IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

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| IN RE MUSHROOM DIRECT PURCHASER ANTITRUST LITIGATION | : | Master File NO. 06–0620 |
| THIS DOCUMENT RELATES TO All Actions | : | |
| O'NEILL, J. | : | July 29, 2015 |

**MEMORANDUM**

Presently before me in this antitrust litigation are Eastern Mushroom Marketing Cooperative (EMMC) defendants' motion to exclude the expert opinions of Professor Einer Elhauge (Dkt. No. 515), defendant M.D. Basciani's motion to exclude Prof. Elhauge's opinions (Dkt. No. 521), direct purchaser plaintiffs' response (Dkt. No. 535), defendants' replies (Dkt. No. 550, 553) and various surreplies (Dkt. Nos. 561, 565, 569, 595, 633). On May 19 and 20, 2015, the Court held a Daubert hearing regarding these motions. For the reasons that follow, I will deny defendants' motions.

**BACKGROUND**

Plaintiffs in this action are purchasers of fresh agaricus mushrooms. See Dkt. No. 670 at 2, Direct purchaser plaintiffs' motion for class certification is pending before me. Dkt. No. 514, Defendants include the EMMC and other entities that were Members of the EMMC or were affiliates of members of the EMMC. See Dkt. No. 670 at 2. Plaintiffs claim that defendants committed antitrust violations when they agreed to set minimum prices for fresh agaricus mushrooms and to restrict the supply of fresh agaricus mushrooms by purchasing and deed restricting mushroom farms. Id. I will now turn to the background immediately relevant to the instant Daubert motions.

Direct purchaser plaintiffs submitted an expert report by Prof. Elhauge in support of their motion for class certification and estimating damages. See Elhauge Rpt. Prof. Elhauge is a professor at Harvard Law School specializing in antitrust law and antitrust economics. Elhauge Rpt. ¶¶ 4–5, Ex. A. He also provides expert testimony in legal matters and is a graduate of Harvard Law School. Id. EMMC defendants submitted an expert report by Dr. John Johnson in support of their opposition to class certification. See Johnson Rpt. Dr. Johnson is the CEO of a consulting firm that provides expert economic and financial analysis. Johnson Rpt. at ¶¶ 18-19. He also teaches a class on antitrust and public policy at Georgetown University and has a Ph.D. in economics with a specialization in econometrics from M.I.T. Id. M.D. Basciani also submitted an expert report by Dr. Rigoberto Lopez criticizing Prof. Elhauge's opinions. See Lopez Rpt. Dr. Lopez is a professor and the head of the Department of Agricultural and Resource Economics at the University of Connecticut. Lopez Rpt. at ¶¶ 1, 2. He is also the director of the Zwick Center for Food and Resource Policy at the University of Connecticut, specializes in the economies of food systems and has a Ph.D. in Food and Resource Economics from the University of Florida. Id. Prof. Elhauge submitted a reply report addressing Dr. Johnson and Lopez's reports. See Elhauge Reply. Dr. Lopez submitted a supplemental report in support of M.D. Basciani's motion to exclude Prof. Elhauge's expert testimony. See Lopez Supp. Rpt. The Court denied direct purchaser plaintiffs' motion to strike Dr. Lopez's supplemental report. See Dkt. No. 623. Prof. Elhauge filed a supplemental report in response.[1] See Elhauge Supp. Rpt.

[1] I will only discuss the opinions contained in Dr. Johnson and Dr. Lopez's reports insofar as they relate to the arguments advanced by the defendants in their motions to exclude Prof. Elhauge's testimony.

Prof. Elhauge concludes in his report that (1) the EMMC's minimum pricing policy likely impacted all or nearly all class members, Elhauge Rpt. at ¶¶ 7–13; (2) there were class–wide damages from the EMMC's minimum pricing policy with an estimated damages total of _____ million, id. at ¶ 14; (3) the EMMC's supply control agreement had common anticompetitive impact on the putative class, id. at ¶ 15; and (4) damages resulting from the supply control agreement total an estimated _____ million. Id.

**STANDARD OF REVIEW**

Federal Rule of Evidence 702 governs the admissibility of expert testimony. When faced with expert testimony, the district court acts "as a gatekeeper to ensure that the expert's opinion is based on the methods and procedures of science rather than on subjective belief or unsupported speculation." ZF Mentor, LLC v. Eaton Corp., 696 F.3d 254, 290 (3d Cir. 2012) (internal quotations omitted). Rule 702 provides that:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the ease.

