finally, Professor Elhauge concludes that the whole class paid inflated prices as a result of the bundle. Sanofi had a rigid price structure for Menactra; 99.5% of class members paid standard Menactra contract prices since Menveo entered the market. Elh. Rpt. ¶¶ 275-82; Elh. Reb. ¶¶ 302-21; Elh. Suppl. ¶¶ 230-44. Only one of the 26,000 class members always received an individualized discount on all purchases. See Elh. Suppl. ¶ 244; Tr. 177:11-12. And even this class member was overcharged, based on Elhauge's assessment of prices in the but-for world. Elh. Rpt. ¶¶ 267, 275-82; Elh. Reb. ¶¶ 23, 155, 301-21; Elh. Suppl. ¶¶ 230-44. Any rare deviations from the price structure would be the same with or without the bundle, so the assumption that prices would change across the board is not unreasonable here, according to Elhauge.

D. Expert Reports of Mr. David Kaplan

David Kaplan presents expert reports on behalf of Defendant. These reports are exclusively rebuttal reports challenging various portions of Professor Elhauge's opinions.

Mr. Kaplan disagrees that the market was divided by the bundle for four reasons. First, Mr. Kaplan opines that Novartis was not foreclosed from competition in the MCV4 market. It competed for some customers who were subject to the bundle and some who were not. Kaplan Rpt. ¶¶ 19-21. Second, Professor Elhauge's Menveo share regression does not prove that Menveo share was lower for customers subject to the bundle because the regression produces only a minor change in market share—2% of the total MCV4 market. Id. ¶¶ 22-25. Third, customer preference for Sanofi products might explain Elhauge's Menveo share results. Id. ¶¶ 34-35. Finally, the share regression results become statistically insignificant if the sample's time period or customers are changed in certain ways. Id. ¶¶ 36-42.

Mr. Kaplan also challenges Professor Elhauge's differentiated Bertrand model as inappropriate, both generally and as applied to this case. Mr. Kaplan argues that the model's results are not consistent with real world pricing behavior because the differentiated Bertrand model assumes a one-shot game with no follow-up coordination. Id. ¶¶ 130-32. Such a game leads to results contrary to Sanofi and Novartis's interests (namely, keeping prices high). In Mr. Kaplan's view, coordinated interaction is more likely here, where firms account for their opponent's past and future pricing decisions. Professor Elhauge also did not account for the prices the United States government paid for vaccines using the Vaccines for Children program, even though government purchases accounted for about half the MCV4 market. These prices were transparent and were set at the lowest actual price at which the vaccine was sold (the "VFC floor"). The model he uses was also not calibrated. Additionally, Mr. Kaplan believes that Professor Elhauge uses the wrong cost data. Id. ¶¶ 149-51.

Finally, Mr. Kaplan argues that the assumption that any overcharge would apply equally across the class is without basis. Sanofi and Novartis both used discounts in the real world and would continue to use them here, he concludes. Id. ¶¶ 121-22.

II. DEFENDANT'S MOTION TO EXCLUDE PROFESSOR ELHAUGE'S TESTIMONY

A. Legal Standard

Courts are frequently called upon to consider expert opinion offered to support or oppose class certification. In re Hydrogen Peroxide Antitrust Litig., 552 F.3d 305, 323 (3d Cir. 2008), as amended (Jan. 16, 2009). Where an expert opinion is critical to class certification and a party challenges the reliability of that opinion, the reviewing court must engage in a two-step analysis before analyzing whether Rule 23's requirements have been met: (1) whether the party's challenges bear upon "those aspects of [the] expert testimony offered to satisfy Rule 23" and (2) if so, whether the opinion is admissible as to those aspects under Federal Rule of Evidence 702 and Daubert v. Merrell Dow Pharms. Inc., 509 U.S. 579 (1993). In re Blood Reagents Antitrust Litig., 783 F.3d 183, 188 (3d Cir. 2015).

In deciding whether to admit expert testimony, the trial court serves as a "gatekeeper" tasked with "ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." Daubert, 509 U.S. at 597; see also Kumho Tire Co. v. Carmichael, 526 U.S. 137, 147-48 (1999) (applying Daubert standard to all expert testimony). The Court considers whether: (1) the expert is qualified; (2) the expert's testimony is reliable; and (3) the expert's testimony is helpful to the trier of fact, i.e., it must "fit" the facts of the case. See United States v. Schiff, 602 F.3d 152, 172 (3d Cir. 2010); Fed. R. Ev. 702. The proponent of the expert testimony must prove these three requirements by a preponderance of the evidence. Mahmood v. Narciso, 549 F. App'x 99, 102 (3d Cir. 2013) (citing In re TMI Litig., 193 F.3d 613, 663 (3d Cir. 1999)).

In determining whether proposed expert testimony is reliable, the trial court should examine:

> (1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

In re Paoli R.R. Yard PCB Litig., 35 F.3d 717, 742 n.8 (3d Cir. 1994); see also Schneider ex rel Estate of Schneider v. Fried, 320 F.3d 396, 405 (3d Cir. 2003). Each step of the expert's analysis must be reliable, including "the methodology, the facts underlying the expert's opinion, and the link between the facts and the conclusion." ZF Meritor, LLC v. Eaton Corp., 696 F.3d 254, 291 (3d Cir. 2012). But proponents of expert testimony need not "prove their case twice—they do not have to demonstrate to the judge by a preponderance of the evidence that the assessments of their experts are correct, they only have to demonstrate by a preponderance of the evidence that their opinions are reliable." Oddi v. Ford Motor Co., 234 F.3d 136, 145 (3d Cir. 2000).

B. Analysis

Defendant argues that Professor Elhauge's opinion must be excluded as unreliable, due to Professor Elhauge's methods and the application of those methods. Many of Defendant's arguments go to weight, not admissibility. Because there are not either serious methodological flaws or a clear lack of factual basis, the Court declines to exclude Professor Elhauge's reports.[2]

1. Qualifications

[2] As Defendant colorfully explains, the Court should strike "junk science." When asked directly, however, Mr. Kaplan repeatedly avoided characterizing Professor Elhauge's opinion as junk science. See, e.g., Tr. 486:19-25; 507:16-17.

Professor Elhauge is eminently qualified, and Defendant does not challenge his qualifications. He is the Petrie Professor of Law at Harvard Law School, where he teaches antitrust law and health policy. Elh. Rpt. ¶ 29. He has authored or coauthored several books on antitrust law and economics, including several leading antitrust casebooks. He has testified before the United States Senate on bundled loyalty conditions. Since 1991, he has also written over thirty legal articles published in major law reviews and bar journals. He has testified in courts around the country concerning economic analysis of antitrust injury in twenty-one cases involving bundling and loyalty conditions. Tr. 71:4-6. His testimony on these topics has never been excluded. Tr. 71:7.[3] He also graduated first in his class from Harvard Law School. "Professor Elhauge has been described as a 'highly qualified antitrust titan.'" In re Mushroom Direct Purchaser Antitrust Litig., No. 06-0620, Dkt. No. 718, at *8 (E.D. Pa. July 29, 2015) (quoting Natchitoches Parish Hosp. Serv. Dist. v. Tyco Int'l Ltd., 247 F.R.D. 253, 273 (D. Mass. 2008).

2. Reliability

Defendant argues that three of Professor Elhauge's five conclusions are unreliable, due to both improper methodology and errors in the implementation of his methods. The three disputed conclusions are whether: (1) Sanofi's bundle divided the market; (2) that division inflated prices; and (3) any injury occurred across the board or disproportionately affected certain customers. The Court will address these in turn.

a. Sanofi's Bundle Divided The Market

Professor Elhauge testified that the bundle divided the MCV4 market into Sanofi-loyal customers and disloyal customers. Elh. Rpt. ¶¶ 174-190. He based this conclusion on three forms

[3] One market definition of Professor Elhauge was excluded in a case currently on appeal. It's My Party, Inc. v. Live Nat., Inc., 88 F. Supp. 3d 475 (D. Md. 2015). His market definitions here are undisputed.

of evidence: Sanofi and Novartis internal documents and testimony, economic literature, and data analysis and regressions. Defendant challenges his reliance upon economic literature and his data analysis and regressions.

i. Internal Documents Showing Market Division

Professor Elhauge relies on internal Sanofi and Novartis documents as well as testimony by Sanofi and Novartis representatives to show that the MCV4 market was divided by the bundle. These documents and testimony are not merely tangential; they directly describe the precise conduct which Professor Elhauge theorizes (and conducts regressions to show) occurred. They show that customers had to purchase from the bundle or pay penalties. Defs.' Ex. 137. They show that Sanofi and Novartis believed that the market was divided. Pls.' Exs. 1, 41, 1014. They also show that Novartis declined to use a lower pricing strategy on entry in part because of the bundle. Pls.' Exs. 15, 33, 1007.