Fed. R. Evid. 702. In short, Rule 702 "embodies a trilogy of restrictions on expert testimony: qualification, reliability and fit." Schneider ex rel. Estate of Schneider v. Fried, 320 F.3d 396, 404 (3d Cir. 2003). The party offering expert testimony bears the burden of demonstrating compliance with Rule 702. See Mercedes-Benz USA, Inc. v. Coast Auto. Grp., Ltd., 362 F. App'x 332, 335 n.2 (3d Cir. 2010).

First, expert qualification "refers to the requirement that the witness possess specialized expertise." Schneider, 320 F.3d at 404. The Court of Appeals has "interpreted this requirement liberally, holding that a broad range of knowledge, skills, and training qualify an expert." Id.

Second, the Court of Appeals has "made clear" that "the reliability analysis required by Daubert applies to all aspects of an expert's testimony: the methodology, the facts underlying the expert's opinion, and the link between the facts and the conclusion." ZF Mentor, 696 F.3d at 291 (internal quotations omitted). "Thus, the requirement of reliability, or 'good grounds,' extends to each step in an expert's analysis all the way through the step that connects the work of the expert to the particular case." In re Paoli R.R. Yard PCB Litig., 35 F.3d 717, 743 (3d Cir. 1994). At the same time, Daubert "focuses on principles and methodology, not on the conclusions generated by principles and methodology." Id. Under Daubert and Rule 702, "[p]roponents of expert testimony do not have to 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 evidence that their opinions are reliable." In re DVI, Inc. Sec. Litig., No. 03-5336, 2014 WL 4634301, at *5 (RD. Pa. Sept. 16, 2014) (emphasis in original), citing Paoli, 35 F.3d at 744.

Third, the requirement of "fit" means that "the expert's testimony must be relevant for the purposes of the case and must assist the trier of fact." Schneider, 320 F.3d at 404. Concretely, that means that the expert's "knowledge must be connected to the question at issue…." Paoli, 35 F.3d at 791. The Court of Appeals has "emphasize[d] that the standard is not that high" but at least "is higher than bare relevance." Id. at 745. Indeed, the "ultimate touchstone" of the Daubert inquiry "is helpfulness to the trier of fact" which means that a "judge frequently should find an expert's methodology helpful even when the judge thinks that the

expert's technique has flaws sufficient to render the conclusions inaccurate." Paoli, 35 F.3d at 744-45.

"[A] plaintiff cannot rely on challenged expert testimony, when critical to class certification, to demonstrate conformity with Rule 23 unless the plaintiff also demonstrates, and the trial court finds, that the expert testimony satisfies the standard set out in Daubert." In re Blood Reagents Antitrust Litig., 783 F.3d 183, 184 (3d Cir. 2015). Additionally, while there will inevitably be "overlap" in the consideration of expert testimony in the Daubert and class certification inquiries, finding "expert testimony admissible under Daubert does not preclude the Court from denying class certification." In re Processed Egg Products Antitrust Litig., No. 08-2002, 2015 WL 337224, at *6 (E.D. Pa. Jan. 26, 2015).

## DISCUSSION

Defendants argue that Prof, Elhauge's opinions are inadmissible for four primary reasons: (1) he is not qualified to offer expert opinion in the form of multiple regression analysis; (2) his regression model, supply control model and analysis of the relevant markets are unreliable or do not fit the case; (3) he is not credible; and (4) the potential prejudice of his testimony outweighs its probative value. See Dkt. No. 515 at 4-5; Dkt, No. 521 at 2-3. I will address each of these contentions in turn.[2]

### I. Expert Qualifications

Defendants contend that Prof. Elhauge is not qualified to provide expert testimony in the form of multiple regression analysis because he does not have a degree in economics,

[2] I will conduct a more extensive review of defendants' Daubert challenge than might be applied in other contexts due to the extensive nature of the parties' Daubert briefs and expert reports, the multiple parties and sometimes overlapping expert opinions involved, the complexity of the econometric issues underlying the experts' opinions and the importance of the Daubert inquiry prior to deciding class certification.

econometrics or statistics. See Dkt. No. 515 at 13; Dkt. No. 521 at 6–13. Plaintiffs argue that Prof. Elhauge is qualified in the area of antitrust economics, which they contend is sufficient to qualify him to conduct regression analysis of common impact and damages in an antitrust case. See Dkt No. 535 at 10. The crux of the parties' dispute is whether an expert must be qualified in econometrics, economics or statistics as opposed to antitrust economics in order to apply statistical methods in analyzing issues in antitrust class actions such as common impact and damages.

In Waldorf v. Shuta, 142 F.3d 601, 625 (3d Cir. 1998), the Court of Appeals discussed the expert qualifications standard under Rule 702, which

> requires the witness to have "specialized knowledge" regarding the area of testimony. The basis of this specialized knowledge "can be practical experience as well as academic training and credentials." We have interpreted the specialized knowledge requirement liberally, and have stated that this policy of liberal admissibility of expert testimony "extends to the substantive as well as the formal qualification of experts." However, "at a minimum, a proffered expert witness…must possess skill or knowledge greater than the average layman…." (internal citations omitted).

Defendants' argument that Prof. Elhauge must have advanced degrees in econometrics or statistics in order to conduct multiple regression analysis in this case is no doubt "superficially attractive" but I will "decline to rule on that basis." Zenith Radio Corp. v. Matsushita Elec. Indus. Co., 505 F. Supp. 1313, 1379 (E.D. Pa. 1980), aff'd in part, rev'd in part on other grounds sub nom, In re Japanese Elec. Prods. Antitrust Litig., 723 F.2d 238 (3d Cir. 1983), rev'd sub nom, Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574 (1986). It is attractive because Prof. Elhauge "is not qualified as an expert in economics generally speaking or econometrics. . . ." Natchitoches Parish Hosp. Serv. Dist. v. Tyco Int'l, Ltd., No. 05-12024, 2009 WL 3053855 at *3 (D. Mass. Sept. 21, 2009). Prof. Elhauge has little formal education in

statistics and economics as fields independent of applied statistics in the antitrust context. Daubert Hr'g Tr. (May 19, 2015) at 103:20-105:2. But the formal division between econometrics or statistics and antitrust economics does not mean Prof. Elhauge is unqualified to apply regression analysis in the antitrust context.

Econometrics is "[t]he branch of economics that expresses economic theory in mathematical terms and that seeks to verify theory through statistical methods." Econometrics, Black's Law Dictionary (10th ed. 2014). The parties do not dispute that "antitrust economics" is "the application of economic principles and methods to antitrust issues." Dkt. No. 535 at 10; see also Natchitoches, 2009 WL 3053855 at *3 (same). Thus, antitrust economics is a "variet[y] of applied economies" in which "econometric methods and modeling have had a profound impact . . . ." Joshua Wright, Fed. Trade Comm'r, Address at Bates White 10th Annual Antitrust Conference, Simple but Wrong or Complex but More Accurate? The Case for an Exclusive Dealing–Based Approach to Evaluating Loyalty Discounts, 2013 WL 2902683, at *1 (June 3, 2013) (noting impact of a famous econometrician and his econometric methods in applied economics disciplines such as antitrust economics). There is no dispute that setting aside the issue of regression analysis in particular, courts have admitted Prof. Elhauge as an expert in antitrust economics generally. See Dkt. No. 535 at 11 n.17 (collecting cases).

Multiple regression analysis "is taught to students in extremely diverse fields, including statistics, economics, political science, sociology, psychology, anthropology, public health, and history . . . . Any individual with substantial training in and experience with multiple regression and other statistical methods may be qualified as an expert." Daniel L. Rubinfeld, Fed. Judicial Ctr., Reference Guide on Multiple Regression, in Reference Manual on Scientific Evidence 328 (3d ed. 2011). Thus, education and experience applying multiple regression analysis in a

specific discipline may qualify an expert to present evidence in the form of regression analysis within that disciplinary context under Rule 702. Indeed, in the antitrust context "a witness lacking a Ph.D. in economics but experienced in particular methods used in antitrust may be well qualified to testify using such methods." The Sedona Conference, The Sedona Conference Commentary on the Role of Economics in Antitrust Law, 7 Sedona Conf. J. 69, 83 (2006). The opposite also holds true – for example, a respected economist with no background in antitrust markets could be unqualified to testify regarding the relevant market in an antitrust case. See Nelson v. Monroe Reg'l Med. Ctr., 925 F.2d 1555, 1572 (7th Cir. 1991).

Of course, antitrust law as a field has a "more or less direct relationship to economics" compared to most other disciplines or areas of law. Alex Kozinski, Who Gives A Hoot About Legal Scholarship?, 37 Hous. L. Rev. 295, 317 (2000). Indeed, the "role of economics in antitrust law" has been described as "the whole game." Rebecca Haw, Adversarial Economics in Antitrust Litigation: Losing Academic Consensus in the Battle of the Experts, Nw. U.L. Rev. 1261, 1306 (2012). Because of the close relationship between the fields, the difference between qualification in statistics as opposed to the application of statistical models in antitrust economics "is of necessity indistinct, and it is not clear to [me] that" Prof. Elhauge's opinions "are beyond [his] sphere of expertise, especially since he will be subject to cross–examination." Zenith, 505 F. Supp. at 1379.