Defendant does not meaningfully challenge this basis for Professor Elhauge's opinion. Defendant's own expert relies on similar "real world" evidence throughout his opinion and admitted that such evidence is reasonable for experts to rely upon. Tr. 488:24-489:1; 495:12-17; 511:6-10. These documents show that Professor Elhauge's opinions are not far afield; both Sanofi and Novartis believed that the market was divided by the bundle.

ii. Economic Literature on Market Division

Professor Elhauge's theory traces its genesis to his earlier academic work. See Elhauge, 5 J. Competition L. & Econ. at 218; Elhauge & Wickelgren, Harvard Public Law Working Paper No. 14-12. These articles conclude that bundled loyalty discounts can cause market division and subsequent price increases. Defendant argues that this theory has not been accepted by other economists or empirically tested and so cannot be relied upon to prove market division here.

These are not mere fringe theories. Professors Salinger and Farrell, both former directors of the Federal Trade Commission's economics department, have cited his theories with approval. See DOJ/FTC Conditional Pricing Practices Workshop (June 23, 2014), available at: https://www.ftc.gov/system/files/documents/public_events/302251/cpp_workshop_transcript.pdf. Though the literature is still in an early phase, it is certainly worth considering.

The economic literature appears not to empirically test Professor Elhauge's theories, however. Professor Elhauge points out that the type of data required to test this theory—i.e. sensitive cost and profit data in bundled vaccine markets—is not publically available. Tr. 603:17-21. In any event, he conducted empirical analysis in this case.

The economic literature may be relied upon as supporting evidence of Professor Elhauge's theory concerning market division and price inflation. Alone, it would not render his opinion reliable. But it is not alone.

iii. Data Analysis and Regressions Showing Market Division

Professor Elhauge also supported his opinion on market division with data analysis showing (1) many more customers bought Menactra than Menveo if they were subject to the bundle; (2) overcoming the bundle required Novartis to price below cost; and (3) share regressions prove that the market was divided.

1) Novartis Acquired Fewer Restricted Customers

Professor Elhauge examined sales data to determine that 6% of customers subject to the Menactra Bundle purchased Menveo, as opposed to 33% of the off-bundle customers. Elh. Reb. ¶ 129. This disparity supports market division. Defendant argues that the fact that Novartis could get some share of the Sanofi-loyal customers contradicts Professor Elhauge's conclusion that the market was divided. The Court disagrees.

Menveo's acquisition of 6% of the share of Sanofi-loyal customers does not mean the bundle had no effect, as the bundled system was designed to retain some headroom. Specifically, Sanofi-loyal customers had to purchase (1) 90% of all their pediatric doses from Sanofi and (2) Menactra doses equal to at least 80% of the customer's purchases of Menactra from the previous year. See Elh. Rpt. ¶ 105. Although the market was shrinking, this strategy provided some headroom for Novartis to acquire a few doctors without breaking the bundle. That does not contradict Professor Elhauge's theory that the bundle prevented Novartis from competing for the bulk of Sanofi-loyal customers. Tr. 101:2-15. This basis survives Daubert.

2) Value of the Bundle Required Pricing Below Cost

Professor Elhauge also calculated the value of the bundle and the consequent pricing Novartis would need to defeat the bundle. He looked at the dosage guidelines on the three bundled vaccines—DTaP, IPV, and HIB—which yielded total penalties of $89.41 as of April 2010 for those who purchased Sanofi pediatric vaccines at suggested dosages. Elh. Rpt. Table 10. The price Novartis would have to use to overcome the bundle was therefore $9.15, far below Sanofi's marginal costs. Elh. Rpt. ¶¶ 198, 201. Noncompliance was rare; 98.9% of all sales made while on the bundle were compliant. Elh. Reb. ¶ 111.

Defendant claims that Novartis could have priced somewhat lower and still acquired more customers, and that Professor Elhauge does not preclude this option. This does not go to admissibility of Professor Elhauge's opinion. It also appears to be directly refuted by Professor Elhauge's opinion, which finds that there is a "dead zone" wherein competition will not yield meaningful customer increases for Novartis. See Elh. Rpt. ¶ 198.

Defendant points to a case in this district rejecting a different "dead zone" theory of Professor Elhauge's. Eisai Inc. v. Sanofi-Aventis U.S., LLC, No 08-4168, 2014 WL 1343254

(D.N.J. Mar. 28, 2014). That case fell under the price-cost framework and concerned Sanofi's volume-based pricing. Id. at 26. The court analyzed whether "something more than the exclusionary effect of Sanofi's prices [was] going on. . . " Id. (quotation marks and brackets omitted). In that case, the plaintiff did not claim bundling of separate products in separate markets; it only claimed volumetric bundling within a single market. Id. at 27. Professor Elhauge testified in that case that there was a "dead zone" where it would be more expensive to carry the competing product, Fragmin, even though it was priced lower. This dead zone was 10% to 62% market share. Id. The Court granted summary judgment for defendant Sanofi-Aventis U.S., finding that Eisai could decrease the dead zone by lowering its price.

This case is totally different. First, Defendant seeks to exclude Professor Elhauge's opinion as unreliable, something the Eisai court did not do. Second, this case involves bundling of different products from different markets, not mere volumetric price discounts. Third, the dead zone Professor Elhauge identifies here could not be overcome as to the bulk of Sanofi-loyal customers even if Novartis priced their vaccine at cost, whereas the dead zone in Eisai only applied if hospitals purchased less than 53% of the competing product, assuming a discount of 48% (allowing for a still-substantial profit margin). Id.

Professor Elhauge's analysis concerning the price differential required to overcome the Sanofi bundle is reliable. His conclusion here is not inadmissible.

3) Menveo Share Regressions

Finally, Professor Elhauge conducted a share regression to examine the correlation between buying Sanofi pediatrics and purchasing Menactra. This share regression found a correlation of 4.1% between those two points, after accounting for many other variables. Elh. Rpt. ¶¶ 213-15. This confirms that those customers purchasing Sanofi pediatrics tended also to

purchase Menactra. While Professor Elhauge cautions that price competition would further alter market dynamics in the but-for world, the share regressions provide a useful baseline showing that the market for MCV4 vaccines were divided by Sanofi's bundled loyalty program.

a) Omitted Variables

Defendant challenges the admissibility of these share regressions, arguing that two omitted variables—preference for reconstitution[4] or the Sanofi brand—may account for the regression's correlation. This argument does not prevail. Professor Elhauge had reliable reasons for omitting these variables.

The failure to include variables, where their necessity is reasonably debatable, does not require rejection of a regression as unreliable. Bazemore v. Friday, 478 U.S. 385, 400 (1986) ("Normally, failure to include variables will affect the analysis' probativeness, not its admissibility."); Bruno v. W.B. Saunders, 882 F.2d 760, 773 (3d. Cir. 1989) (same); see also ABA Section of Antitrust Law, Econometrics 81 (2d ed. 2014) ("In practice, it is virtually impossible to ensure that every relevant variable has been captured in a regression model."). "[I]t is only the rare case where the regressions are so incomplete as to be irrelevant and the expert's decisions regarding control variables are the basis to exclude the analysis." In re Mushroom Direct Purchaser Antitrust Litig., No. 06-0620, Dkt. No. 718 at 24-25 (July 29, 2015) (internal citation omitted). However, where there is a meaningful indication "that the excluded variables would have impacted the results," an excluded variable may render an opinion unreliable. In re Live Concert Antitrust Litig., 863 F. Supp. 2d 966, 974 (C.D. Cal. 2012).

[4] Some vaccines are sold premixed and some are sold as powders requiring mixing with a diluent before applying. Reconstitution refers to the process of combining the vaccine powder and the liquid diluent to prepare the vaccine for injection.

Reconstitution preference does not bias Professor Elhauge's regression against Defendant. Sanofi's other pediatric vaccines required reconstitution, while Menactra did not. Thus, customers who preferred vaccines requiring reconstitution would actually be more likely to purchase Menveo. Similarly, customers who disliked reconstitution would be less likely to purchase Sanofi's other pediatric vaccines. Tr. 116:19-117:23. Any bias here therefore leads Professor Elhauge's share regressions to underestimate the correlation, not overestimate it.