Prof. Elhauge has been described as a "highly qualified antitrust titan[ ]." Natchitoches Parish Hosp. Serv. Dist. v. Tyco Int'l, Ltd., 247 F.R.D. 253, 273 (D. Mass. 2008). As the Reference Manual on Scientific Evidence contemplates in its description of interdisciplinary education in statistical modeling, see supra, Prof. Elhauge studied the economic analysis of law in addition to antitrust law at Harvard Law School. Daubert Hr'g Tr. (May 19, 2015) at

103:24-104:1. He is the author of numerous books and articles located at the intersection of antitrust law and economics and one of those works has been cited by the Supreme Court. See Am. Needle, Inc. v. Nat'l Football League, 560 U.S., 183, 194 n.5 (2010), citing E. Elhauge & D. Geradin, Global Antitrust Law and Economics (2007).[3] Prof. Elhauge has been qualified by the District of Massachusetts to perform "regressions and other technical statistical analyses" in the antitrust class certification context as an expert in the "field of antitrust economics . . . ." Natchitoches, 2009 WL 3053855 at *3. In that case, the Court appointed an independent econometrics expert to review Prof. Elhauge's econometric and statistical opinions but the expert found no technical errors in Prof. Elhauge's analysis. Id. at *1, 3. Additionally, the Court admitted Prof. Elhauge's opinions, including regression analysis, over a Daubert challenge in Retractable Technologies, Inc. v. Becton Dickinson & Co, No. 08–16, Memorandum Order (E.D. Texas Sept. 2, 2013). Prof. Elhauge also clearly has familiarity with the literature regarding calculation of antitrust damages. Cf. Waldorf, 142 F.3d at 626 (affirming admission of an expert based on his familiarity with the literature in the relevant field and experience despite thin formal credentials); Elcock v. Kmart Corp., 233 F.3d 734, 744 (3d Cir. 2000) (affirming admission of an expert due to his experience and "review of the literature in the field" which gave him substantially more knowledge than the average lay person regarding the field). For example, Prof. Elhauge is the editor of the Research Handbook on the Economies of Antitrust Law, which includes an article analyzing how to calculate antitrust damages. See Daniel Rubinfeld, Antitrust Damages, in Research Handbook on the Economics of Antitrust Law 378 (Einer Elhauge ed., 2013); Einer Elhauge, Introduction and Overview to Current Issues in Antitrust Economics, in Research Handbook on the Economics of Antitrust Law 1 (Einer Elhauge ed., 2013). Further,

[3] Prof. Elhauge's more general works on antitrust law have been cited by the Supreme Court as well.

Prof. Elhauge's reports in this case responding to defendants' experts' criticisms of his regression analysis and his presentation at the Daubert hearing demonstrated his command of the technical issues related to multiple regression analysis in the antitrust context.

The Court of Appeals has reiterated that it "has had, for some time, a generally liberal standard of qualifying experts." Elcock v. Kmart Corp., 233 F,3d 734, 742 (3d Cir. 2000). The Court of Appeals has not sought to make the boundaries of expert qualification align exactly with the formal definitions of academic disciplines. "If the liberal standard of Rule 702 allows an engineer who teaches auto mechanics to testify in a products liability action about tractors" and "allows a trained internist who has spent significant time reviewing the literature on PCBs to testify as to whether PCBs caused illness in plaintiffs," Paoli, 35 F.3d at 754 (internal citations omitted), then surely it allows an expert in antitrust economics such as Prof. Elhauge to testify regarding the use of statistical models in the context of showing common impact and damages in an antitrust case. There is no serious question that Prof. Elhauge "possess[es] skill or knowledge" in conducting regression analysis in antitrust cases that is "greater than the average layman" even if it were conceded that his expertise with multiple regression analysis as an econometric tool in general is not as deep as that of an econometrician. Waldorf, 142 F.3d at 625.

While Prof. Elhauge is qualified to perform regression analysis in the antitrust context, he does not have the same educational background in econometrics that appears to be typical of experts admitted to conduct regressions in antitrust cases. See, e.g., In re Linerboard Antitrust Litig., 497 F. Supp. 2d 666, 668 n.6 (RD. Pa. 2007) (considering economic models offered by economics professor who wrote graduate level econometrics text book and where defendants did not object to expert's qualification); In re Chocolate Confectionary Antitrust Litig., 289 F.R.D.