Brand preference does not render the regressions inadmissible either. Professor Elhauge ran a regression to test whether there was a natural link between purchasing Sanofi pediatrics and purchasing Menactra by examining non-Sanofi loyal customers, who were presumably unaffected by the bundle. He found no such link.[5] Elh. Reb. ¶¶ 62-63; Elh. Suppl. ¶¶ 100-102, 144. Sanofi and Novartis internal documents also never mention such a brand-preference link. Tr. 581:14-22. The Court will not exclude Professor Elhauge's share regressions for failure to include additional variables.

b) No Tipping Point

Defendant also challenges the share regressions as lacking evidence of a tipping point. Without such evidence, Defendant claims, the regressions cannot prove that Novartis would initiate a price war to acquire de minimus market share.[6]

This argument fundamentally misunderstands Plaintiffs' theory. Professor Elhauge's analysis does not require Novartis to acquire greater market share; indeed, the bundle actually increased Novartis's market share in the Sanofi-disloyal segment. Nor does it require Novartis to

[5] This is not perfect proof because customers who like the Sanofi brand could conceivably be more likely to be Sanofi-loyal (i.e. subject to the bundle). But perfect proof is not needed for an opinion to be reliable.

[6] Professor Elhauge disputes Mr. Kaplan's claim that a 4.1% market share shift is minor because Novartis only had 6.6% market share under the bundle.

want to compete. His theory states that Novartis could not avoid competition absent artificial division of the market into loyal and disloyal segments. See Elh. Rpt. ¶ 198; see also Elh. Rpt. ¶¶ 228-29; Elh. Reb. ¶¶ 148, 170, 202, 243-54; Elh. Suppl. ¶ 188 (showing that Sanofi and Novartis could not coordinate on pricing absent the bundle). The "tipping point" is the fact that Novartis and Sanofi could avoid competition because overcoming the bundle required massive discounts; minor variability on price would not result in meaningful swings in customer share so long as the bundle was in place. That opinion is reliable and requires no further tipping point. The Court will not exclude it on this basis.

c) Low R^2

Defendant further challenges the accuracy of the regressions due to a low r^2. This is not a sufficient reason to exclude the regressions.

R^2 measures the percentage of variation from the statistically derived regression line. The low r^2 here means that there are likely many reasons consumers may choose Menveo over Menactra, not just price. Other than that, a low r^2 means little by itself. See Damodar Gujarati, *Basic Econometrics*, 222-223 (2008) ("[A] high r^2 is not evidence in favor of the model and a low r^2 is not evidence against it. In fact the most important thing about r^2 is that it is not important in the [classical regression] model."); Peter Kennedy, *A Guide to Econometrics* 380 (6th ed. 2008) ("In general, do not pay much heed to r^2.").

Some statistical results have many causes. As Professor Elhauge noted, any correlation between arsenic and death would have a vanishingly low r^2—a lot of things cause death—but that does not make a regression showing that arsenic causes death inaccurate. Tr. 128:7-23. Professor Elhauge was not seeking to determine all reasons customers may choose Menveo over Menactra. Rather, he sought to determine the effect of the Sanofi bundle. Mr. Kaplan admits that a low r^2 is

not outcome determinative here, though he says it should be considered because customers may have preference for Sanofi. Tr. 467:18-468:1.

This dispute goes to weight. Perhaps other factors overcome customer savings as a result of the bundle, but Professor Elhauge need not rule out every motivator for customer decisions in order to have an admissible expert opinion.

d) Changing Inputs or Size

Defendant also argues that the regression results change when Mr. Kaplan alters a variety of inputs. These alterations do not render Professor Elhauge's opinion unreliable.

First, when Mr. Kaplan eliminates nine specific customers the regression results change to show no statistically significant correlation. Tr. 469:14-471:24. But manipulation of a regressions' results by removing particular (non-random) customers does not indicate the regression is unreliable, absent some compelling reason to remove those customers. Cf. In re Air Cargo Shipping Servs. Antitrust Litig., No. 06-1175, 2014 WL 7882100, at *16, 57, 59 (E.D.N.Y. Oct. 15, 2014) (criticizing Mr. Kaplan for unreliable alterations to regressions). Removal of nine random customers does not meaningfully change the regression's outcome. Elh. Reb. Fig. 1; Tr. 588:5-589:7. The customers in the proposed class—including for example GPOs, large hospitals, and individual doctors—substantially vary in size and potentially in purchasing preference. The fact that Mr. Kaplan can find nine customers who collectively affect the outcome of Professor Elhauge's share regressions does not make those regressions inadmissible.

Second, Mr. Kaplan finds that narrowing the regression sample to particular states eliminates the statistical significance of the regression. This is unremarkable. Obviously a smaller sample will frequently render a regression statistically insignificant. That does not defeat the statistical significance of the more complete regression.

In summary, Professor Elhauge's share regressions are reliable and his conclusion that the MCV4 market was split by the bundle is sufficiently supported by the record.

b. The Market Division Inflated Prices

Professor Elhauge also testified that prices inflated in the MCV4 market due to the market division caused by the bundle. He based this conclusion on three forms of evidence: Sanofi and Novartis internal documents and testimony, economic literature,[7] economic principles, and a differentiated Bertrand competition model. Defendant challenges his reliance upon economic literature, economic principles, and his Bertrand model.

i. Internal Documents and Testimony Show Price Inflation

As with Professor Elhauge's opinion that the MCV4 market was divided, some documents show that the bundle inflated prices. The cost of switching Sanofi loyal customers was higher due to the bundle. Pls.' Ex. 1003. The bundle also "locks Menveo out of about 65% of accounts." Defs.' Ex. 128. Sanofi itself believed that the bundle prevented price erosion. Pls.' Ex. 15 (Sr. Director of Account Management and National Accounts to the VP of Sales, noting that the bundle succeeded in "limiting share and price erosion.").

As before, Defendant does not meaningfully challenge this basis for Professor Elhauge's opinion and Mr. Kaplan relies on similar documentary evidence. Professor Elhauge is not alone in believing the bundle inflated prices.

ii. Economic Principles

Professor Elhauge points to the change in the MCV4 market from a monopoly to a duopoly, decreasing marginal costs, and decreasing demand to show that prices ought to fall as a matter of

[7] See supra at heading II(B)(2)(a)(ii).

simple economics. Elh. Rpt. ¶¶ 168, 226-27; Elh. Reb. ¶¶ 155, 254, 324-27; Elh. Suppl. ¶¶ 1, 201, 227-28. Prices actually rose.

Defendant first disputes that prices increased; Sanofi took greater discounts following Novartis' entry into the market. See Leitz. Rpt. Ex. 8. But Sanofi's list price increases caused net prices to rise. Elh. Rpt. ¶¶ 226-27; Elh. Reb. ¶¶ 304, 309, 323; Elh. Suppl. ¶¶ 245-46. This argument therefore does not prevail.

Defendant also argues that sales and cost increased following entry by Novartis into the MCV4 market. Elh. ¶¶ 236, 325; Kaplan Rpt. ¶ 176. But these cost increases come significantly after Novartis' entry into the market and after the focal point of Professor Elhauge's entry analysis. Professor Elhauge's conclusion here is therefore not unreliable.

In some markets, Defendant argues, entry of a generic competitor can increase the brand competitor's prices. Professor Elhauge successfully distinguishes these circumstances. This is not a market with generic entry, so the incentives at play are different. In generic markets where prices increase there is usually segmentation of customer types—price-sensitive hospitals versus price-insensitive retail customers. With such segmentation, a brand will occasionally raise its prices, focusing on retail customers and ceding the price-conscious portion of the market to the generic drug. Tr. 137:2-138:17. None of those incentive effects are at play here.

The Court does not find Professor Elhauge's reliance on economic principles to conclude that prices should have dropped in this market to be unreliable, and so declines to exclude that portion of his opinion.

iii. Differentiated Bertrand Competition Model

Professor Elhauge used a differentiated Bertrand model to discern what prices for Menveo and Menactra would be absent the bundle. This model takes as inputs various marginal cost data

and customer preference based on differentiated products and locates a price equilibrium where neither firm is incentivized to alter its price.

Professor Elhauge explains his rationale for using the differentiated Bertrand model here. First, the market is differentiated; the products have differences that make an apples-to-apples comparison inapt. For example, some products require reconstitution and others do not. Second, the market competes on price rather than quantity, referred to in economic literature as Bertrand competition. See Werden, Demand Elasticities in Antitrust Analysis, 66 Antitrust L.J. 363, 371 ("Sellers of differentiated products are most commonly assumed by economists to engage in *Bertrand competition*.") (emphasis in original). Finally, the market competes; it does not coordinate. See Werden & Froeb, 10 J.L. Econ. & Org. at 407 n.1 ("competitive interaction is likely to be noncooperative in most differentiated product industries in part because product differentiation tends to make it more difficult to reach collusive agreements"). As Professor Elhauge said, it is hard to have tit-for-tat pricing "if you don't even know what constitutes a tat. . . ." Tr. 382:6-15.

Defendant argues that use of the differentiated Bertrand model is inappropriate, both in general and here specifically, for a variety of reasons. The Court addresses these in turn.

1) Bertrand Model Generally

Defendant argues that the use of a differentiated Bertrand model is categorically inappropriate in a judicial context. The Court disagrees.

A Bertrand model was admissible to define the market and measure impact in United States v. H & R Block, Inc., where the court noted that it was "an imprecise tool, but nonetheless has some probative value in predicting the likelihood of a potential price increase after the merger." 833 F. Supp. 2d 36, 88 (D.D.C. 2011). A Bertrand model was also relied upon as one of four

grounds to calculate classwide damages in In re Cathode Ray Tube Antitrust Litigation. 2013 WL 5429718, at *21 (N.D. Cal. Jun. 20, 2013) ("none of these four methods lacks a benchmark to serve as a basis for a workable damage formula").

A similar simulation model, Cournot, has been approved several times for computation of damages in antitrust cases. See, e.g., Ticketmaster Corp. v. Tickets.com, Inc., No. 99-7654, 2003 WL 25781900, at *3 (C.D. Cal. Jan. 27, 2003) (recognizing "application of the Nash-Cournot equilibrium" as an "accepted method[] of economists in attempting to fix anti-trust damages where the task is to fix damages 'but for' the anti-competitive activity found to violate the antitrust laws"); In re Universal Servs. Fund Tel. Billing Prac. Litig., 2008 U.S. Dist. LEXIS 107727, at **68-71 (D. Kan. June 30, 2008) (crediting expert's use of the "well-known" Cournot model in analyzing defendants' collusive conduct). Cournot is the simulation model used for competitive markets where competition is based on quantity. Bertrand is the simulation model where competition is based on price.

The cases Defendant cites which found a Bertrand model to be inadmissible did not do so on the basis of that model alone. One case rejected a model because of an extremely small sample size of confirmatory evidence—18 of 400 bidding contests. FTC v. CCC Holds. Inc., 605 F. Supp. 2d 26, 70-71 (D.D.C. 2009). Here, Professor Elhauge uses hundreds of thousands of data points. See Elh. Reb. n.524. In Concord Boat Corp. v. Brunswick Corp., the Court excluded a simulation that assumed an overcharge whenever one of the two firms had a market share over 50%. 207 F.3d 1039, 1056 (8th Cir. 2000). Professor Elhauge made no such assumption.

The differentiated Bertrand model is used frequently in non-judicial contexts as well. The Department of Justice and the Federal Trade Commission both use the differentiated Bertrand model to determine the effects removal of a competition (via merger) will have upon a market's

pricing. Elh. Reb. ¶¶ 170, 243; Elh. Suppl. ¶ 185. It is known as the "workhorse" model for such merger simulations. P. Ex. 1016, ABA Antitrust, Econometrics 273 (2d ed. 2014) ("The workhorse model for differentiated product markets is Bertrand competition."). Mr. Kaplan does not disagree with this use for mergers. See Tr. 520:11-18. Though the context here is not a merger, the purpose is similar: simulation of competitive pressures in a but-for world with different competitors.

Because it has previously been approved for various judicial uses and is frequently used to estimate prices in a but-for world in the merger context, the Court cannot exclude the differentiated Bertrand model as categorically unreliable.

2) Other Potential Approaches

Defendant also argues that various other approaches—yardstick, coordinated interaction, or Cournot models—should have been used here. Plaintiffs reply that a reliable model need not exclude all other models and, in any event, Professor Elhauge's model fits best.

Plaintiffs are correct that reliability does not require exclusion of all other approaches. See, e.g., In re Titanium Dioxide Antitrust Litig., 284 F.R.D. 328, 340 (D. Md. 2012) (the question "at class certification is not which expert is the most credible, or the most accurate modeler"); Util. Trailer Sales of Kansas City, Inc. v. MAC Trailer Mfg., Inc., 267 F.R.D. 368, 371 (D. Kan. 2010) ("While perhaps Mr. Hill did not use the "best" method in calculating the compound growth rate, the standard for admissibility is reliability, not superiority."); Alco Indus., Inc. v. Wachovia Corp., 527 F. Supp. 2d 399, 408 (E.D. Pa. 2007) ("This is not to say that it is necessarily the best method, but it easily satisfies the threshold requirement of reliability for Rule 702 purposes."); Bullock v. Daimler Trucks N. Am., LLC, No. 08-491, 2010 WL 3922084, at *4 (D. Colo. Sept. 30, 2010) ("Rule 702 and *Daubert* do not require an expert to use the best method available, they only require

that the evidence be relevant and reliable.") (quoting Adel v. Greensprings of Vermont, Inc., 363 F. Supp. 2d 683, 689 (D. Vt. 2005)).

Professor Elhauge also provides a factual basis for not using the proposed alternate models. In a yardstick approach, a model is constructed based upon analogous markets that are not subject to the anticompetitive conduct. But there was no period during which Sanofi and Novartis competed without the bundle, and Professor Elhauge testified that there is no other market with similar differentiation, cost and demand, and no anticompetitive conduct. Elh. Suppl. ¶ 199. Mr. Kaplan fails to identify any such market to serve as a yardstick.

A coordinated interaction model seeks to account for continuing competitive consequences of firms' actions and so seeks to model coordination. Professor Elhauge replies that such a model is more speculative than the differentiated Bertrand model. See Werden, 71 Antitrust L.J. at 763 ("[R]epeated game models are in many ways even more abstract and artificial than one-shot game models."). Professor Elhauge also points out that coordination was not possible in this market. Tr. 146:19-147:19.

Defendant also argues that the Cournot model—competition based upon quantity rather than price—is more appropriate in the vaccines market than Bertrand competition. See Defs.' Ex. 109, Hamed Mamani, Elodie Adida, & Debabrata Dey, Vaccine Market Coordination Using Subsidy, 12 n.4 (Feb. 12, 2012), available at: http://faculty.ucr.edu/~elodieg/Mamani-Adida-Dey-IIE-Trans-2012.pdf ("The vaccine market is a perfect real-world setting to apply Cournot competition."). Improper use of Cournot over Bertrand (or here, Bertrand over Cournot) may justify exclusion of a model, depending on the severity of the error. See Heary Bros. Lightning Prot. Co. v. Lightning Prot. Inst., 287 F. Supp. 2d 1038, 1068 (D. Ariz. 2003) (excluding a Cournot

model where competition was clearly based on price, not quantity); aff'd in part, rev'd in part, 262 F. App'x 815 (9th Cir. 2008).

Use of the differentiated Bertrand model here, however, is not error. Professor Elhauge notes that all market share changes he models are cleanly within the production capacity all parties agree Novartis had. Tr. 333:12-18. He also notes that Sanofi and Novartis documents indicate there are no production limits. Elh. Rpt. ¶ 228 n.335 (documents noting no supply limitations); Tr. 331:21-334:7. And Menactra and Menveo are differentiated products. Werden, 66 Antitrust L.J. at 371 ("Sellers of differentiated products are most commonly assumed by economists to engage in *Bertrand competition*.") (emphasis in original). Given these factual bases, applying Bertrand competition here rather than Cournot is reasonable.

Professor Elhauge has provided defensible reasons for not using the various models Defendant proposes and all alternate models need not be ruled out. Defendant's disagreement with the model selected is not a basis for inadmissibility here.

3) One-Shot Game

Defendant argues that the differentiated Bertrand model assumes that firms will not alter pricing based on future interactions; they describe this as a "one-shot game." For the differentiated Bertrand model to apply, there must be no price coordination and no accounting for future price effects. It is not appropriate here, Defendant argues, because this is a market characterized by coordination, not competition, for a variety of reasons. The market is a duopoly, so coordination is not hard. Firms consistently coordinate on list price. See, e.g., Pls.' Ex. 30A; Tr. 437:20-438:22. And both Sanofi and Novartis have strong incentives to avoid a price war.[8]

[8] Defendant also argues Sanofi and Novartis avoided a price war in the real world, but this argument can be summarily rejected. The real world was allegedly infected with anticompetitive conduct that allowed them to avoid competition. That is the whole point of Plaintiffs' case.

The mere fact that this model assumes a single period game does not render it unreliable here. As preeminent antitrust theorist Gregory Werden articulates:

> One-shot game oligopoly models are a mainstay of modern economic thinking about competition, even though they are criticized for abstracting from the real-world fact that competitors interact again and again. Economists nevertheless believe one-shot game oligopoly models provide useful, if imperfect predictions of the behavior of real-world oligopolies, and indeed, these models have been found to explain reasonably well the levels of prices and profits typically observed in real-world industries.

71 Antitrust L.J. at 759. Firms do not always account for follow-on competition in every market; there are some markets where coordination is impossible.