200, 209 (M.D. Pa. 2012) (qualifying economics professor as an expert in econometrics where defendants expressed no objection given the expert's extensive background in economics). The solution to this issue was "made clear in Paoli II" where the Court of Appeals found "an expert's `level of expertise may affect the reliability of the expert's opinion.'" Elcock, 233 F.3d at 749 (affirming the admission of an expert with "thin" credentials), citing Paoli, 35 F.3d at 741. I find that here as well "the lack of econometric/economic credentials affects the weight" although "not the admissibility, of Professor Elhauge's testimony." Natchitoches, 2009 WL 3053855 at *3. Thus, to the extent defendants' contend Prof. Elhauge is unqualified to offer opinions in the form of multiple regression analysis in this antitrust litigation I will deny defendants' motions to exclude his opinions.

## II. Methodological Deficiencies

Defendants argue that three specific areas of Elhauge's expert analysis are inadmissible: (1) the regression model, (2) the supply control model and (3) the relevant market analysis. See Dkt. No. 515 at 6–9. I will address each of these contentions in turn,

### A. Regression Model

"The essential starting point" for determination of antitrust impact and damages in a price fixing case is to "isolate the effect of the [antitrust] violation on the plaintiff from the effects of all other events" in order to determine the difference between the actual prices paid by the plaintiff and the prices the plaintiff would have paid in a hypothetical world absent the anticompetitive conduct. ABA Section of Antitrust Law, Proving Antitrust Damages: Legal and Economic Issues 53–54 (2d ed. 2010). By constructing a regression model, an expert can "uncover the relationship between a dependent variable" such as prices and "one or more explanatory variables" such as anticompetitive conduct or costs. Id. at 125. In that way, the

expert can demonstrate that anticompetitive conduct impacted the prices paid by a plaintiff. The difference between the actual amount the plaintiff paid and the lower amount the plaintiff would have paid in the but–for world absent the anticompetitive conduct yields the estimated overcharge damages. Id. at 129.

To construct his regression model Prof. Elhauge carried out three fundamental tasks. First he defined the conduct and conduct free periods, meaning that he defined the period before and after the alleged conspiracy was effective. Elhauge Rpt. at ¶ 64. Second, he determined what factors could affect mushroom prices besides the EMMC's pricing policies and created control variables. Id. at ¶ 70. Third, he determined what pricing data to input into his regression model from the data available to him and calculated the results. Id. at ¶¶ 85, 88.

Defendants essentially attack Prof. Elhauge's methodology regarding each of the three fundamental tasks he performed and contend that these errors render Prof. Elhauge's regression model too unreliable to be admitted as evidence of anticompetitive impact and damages. Defendants contend: (1) Prof. Elhauge made improper benchmark period determinations; (2) Prof. Elhauge did not control for all important factors that influenced mushroom prices; (3) Prof. Elhauge utilized unrepresentative data; (4) Prof. Elhauge's model is demonstrably unreliable because it generates false positive results when alternative data is input into the model; and (5) Prof. Elhauge's regression model does not "fit" the facts of the case under Daubert because it is "incapable" of meeting the standards required for class certification. I will address each of these arguments in turn, but first must discuss some of the legal premises which underlie motions to exclude regression analysis evidence.

### 1. Daubert Standard and Regression Analysis

As a threshold matter, "Where is no dispute that when used properly multiple regression analysis is one of the mainstream tools in economic study and it is an accepted method of determining damages" and injury in antitrust cases. In re Flat Glass Antitrust Litig., 191 F.R.D. 472, 486 (W.D. Pa. 1999) (collecting cases). Dispute typically occurs over whether the expert's construction and implementation of the regression model is reliable and helpful in determining the variable of interest, such as the impact of a conspiracy on prices, and whether the model is based upon reliable data. See ABA, supra at 129. That is because an expert must not only use a sound methodology, but reliability must "extend[ ] to each step in an expert's analysis all the way through the step that connects the work of the expert to the particular case." Paoli, 35 F.3d at 743.