Professor Elhauge argues that this is such a market. First, the prices in this market are opaque, so firms cannot price coordinate, regardless of what they want. He cites documents and testimony for this proposition, including the senior director for pricing for Sanofi in North America who states that "[o]ur pricing is complex, and intentionally so . . . it is . . . difficult for the competition to understand and to copy." Pls.' Ex. 1008. Second, Menactra and Menveo are differentiated, so parties cannot coordinate. Professor Elhauge is not alone in positing that differentiated products render coordination unlikely. See Werden & Froeb, 10 J. L. Econ. & Org. at 407 ("We believe that the competitive interaction is likely to be noncooperative in most differentiated product industries, in part because product differentiation tends to make it more difficult to reach collusive agreements (unless it is straightforward to allocate customers or the like)."). Finally, data analysis by Professor Elhauge shows that the firms virtually never coordinated on actual prices, as opposed to list prices. Cf. Brooke Grp Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 235 (1993) (acknowledging difference between list prices and actual prices was a valid distinction). Thus, Professor Elhauge says, the MCV4 market is not characterized by coordination.

Differentiation and price opacity support a finding that the parties could not coordinate. See F.T.C. v. CCC Holds. Inc., 605 F. Supp. 2d 26, 62, 64 (D.D.C. 2009) ("Without homogeneity [of product offerings] or transparency [in pricing], the market conditions are not conducive to coordinated effects, either tacit or express. . . ." Coordination is unlikely where "key information about specific transactions or individual price or output levels is [not] available routinely to competitors.") (brackets in original) (quoting U.S. v. Oracle Corp., 331 F. Supp. 2d 1098, 1166 (N.D. Cal. 2004)). Many documents indicate a lack of transparency on price, and the parties agree the products are differentiated.

The disagreement here is one of fact. Professor Elhauge opines that the market could not and did not coordinate and relies on documents and data showing that price coordination was not feasible in this market. Defendant disagrees but does not show that Professor Elhauge's premise that the market would be characterized by competition rather than coordination is without reliable basis.[9]

4) Calibration

Defendant also argues that Professor Elhauge did not calibrate his Bertrand model by first applying it to the real world to see how the model differs from real world prices. As a result, it argues, the differentiated Bertrand model is measuring defects in the simulation, not price inflation due to the Sanofi bundle.

Professor Elhauge provides two replies. First, he did calibrate his model using real-world data, namely: (1) actual data on differentiated buyer responses to actual Menactra and Menveo price changes in the section of the market unaffected by Sanofi's bundling (public Federal Supply

[9] Though Mr. Kaplan does present some documentary evidence that the parties coordinated, other documents and data disagree.

Schedule purchases), (2) actual data on the marketwide demand curve, and (3) actual Menactra and Menveo cost data. Second, the calibration Sanofi suggests, using private MCV4 prices, would be fatally defective because private MCV4 prices are infected by the bundle's anticompetitive effect. Elh. Dep. at 520. His point is well-taken. Calibrating a model in a manner which infects it with the very anticompetitive conduct is not necessary here. Mr. Kaplan provides no alternative.

5) VFC Floor

Defendant argues that Professor Elhauge did not account for the VFC floor. See Tr. 347:6-12. The VFC floor is the rate that the United States federal government uses to purchase vaccines. It always is set to the lowest private price for which a vaccine is offered. Vaccines purchased under the VFC account for about half of all vaccines sold.[10] Therefore, Mr. Kaplan argues, Novartis has a strong incentive not to compete because competition would lower the VFC floor and sacrifice substantial profits. Furthermore, the VFC floor might enable Novartis and Sanofi to coordinate on pricing because it is transparent, not opaque. Professor Elhauge admits as much, Tr. 153:10-19, 389:5-14, and Mr. Kaplan argues that the VFC allowed coordination. 445:14-446:4.

Professor Elhauge replies that the VFC floor is flexible. It shifts as private competition lowers the lowest price offered. As such, Elhauge argues, the VFC floor would continually shift down as competition continued between Sanofi and Novartis. Elh. Rpt. ¶ 184. Mr. Kaplan's theory requires prices to descend to the VFC floor and then cease their descent, a hypothesized pattern of the but-for world, not an observed pattern of the real one.[11] This theory may require

[10] VFC purchases are excluded from the proposed class, but the market is still influenced by them, so the Court considers the effect the VFC floor may have on the but-for world.

[11] Mr. Kaplan and Sanofi do not make this argument quite so cleanly, as a class could likely still be certified on this theory for a slightly lower total figure. See Elh. Rpt. ¶ 185. Even if Novartis

flattening of the price discrimination endemic to this market, and there is little indication that would happen. It is also unclear whether competition and adequate market share for each firm could be maintained if both firms were driven to price at the VFC floor. A movement by either firm below the VFC floor would potentially offer greater market share across the entire private and VFC market, a tempting prize. Elh. Reb. ¶ 184. And differentiation may still make price coordination difficult if the coordinated equilibrium substantially favors one MCV4 vaccine over another.

Mr. Kaplan does not conduct meaningful analysis to prove that this coordination would happen. The question of whether the firms would compress prices to the VFC floor or pierce the floor is an interesting one, but the Court does not find this dispute alone sufficient to render Professor Elhauge's model unreliable. Certainly it shapes the probative weight of his testimony, but the Court does not here find it rises to the level of rendering his opinion inadmissible.

6) Demand Expansion Assumption

Defendant also identifies as unreliable Elhauge's assumption that total demand for MCV4 vaccine would substantially increase if prices were lower. Professor Elhauge based the expected output increase on actual demand elasticity which he calculated using an uncontested method. Defendant has articulated no valid reason that this output expansion is unreliable, given the price changes modeled in the differentiated Bertrand competition model. The declaration it submitted relied on errors in Mr. Kaplan's Sur-Reply ¶ 14 and also ignored unvaccinated individuals under age eleven. Elh. Decl. ¶¶ 4-13, Pls.' Ex. 55. Professor Elhauge's highest estimate of but-for

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and Sanofi's competition priced down to the VFC floor and then ceased price competition in the but-for world, prices would be substantially lower.

demand remains less than the but-for eligible doses for 11-18 year olds. Tr. 171:15-174:1. Professor Elhauge's opinion is not unreliable on this basis.

7) Cost Data Used

Defendant further argues that Professor Elhauge uses the wrong cost data. He uses cost data from 2011-2012 to calculate price distortion in April 2010. Plaintiff argues that confounding factors made use of 2010-2011 data improper. Elh. Rpt. ¶ 245; Elh. Dep. at 117.[12] When the 2010 data became available, Professor Elhauge applied it to his model to reestimate market share and price outcomes. Novartis still gained market share and costs still substantially shrank. Tr. 275:11-278:6. As the Court need not approve a particular damages amount on class certification, it need not reach whether Professor Elhauge's initial cost input was appropriate or whether only the later input, based on 2010-2011 data, is admissible. Certainly the latter is. That is enough.

c. Across-the-Board Price Variation

Professor Elhauge applies his calculated overcharge to the whole class. Defendant argues that firms would price discriminate rather than lowering prices indiscriminately, so this assumption is unreliable. The Court disagrees.

There is substantial evidence that Sanofi has a rigid price structure for Menactra; 99.5% of class members paid standard Menactra contract prices after Menveo entered the market. Elh. Rpt. ¶¶ 275-82; Reb. ¶¶ 302-21; Elh. Suppl. ¶¶ 230-44. Only one of the 26,000 class members always received an individualized discount on all purchases. Id. And even this class member was overcharged, based on Elhauge's assessment of prices in the but-for world. Elh. Rpt. ¶¶ 267, 275-82; Elh. Reb. ¶¶ 23, 155, 301-21; Elh. Suppl. ¶¶ 230-44. Sanofi's consistent price structure,

[12] Defendant also challenges Elhauge's methodology for determining fixed and marginal costs—if it increased between 2010 and 2012, it was marginal; if not, it was fixed.

maintained over years following Menveo's entry into the market, provides a reliable basis for Elhauge's assumption that prices would vary across the board. Any rare deviations from the price structure would be the same with or without the bundle, so the assumption that prices would change across the board is not unreasonable here, according to Elhauge.

Defendant argues that there are management exceptions that allowed price matching. Professor Elhauge replies that such management exceptions were rare, less than one tenth of a percent of sales, and that the bundle was the primary method of control. See Defs.' Ex. 46 at 3.[13]

Professor Elhauge has a reasoned basis for his across-the-board price variation. Mr. Kaplan's disagreement goes to weight, not admissibility. See In re Cathode Ray Tube (CRT) Antitrust Litig., No. 1917, 2013 WL 5429718, at *21 (N.D. Cal. June 20, 2013) ("Dr. Netz provided a reasonable basis for her use of a hedonic regression analysis to support her conclusion that there is a price structure among all CRTs, so that if a price of one particular CRT model was raised, all prices of neighboring tubes would increase by a similar amount."). A management exception of one tenth of one percent of sales and individualized discounts applicable to one of 26,000 class members does not defeat application of Sanofi's rigid price structure across the board.