It is helpful to emphasize that under Daubert, because the evidentiary requirement of reliability is lower than the merits standard of correctness, the standard for determining scientific reliability is not that high. The test is not [whether the . . . expert might have done a better job." Oddi v. Ford Motor Co., 234 F.3d 136, 155–56 (3d Cir. 2000) (internal citations omitted). This is particularly true regarding the testimony in this case because economics and statistics "require the use of professional judgment, [so] expert testimony [in those fields] is less likely to be excluded because challenges may ultimately be viewed as matters in which reasonable experts may differ." In re Air Cargo Shipping Servs. Antitrust Litig., No. 06–1175, 2014 WL 7882100, at *8 (E.D.N.Y. Oct. 15, 2014) (internal citations omitted); see also Fed. R. Evid. 702 advisory committee's notes (2000) (noting that "[s]ome types of expert testimony will be more objectively verifiable" than others but that all testimony must be reliable). In fact, "[a] somewhat unique body of law has developed governing whether and under what circumstances statistical analysis

proffered by an expert—and, in particular, regression analyses . . . —pass muster under Rule 702." In re Live Concert Antitrust Litig., 863 F. Supp. 2d 966, 973 (C.D. Cal. 2012).

Because it is a recurring issue in defendants' motions, it is important to address here the question of how objections to expert testimony relating to factual disputes and factual assumptions underlying an expert's opinions are considered under Rule 702. The Advisory Committee's Notes to Rule 702 put it well: "[w]hen facts are in dispute, experts sometimes reach different conclusions based on competing versions of the facts. The emphasis in the amendment on 'sufficient facts or data' is not intended to authorize a trial court to exclude an expert's testimony on the ground that the court believes one version of the facts and not the other." Fed. R. Evid. 702 advisory committee's notes (2000). Daubert "does not preclude testimony merely because it may be based upon an assumption." In re Dill Litig., 193 F.3d 613, 677 (3d Cir. 1999) amended, 199 F.3d 158 (3d Cir. 2000). Thus, "[a] party confronted with an adverse expert witness who has sufficient, though perhaps not overwhelming, facts and assumptions as the basis for his opinion can highlight those weaknesses through effective cross–examination." Stecyk v. Bell Helicopter Textron, Inc., 295 F.3d 408, 414 (3d Cir. 2002). I am only to consider "the reliability of the expert's method, which may properly include making assumptions so long as those assumptions are sufficiently grounded in available facts." Edison Wetlands Ass'n. Inc. v. Akzo Nobel Chemicals, Inc., No. 08–419, 2009 WL 5206280, at *4 (D.N.J. Dec. 22, 2009). Courts have found that "most contentions that [expert] assumptions are unfounded go to the weight, not the admissibility, of the testimony, and a district court has discretion . . . to determine whether the expert acted reasonably in making assumptions of fact upon which he would base his testimony." In re Air Cargo, 2014 WL 7882100, at *15 (internal citations omitted); see also Synergetics, Inc. v. Hurst, 477 F.3d 949, 955756 (8th Cir. 2007)

("As a general rule, the factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is up to the opposing party to examine the factual basis for the opinion in cross–examination.").

**2. Agnostic Periods**

The first step Prof. Elhauge took in constructing his regression model was that he defined the conduct and conduct free periods, meaning that he defined the period before, during and after the alleged EMMC minimum pricing conspiracy was effective. Elhauge Rpt. at ¶ 64.
Prof. Elhauge defined the pre–conduct period as beginning on _____, which is the beginning of defendants' available pricing data, and ending _____. Elhauge Rpt. at ¶ 66.
Prof. Elhauge defined the conduct period as beginning on _____, which is the beginning of defendants' available pricing data, and ending on _____, which reflects the official implementation and suspension of the EMMC minimum pricing policy. Id. at ¶ 67. The purpose of separating conduct free periods and conduct periods is to create a benchmark conduct free period as "an evidentiary foundation for inferring what the prices would have been in the [conduct] period[s] but for the [alleged] illegal activity." Live Concert, 863 F. Supp. 2d at 974, citing 2A P. Areeda & H. Hovenkamp, Antitrust Law ¶ 399b, p. 446 (3d ed. 2006).
Prof. Elhauge represents this separation of conduct and conduct free periods mathematically the following way. His regression equation includes a conduct variable with a coefficient that represents the percentage price overcharge isolated as a consequence of anticompetitive conduct as opposed to other control variables. When sales data is input during a "conduct" period, the conduct variable is set equal to one. Elhauge Rpt. at ¶¶ 90–91. Where the data is input during a conduct free period, the conduct variable is set to zero. Id. Dr. Lopez expressly acknowledges this is the way Prof. Elhauge's model functions mathematically with regard to the conduct

variable. See Lopez Rpt. at 137. The parties do not dispute that creating benchmark periods in a regression model to help isolate the impact of anticompetitive conduct on prices is a reliable methodology.

Defendants' challenge arises because despite having sales data from the defendants for the relevant time periods, Prof. Elhauge remained "agnostic" about whether there was anticompetitive conduct from _____ until February 3, 2001 to reflect his consideration of evidence that defendants began discussing minimum pricing during that period but that the level of actual anticompetitive conduct is "murky." Elhauge Rpt. at ¶¶ 90–91. Prof. Elhauge also remained "agnostic" about the period after _____, 2005, citing evidence of continuing anticompetitive conduct in the form of a non–compete agreement between some EMMC members, but concluding that the evidence was not definitive enough to support treating the entire period as either a conduct or a conduct free period. Id. Practically speaking, no sales data is input for agnostic time periods in Prof. Elhauge's model. In mathematical terms, Prof. Elhauge says that the "value of the Conduct variable" is set to "missing" during the agnostic periods. Elhauge Reply at ¶ 320.

Defendants argue that Prof. Elhauge's decision to use agnostic periods is unreliabile and that it inflated the overcharge shown by his regression analysis. See Dkt. No. 515 at 26; Johnson Rpt. at ¶¶ 133–34; Lopez Rpt. at ¶ 63. Defendants' and their experts' contentions regarding Prof. Elhauge's use of agnostic periods are three–fold: (1) being agnostic about unclear periods of anticompetitive conduct where underlying data is available is methodologically improper, Dkt. No. 515 at 29; Daubert Hr'g Tr. (May 20, 2015) at 77; (2) sensitivity testing demonstrates Prof. Elhauge's agnostic period determinations are unreliable, Dkt. No. 515 at 28; and (3) even if it were proper to be agnostic about periods of unclear anticompetitive conduct, Prof. Elhauge's

second agnostic period is not "unclear" because there are no lingering effects of anticompetitive behavior during the period. Id. at 30–31.

Defendants provide an explanation for why they contend the use of agnostic periods biases Prof. Elhauge's results: it excludes the decrease in mushroom supply caused by the closing of a mushroom farm in 1999, four mushroom farms in 2000–2001 and a farm in 2006. Dkt. No. 515 at 26. Plaintiffs respond that (1) there is no evidence the closed farms were producing the relevant product, fresh agaricus mushrooms, as opposed to cannery grade mushrooms[4] and (2) that the timing of the closures does not affect Prof. Elhauge's confirmatory price–spike analysis. See Dkt No. 535 at 31; Elhauge Reply at ¶¶ 241–257. Defendants respond that the closed farms did in fact compete in the fresh agaricus mushroom market. See Dkt. No. 550 at 13–14. Additionally, Dr. Johnson conducted "sensitivity testing" meant to demonstrate the excess overcharge Prof. Elhauge created by including agnostic periods for the time periods in which the mushroom farms at issue closed. Johnson Rpt. at ¶¶ 133–34.

As a threshold matter, "the benchmark methodology is widely accepted for calculating overcharges in antitrust cases." In re Blood Reagents Antitrust Litig., 283 F.R.D. 222, 241 (E.D. Pa. 2012). But, "[w]hen constructing a benchmark statistic, the regression analyst may not 'cherry–pick' the time–frame or data points so as to make her ultimate conclusion stronger." Reed Const. Data Inc. v. McGraw–Hill Companies, Inc., No. 09-8578, 2014 WL 4746130, at *6 (S.D.N.Y. Sept. 24, 2014). At the same time, while "[s]tatistics tuned to the proper time period are more probative than statistics not so tuned, [ ] categorical rejection of the latter is not

[4] Prof. Elhauge opines that the relevant product market is fresh agaricus mushrooms and that those mushrooms are not interchangeable with cannery grade mushrooms. Elhauge Rpt. at ¶ 47. There is factual dispute regarding the proper definition of "fresh" agaricus mushrooms and mushrooms that are "cannery grade" that influences whether the restriction of supply from mushroom farms that may have been selling to canneries affected fresh mushroom pricing. Cf. Daubert Hr'g Tr. (May 19, 2015) at 145:15-9:6 with Id. at 48:13-50:18.

warranted." Valentino v. U.S. Postal Serv., 674 F.2d 56, 71 (D.C. Cir. 1982). To the extent an expert's benchmark determination rests on "facts and assumptions as the basis for his opinion" then the opposing party "can highlight those weaknesses through effective cross–examination." Stecyk, 295 F.3d at 414. Even "shaky" evidence may be "admissible" and better suited to "the traditional and appropriate means [of] attacking" evidence: "[v]igorous cross–examination, presentation of contrary evidence, and careful instruction on the burden of proof . . . ." Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 596 (1993). Thus, generally criticisms . . . of potential benchmark years go to the weight of [expert] opinions and not their admissibility." In re Urethane Antitrust Litig., No. 04–1616, 2012 WL 6681783, at *6 (D. Kan. Dec. 21, 2012) aff'd, 768 F.3d 1245 (10th Cir. 2014). But Daubert "does require more than the haphazard, intuitive inquiry . . . ." Oddi, 234 F.3d at 156.