3. "Fit" or Helpfulness

To satisfy the third requirement of fit, expert testimony must be "relevant for the purposes of the case" and helpful to the factfinder. Schneider, 320 F.3d at 404. Here, Defendant does not challenge the "helpfulness" of Professor Elhauge's report, only its reliability. Professor Elhauge's opinion bears directly upon critical questions for class certification—e.g., price impact, causation, and damages. Plaintiffs have satisfied the third requirement of fit.

[13] This also goes to whether Sanofi and Novartis could match prices. Here, Elhauge's opinion has not been shown to be unreliable because fewer than one sale of every thousand was subject to a price-matching management exception.

In light of the foregoing, Defendant's motion to exclude Professor Elhauge's expert reports is denied. The Court now turns to Plaintiffs' motion for class certification.

III. PLAINTIFFS' MOTION FOR CLASS CERTIFICATION

A. Legal Standard

1. Class Certification

Federal Rule of Civil Procedure 23 sets forth the requirements that must be fulfilled before a case may proceed as a class action. There are four basic prerequisites for class action treatment:

> (1) the class is so numerous that joinder of all members is impracticable;
> (2) there are questions of law or fact common to the class;
> (3) the claims or defenses of the representative parties are typical of the claims or defenses of the class; and
> (4) the representative parties will fairly and adequately protect the interests of the class.

Fed. R. Civ. P. 23(a). These are known as the numerosity, commonality, typicality, and adequacy requirements. See In re Constar Int'l Inc. Sec. Litig., 585 F.3d 774, 780 (3d Cir. 2009). Second, Plaintiffs must also meet the requirements of one of Rule 23(b)'s provisions. Id. Here, Plaintiffs seek certification under Rule 23(b)(3), which permits certification only if "the court finds that the questions of law or fact common to class members predominate over any questions affecting only individual members, and that a class action is superior to other available methods for fairly and efficiently adjudicating the controversy." Fed. R. Civ. P. 23(b)(3). "The twin requirements of Rule 23(b)(3) are known as predominance and superiority." In re Hydrogen Peroxide Antitrust Litig., 552 F.3d 305, 310 (3d Cir. 2008).

A plaintiff "must affirmatively demonstrate" that Rule 23's requirements are satisfied, Wal-Mart Stores, Inc. v. Dukes, 131 S. Ct. 2541, 2551 (2011), by providing actual evidentiary proof that the requirements are met. Comcast Corp. v. Behrend, 133 S. Ct. 1426, 1432 (2013). Therefore, a reviewing court must conduct a "rigorous analysis" of each of Rule 23's requirements,

Dukes, 131 S. Ct. at 2551, and must be satisfied that each requirement is established by a preponderance of the evidence. In re Blood Reagents Antitrust Litig., 783 F.3d 183, 187 (3d Cir. 2015). This analysis frequently overlaps with "the merits of the plaintiff's underlying claim." Dukes, 131 S. Ct. at 2551. The merits may be considered, however, "only to the extent . . . that they are relevant to determining whether the Rule 23 prerequisites for class certification are satisfied." Amgen Inc. v. Conn. Ret. Plans & Trust Funds, 133 S. Ct. 1184, 1194-95 (2013).

2. Antitrust Bundling

Plaintiffs claim that Defendant violated § 2 of the Sherman Act through monopolization. Such a claim has two elements: (1) monopoly power and (2) willful acquisition or maintenance of that power. LePage's Inc. v. 3M, 324 F.3d 141, 146 (3d Cir. 2003). "[A] monopolist will be found to violate § 2 of the Sherman Act if it engages in exclusionary or predatory conduct without a valid business justification." Id. at 152. Bundling is a form of recognized unlawful exclusionary conduct. See id. at 154-55; SmithKline Corp. v. Eli Lilly & Co., 575 F.2d 1056, 1061-62 (3d Cir. 1978); MTD Op. at 18-20; In re Hypodermic Prod. Antitrust Litig., MDL No. 1730, 2007 WL 1959224 (D.N.J. June 29, 2007) ("Hypodermic Prod. II").

To demonstrate a violation of § 2, "[p]redatory or exclusionary practices in themselves are not sufficient. There must be proof that competition, not merely competitors, has been harmed." United States v. Dentsply Int'l, Inc., 399 F.3d 181, 187 (3d Cir. 2005); accord Eisai Inc. v. Sanofi-Aventis U.S., LLC, No. 08-4168, 2014 WL 1343254, at *18 (D.N.J. Mar. 28, 2014). "The test is not total foreclosure, but whether the challenged practices bar a substantial number of rivals or severely restrict the market's ambit." Dentsply, 399 F.3d at 191. Here, Plaintiffs must show "that Sanofi exploited its monopoly power in order to reduce competition from Novartis for pediatric meningococcal vaccines." MTD Op. at 18.

B. Analysis

Before this class may be certified, Plaintiffs must show that the requirements of Federal Rule of Civil Procedure 23(a) and (b)—numerosity, commonality, typicality, adequacy, predominance, and superiority—are met. They have done so.

1. Numerosity

Numerosity is easily met here. Numerosity is shown where traditional joinder of parties would be "unworkable." In re Bulk (Extruded) Graphite Prods. Antitrust Litig., No. 02-6030, 2006 WL 891362, at *5 (D.N.J. Apr. 4, 2006). Generally, if the "potential number of plaintiffs exceeds 40, the [numerosity] prong of Rule 23(a) has been met." Stewart v. Abraham, 275 F.3d 220, 226-27 (3d Cir. 2001). Here, there are approximately 26,000 class members. See Leitz. Rpt. ¶ 20.

2. Commonality

Commonality is also met. Only one common issue of fact or law is needed to satisfy the commonality requirement of Rule 23(a)(2). See In re Prudential Ins. Co. Am. Sales Practices Litig., 148 F.3d 283, 310 (3d Cir. 1998). There are many common issues here, including the relevant markets, Sanofi's monopoly power, Sanofi's willful maintenance and enhancement of monopoly power, claimed procompetitive justifications, whether Sanofi's conduct artificially inflated MCV4 prices, and damages.

3. Typicality

Typicality is "designed to align the interests of the class and the class representatives so that the latter will work to benefit the entire class through the pursuit of their own goals." Prudential Ins., 148 F.3d at 311. The named plaintiffs' claims are typical if they "arise from the same alleged wrongful conduct" and are based upon "the same general legal theories." In re Warfarin Sodium Antitrust Litig., 391 F.3d 516, 532 (3d Cir. 2004). Claims need not be identical

to be typical. See Baby Neal v. Casey, 43 F.3d 48, 57-58 (3d Cir. 1994); Eisenberg v. Gagnon, 766 F.2d 770, 786 (3d Cir. 1985); In re Hypodermic Prod. Direct Purchaser Antitrust Litig., No. 05-1602, 2006 WL 6907107, at *8 (D.N.J. Sept. 7, 2006) ("Hypodermic Prod. I").

Here, all claims arise from the same allegedly unlawful conduct and require proof of the same elements. Each representative alleges that it, like all class members, paid artificially inflated prices for Menactra. Each seeks to recover overcharges. Plaintiffs' claims are therefore typical of the class.

4. Adequacy

In order to be adequate, the named plaintiff must have "the ability and incentive to represent the claims of the class vigorously" and there must be "no conflict between the individual's claims and those asserted on behalf of the class." In re K-Dur Antitrust Litig., 686 F.3d 197, 223 (3d. Cir. 2012) (quotation omitted). "Only a fundamental conflict will defeat adequacy of representation." Id.

Defendant primarily disputes the selection of named plaintiffs—Marquez & Bengochea, M.D., P.A.; Sugartown Pediatrics, LLC; and Dr. Adriana Castro—to represent a broader class.[14] Each named plaintiff is a direct purchaser of Menactra from Sanofi. Each seek to recover for alleged overcharge. "[T]he standard method of measuring damages in price enhancement cases is overcharge . . . ." Howard Hess Dental Labs., Inc. v. Dentsply Int'l Inc., 424 F.3d 363, 374 (3d Cir. 2005); Hypodermic Prod. I, 2006 WL 6907107, at *8 (same). Each of the named plaintiffs has the same interest as the class members in establishing that (a) the scheme occurred, (b) it

[14] Class Counsel here is adequate. They have extensive experience with antitrust class actions and have devoted significant time to this case.

violated the antitrust laws, and (c) it resulted in artificially inflated Menactra prices. Further, all class members have the same interest in maximizing the amount of overcharges proven.

Defendant argues that there is a conflict because some members may have been overcharged by more than others. Approving the whole class, rather than discrete pieces (e.g., wholesalers, distributors, hospitals, clinics, retailers, and non-contract customers), prevents these individual segments from arguing that they were more hurt than the others, Defendant argues. This is not a conflict sufficient to defeat adequacy here. The fact that some members may have been overcharged by more than others is not a "fundamental conflict [that] will defeat adequacy of representation . . . ." K-Dur, 686 F.3d at 223; see also Hypodermic Prod. I, 2006 WL 6907107, at *7-9 (no conflict of interest exists where plaintiffs and the class all seek overcharge damages). Mere hypothetical conflicts do not defeat class certification. See Kohen v. Pac. Inv. Mgmt. Co., 571 F.3d 672, 680 (7th Cir. 2009) (rejecting hypothetical conflicts); In re Flonase Antitrust Litig., 284 F.R.D. 207, 218 (E.D. Pa. 2012) (class certification will not be denied "because of a potential conflict [] that may not become actual"); In re Flat Glass Antitrust Litig., 191 F.R.D. 472, 482 (W.D. Pa. 1999) (courts have "rejected efforts . . . to defeat certification by raising the possibility of hypothetical conflicts").

Even if alleged conduct benefited some class members while harming others, so long as the plaintiff seeks to show overcharges to the class, class interests align. K-Dur, 686 F.3d at 221-24. That some plaintiffs "may prefer" alternative damages theories does not create a conflict. In re K-Dur Antitrust Litig., No. MDL 1419, 2008 WL 2699390, at *10 (D.N.J. Apr. 14, 2008).

5. Predominance of Common Questions of Fact and Law

Virtually all significant questions in this case will turn on Defendant's conduct, not on individual plaintiffs'. "Common issues predominate when the focus is on the defendants' conduct

and not on the conduct of the individual class members." In re Pressure Sensitive Labelstock Antitrust Litig., No. 03-1556, 2007 WL 4150666, at *12 (M.D. Pa. Nov. 19, 2007); see also In re Mercedes-Benz Antitrust Litig., 213 F.R.D. 180, 187 (D.N.J. 2003) ("common issues predominate when the focus is on the defendants' conduct"); Graphite Prods., 2006 WL 891362, at *9 (same); High-Tech Employee Antitrust Litig., 985 F. Supp. 2d 1167, 1227 (N.D. Cal. 2013) ("[the] question [of Defendants' antitrust violation] is likely to be central to this litigation").

a. Antitrust Violation

Plaintiffs argue that Sanofi's imposition and enforcement of the Menactra bundle violated antitrust laws. They have presented common evidence to prove (1) monopoly power in the relevant markets, (2) willful maintenance of monopoly power through the bundle, and (3) Novartis was foreclosed from a large percentage of the MCV4 market.

i. Monopoly Power

Evidence concerning market power is common to the class. Monopoly power is the power to control prices or exclude competition in the relevant market. See Eastman Kodak Co. v. Image Technical Servs., Inc., 504 U.S. 451, 464 (1992); Broadcom Corp. v. Qualcomm Inc., 501 F.3d 297, 307 (3d Cir. 2007). One of the methods of proving monopoly power is to define a market and establish dominant market share. See Dentsply, 399 F.3d at 187 (citing U.S. v. Grinnell Corp., 384 U.S. 563, 571 (1966)); Marchbanks Truck Serv., Inc. v. Comdata Network, Inc., No. 07-1078, 2011 WL 11559549, at *23 (E.D. Pa. Mar. 24, 2011) (citing Broadcom, 501 F.3d at 307). Defining the relevant market focuses on common data, expert analysis, and economic tests; such proof generally does not vary by class member. In re Live Concert Antitrust Litig., 247 F.R.D. 98, 131 (C.D. Cal. 2007). Professor Elhauge has presented unrebutted testimony that Sanofi had monopoly

power due to its market share of 55%-90% in the relevant markets: MCV4, DTaP, IPV, and HIB. See Elh. Rpt. ¶¶ 12, 55-66, 68-97. This evidence is common to the class.

ii. Willful Maintenance of Monopoly Power

Evidence concerning whether Sanofi willfully maintained monopoly power using the bundle is also common to the class. "A monopolist willfully acquires or maintains monopoly power when it competes on some basis other than the merits." LePage's, 324 F.3d at 147; MTD Op. at 17. The relevant inquiry is whether Sanofi sought to thwart competition by means other than being an efficient competitor. Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 605 (1985); LePage's, 324 F.3d at 147 (same). The ultimate inquiry here will be whether the monopolist "exploited its power and 'utilized its size for abuse.'" MTD Op. at 17 (quoting LePage's, 324 F.3d at 148, 158, 162). Exclusionary bundling can constitute willful maintenance under certain circumstances, especially where it enables a seller to leverage its monopoly power in one market to impair competition in another market. See LePage's, 324 F.3d at 154-55; SmithKline, 575 F.2d at 1061-62; Hypodermic Prod. II, 2007 WL 1959224 at *9-10.

Plaintiffs have presented classwide evidence showing that the bundle was willfully exclusionary. Among these are internal Sanofi documents indicating intent to leverage its broad product line to prevent head-to-head competition and to create a significant barrier to competition by Novartis. See Pls.' Exs. 14, 20-24. Common evidence also shows Sanofi required 100% loyalty to Menactra and enforced this requirement. Id. Exs. 25-28. Proof of willful maintenance of monopoly power is common to the class.

iii. Novartis was Foreclosed from much of the MCV4 Market

Common evidence of foreclosure exists here in two forms: (1) internal business records from Sanofi and Novartis showing foreclosure effects of Sanofi's bundling and (2) analysis from Professor Elhauge.

The business records frequently identify the bundle as "insulating Menactra from competition." See Exs. 1, 13, 29. A Novartis executive testified at deposition that Novartis could not overcome the bundle. Pls.' Ex. 30 at 31. Some classwide evidence even shows that Novartis could not compete even if it gave away Menveo for free. Elh. Rpt. ¶¶ 174-215; Elh. Reb. ¶¶ 129-37, 297.

Professor Elhauge's data analysis supports this conclusion. He opined, based on cost and discount data, that a hypothetical MCV4 competitor would have to price below cost in order to compete with Sanofi-loyal customers on the Menactra bundle. See Elh. Rpt. ¶¶ 195-202. He also used share regressions to provide a conservative estimate of Menveo's share of the Sanofi-loyal MCV4 market: 62% higher absent the Sanofi bundle. Elh. Rpt. ¶¶ 211-15. A less conservative estimate was conducted by Professor Elhauge using some of Mr. Kaplan's assumptions, and yielded an increase of "200% (or three times)" in Menveo share of Sanofi-loyal customers. Elh. Reb. ¶ 44.

Defendant argues that complete foreclosure must be shown. But see LePage's, 324 F.3d at 159 (generally only 40-50% of the market needs to be restricted to establish foreclosure) (citing U.S .v Microsoft Corp., 253 F.3d 34, 70 (D.C. Cir. 2001)). This issue has already been decided at the motion to dismiss stage. See MTD Op. at 20 n.10 ("The test is not total foreclosure, but whether the challenged practices . . . severely restrict the market's ambit.") (citing U.S. v. Dentsply, 399 F.3d 181, 191 (3d Cir. 2005)). Furthermore, evidence showing foreclosure of Novartis is common to the class, and "anticompetitive harm exists only if a substantial share of the *entire market* is

restricted." Elhauge Supp. ¶ 163 (emphasis in original). Thus, this issue is not appropriate for resolution at class certification. The evidence showing foreclosure in this matter is classwide.

b. Common Impact/Causation

Plaintiffs have also presented classwide evidence showing common impact. Antitrust injury or impact is the fact of damage due to the anticompetitive conduct. Allen v. Dairy Farmers of Am., Inc., No. 09-230, 2012 WL 5844871, at *11 (D. Vt. Nov. 19, 2012) ("antitrust impact" is fact, not amount, of injury). Antitrust impact is shown where class members suffered some loss in their business or property—here payment of an overcharge on at least one transaction. See Zenith Radio Corp. v. Hazeltine Research, 395 U.S. 100, 114 n.9 (1969); In re Linerboard Antitrust Litig., 305 F.3d 145, 151 (3d Cir. 2002). Impact in a direct purchaser antitrust case is more easily proven through common evidence because purchasers only need to show that the price they paid was artificially inflated. See Ill. Brick Co. v. Illinois, 431 U.S. 720, 729 (1977) ("the overcharged direct purchaser . . . is the party 'injured in his business or property' within the meaning of [the Clayton Act]"). A direct purchaser suffers antitrust injury if it pays an artificially inflated price, with damages measured as the full amount of the overcharge. K-Dur, 686 F.3d at 220-21, 223 (overcharge establishes injury and the amount of the overcharge constitutes damages); Hypodermic Prod. I, 2006 WL 6907107, at *6 (same).

The existence of occasional outliers does not defeat predominance of common issues of antitrust impact. See Halliburton Co. v. Erica P. John Fund, Inc., 134 S. Ct. 2398, 2412 ("That the defendant might attempt to pick off the occasional class member here or there through individualized rebuttal does not cause individual questions to predominate."); Kohen v. Pac. Inv. Mgmt. Co., 571 F.3d 672, 677 (7th Cir. 2009) ("a class will often include persons who have not

been injured by the defendant's conduct. . . . Such a possibility or indeed inevitability does not preclude class certification").

Plaintiffs' theory as to antitrust impact is classwide. They seek to prove that the bundle artificially inflated prices. Then they seek to show that this price inflation occurred to substantially all class members.[15] This two-step method to prove antitrust impact is not novel. See In re Linerboard, 305 F.3d at 153-55 (affirming economic modeling showing artificially inflated prices plus pricing structure study to show widespread harm); High-Tech Employee Antitrust Litig., 985 F. Supp. 2d at 1206 (Plaintiffs' "approach followed a roadmap widely accepted in antitrust class actions that use evidence of general price effects plus evidence of a price structure to conclude that common evidence is capable of showing widespread harm to the class."); In re Aftermarket Automotive Lighting Prods. Antitrust Litig., 276 F.R.D. 364, 369-374 (C.D. Cal. 2011) (crediting economic modeling and pricing structure analysis in certifying class). It also is common to the class.

i. The Bundle Suppressed Competition and Inflated Prices

Plaintiffs have presented common evidence showing that the Sanofi bundle suppressed competition. The theory is as follows.

The bundle divided the market into two groups, Sanofi-loyal and non-loyal customers. See Elh. Rpt. ¶¶ 15-17, 112-13, 119, 158, 168, 174-78, 180-89. This market division diminished each competitor's incentives to compete on price. See Elh. Rpt. ¶¶ 174-90. It also enabled Sanofi and Novartis to avoid price competition by creating a significant gap in pricing between the Sanofi-loyal and non-loyal customers. See Elh. Rpt. ¶¶ 198, 201, Table 10 (bundled discounts were worth

[15] Foreclosure of the purchasers themselves from purchasing the competing vaccine is not an element of proof here. The alleged injury is overcharge resulting from a market which was made non-competitive by Sanofi's bundling.

$89.41 as of April 2010 for those who purchased Sanofi pediatric vaccines at suggested dosages, requiring Novartis to price at $9.15 to compete for Sanofi-loyal customers). Sanofi business records confirm its intent to achieve the posited bifurcation to prevent price compression. See Pls.' Ex. 33.

Plaintiffs also present a classwide method of discerning the amount of the overcharge. Professor Elhauge used a differentiated Bertrand competition model to determine prices in the but-for world absent the bundle. Experts may attempt to create a but-for world devoid of the anticompetitive conduct. See ZF Meritor, LLC v. Eaton Corp., 696 F.3d 254, 292 (3d Cir. 2012) ("[A]n expert may construct a reasonable offense-free world" to determine "what, hypothetically, would have happened 'but for' the defendant's unlawful activities.") (quoting LePage's, 324 F.3d at 165). This model predicts that Sanofi's prices would have been 32% lower in the but-for world. Elh. Rpt. ¶¶ 262-63; Elh. Reb. ¶¶ 230-39.[16] Professor Elhauge's model and documentary evidence are common evidence supporting Plaintiffs' theory of market division and subsequent overcharge.

ii. Overcharge Had Classwide Effect

Classwide evidence shows that all or almost all class members paid the inflated prices due to the Sanofi bundle. Sanofi maintained a rigid price structure with little price variance between customers of the same type to discourage doctors from switching between PBGs and to enable Sanofi to punish disloyal customers. See Elh. Rpt. 269; Elh. Reb. ¶¶ 206-08, 213-16. List prices were central to Sanofi's pricing structure and all prices were tied to list prices, generally as a percentage discount of list price. Leitz. Rpt. ¶¶ 22-63. Professor Elhauge therefore concluded that

[16] There remains a dispute as to whether Sanofi and Novartis would compete or coordinate. Professor Elhauge says they cannot coordinate. Mr. Kaplan says they can and would. But both have presented classwide evidence for their positions, so this factual dispute is not relevant to the class certification inquiry. Cf. Amgen Inc. v. Connecticut Retirement Plans & Trust Funds, 133 S. Ct. 1184, 1194-95 (Feb. 27, 2013).

it is most likely that Sanofi would have "reduced its net prices in response to Menveo entry by reducing its maximum price (its list price) while maintaining the same 'discounts' (difference between its net prices and list price)." Elh. Rpt. ¶ 267. The economic logic of Sanofi's pricing structure would not change in the but-for world, so Sanofi would be likely to reduce price across the board. See Elh. Rpt. ¶¶ 267-82. The share of class members who incurred overcharges always exceeded 99.56%. See Elh. Rpt. ¶¶ 18, 20, 267-82; Elh. Reb. ¶¶ 11, 23-24, 155, 291-327; Elh. Suppl. ¶¶ 1, 3, 18, 59, 230, 232-34, 244. Thus, Plaintiffs have presented sufficient evidence common to the class showing classwide overcharge.

c. Damages

Plaintiffs also present a classwide method of proving damages. A class damages model in an antitrust case "need not be exact." Comcast, 133 S. Ct. at 1433. Where difficulty in ascertaining damages with precision is the result of defendant's wrongful conduct, defendant cannot complain that damages cannot be measured with exactness. Eastman Kodak Co. v. S. Photo Materials Co., 273 U.S. 359, 379 (1927). A "reasonable estimate" of damages is sufficient. Rossi v. Standard Roofing, Inc., 156 F.3d 452, 484 (3d. Cir. 1998). "Any other rule would enable the wrongdoer to profit by his wrongdoing at the expense of his victim." Zenith Radio Corp., 395 U.S. at 124 (quoting Bigelow v. RKO Radio Pictures, 327 U.S. 251, 264-65 (1946)).

Plaintiffs have presented common evidence to compute damages classwide. Professor Elhauge's differentiated Bertrand model indicates that the overcharge was 32% of Menactra prices and 36% of Menveo prices. Elh. Rpt. ¶¶ 18, 225-66; Elh. Reb. ¶¶ 225-39, 284-86; Leitz. Rpt. ¶ 65. Dr. Leitzinger computed aggregate classwide damages by applying the percentage overcharge found by Professor Elhauge's model to total Menactra sales to class members from March 2010 through November 2013. Leitz. Rpt. ¶¶ 64-67. That is sufficient at this stage.

6. Superiority of Class Action to Individualized Cases

Rule 23(b)(3) imposes one additional requirement: the class action method must be "superior to other available methods for the fair and efficient adjudication of the controversy."

"Antitrust class actions are expensive endeavors and joining forces with other similarly situated plaintiffs is often the only way to effectuate a case." In re Carbon Black Antitrust Litig., No. 03-10191, 2005 WL 102966, at *22 (D. Mass. Jan. 18, 2005); see also Mercedes-Benz Antitrust Litig., 213 F.R.D. at 192 (class action best way to pursue many small claims); In re Linerboard Antitrust Litig., 203 F.R.D. 197, 223 (E.D. Pa. 2001), aff'd 305 F.3d 145 (3d Cir. 2002) ("[T]he cost of maintaining individual actions in this sort of antitrust case would be prohibitive.").

Here, Sanofi proposes that a bellwether trial would be superior. Sanofi relies on case law from personal injury cases that indicates that immature theories cannot be properly certified without a prior track record of trials. See Castano v. Am. Tobacco Co., 84 F.3d 734, 747 (5th Cir. 1996). This argument is unpersuasive.

For one, bundling cases and direct purchaser antitrust suits are not novel in the Third Circuit. But putting aside whether this is an "immature" theory, without a class many (perhaps most) class members would not bring their claim. The same common core of evidence clearly applies to all these cases. To adopt Sanofi's reasoning would require virtually all civil antitrust matters to be conducted via a lead case and myriad follow-on cases. There is no indication that is the convention, and this Court does not wish to make it so. Such a bellwether approach would not promote judicial efficiency, resolution of issues, or administration of justice here. A class action is clearly superior.

IV. CONCLUSION

Defendant's motion to exclude Professor Elhauge's testimony is hereby **DENIED** and Plaintiff's motion to certify the class is **GRANTED**. An appropriate order follows.

Date: Sept. 30, 2015

/s/ Madeline Cox Arleo
Hon. Madeline Cox Arleo
UNITED STATES DISTRICT JUDGE