The first issue is whether the use of agnostic periods is a reliable methodology generally. Dr. Johnson contends that agnostic periods are methodologically unsound because econometrician will always "test" to "separate out the lawful from the unlawful conduct" rather than remaining agnostic about whether a benchmark period was a conduct or no conduct period. Daubert Hr'g Tr. (May 20, 2015) at 77:8–10. In that vein, Dr. Johnson testified that remaining "agnostic is [ ] a concession that your model can't separate lawful from unlawful conduct" and that "there's no reason to remain agnostic, because [Prof. Elhauge's] actual versus but–for world should pick up any conduct in those periods." Id. at 77:19–23.

In contrast, Prof. Elhauge testified that "being agnostic is simply the same thing as choosing the right benchmark period and not choosing periods that are in fact improper benchmark periods." Daubert Hr'g Tr. (May 20, 2015) at 203:10–12. There does not seem to be any question that when choosing benchmark periods, "[i]t is important to ensure that the

supposedly unaffected periods really are unaffected." ABA, supra at 171 n.174. That is because "the effect of the conspiracy will be underestimated if either the defined conduct–free period covers a period when the conspiracy actually existed or the defined conduct period covers a period when the [alleged] conspiracy actually did not exist." Elhauge Rpt. at ¶ 65. Thus, Prof. Elhauge concluded that he "should exclude any period during which one is uncertain whether or not the conspiracy was in place" in order to neither underestimate nor overestimate the overcharge based upon a factual assumption about the beginning and end of the EMMC's alleged anticompetitive conduct. Id. at ¶¶ 90–91.

The parties do not dispute that, at least in the way Prof. Elhauge's model functions, one must first make factual assumptions about when there was anticompetitive conduct happening at a given time in order to code the regression's conduct variable as a "conduct," "conduct free" or an "agnostic" period. Dr. Johnson appears to accept that a benchmark period must actually be unaffected in order to serve as a proper conduct free period, but he contends that one must "test" the model's benchmark periods by running the model itself with various assumptions about when a period qualifies as a conduct or a conduct free period. But to "test" the model in the way Dr. Johnson suggests presumes a determination of conduct, conduct free or agnostic periods.[5] Prof. Elhauge argues that Dr. Johnson's testing method is equivalent to testing an accurate scale by observing whether its results differ from an inaccurate scale because Dr. Johnson' sensitivity testing avoids the basic question of whether Prof. Elhauge's model is based on accurate or inaccurate factual assumptions about the beginning and end of the conduct and conduct free

[5] Prof. Elhauge does not dispute that sensitivity testing of regression models is theoretically possible, but contends that Dr. Johnson's modifications of his agnostic periods are not reasonable and therefore are not truly "sensitivity" tests. Elhauge Reply at ¶ 324. There may be other methods of testing the accuracy of benchmark periods that have not been put forward as criticisms of Prof. Elhauge's analysis.

periods. Elhauge Reply at ¶ 322. Put another way, while Dr. Johnson contends that the purpose of the regression is to "separate out the lawful from the unlawful conduct" Prof. Elhauge responds directly. "that's not the point of the regression at all. The point of the regression is to ask what is the price effect of unlawful conduct." Daubert Hr'g Tr. (May 20, 2015) at 201:6–7.

This matter is substantially clarified in Prof. Elhauge's favor by Dr. Johnson's sensitivity testing of Prof. Elhauge's model. Again, the crux of Dr. Johnson's "argument for the importance of his sensitivity tests is that "if Elhauge thought there was conduct" during the agnostic periods "and if his model is working properly, then he should have run the model and included it and tested whether or not that made a difference."[6] Id. at 80:13–15, 77:11–12. Prof. Elhauge's original model including both his agnostic periods generated an estimated overcharge of 6.6-6.9%, Elhauge Rpt. at ¶ 93. Dr. Johnson attempted to demonstrate that Prof. Elhauge's inclusion of agnostic periods created an unreliable model of overcharges by running four permutations of the model: (1) including sales data from Prof. Elhauge's first agnostic period which generated an overcharge of _____ percent; (2) including sales data from the second agnostic period which generated an overcharge of _____ percent; (3) including sales data from both agnostic periods which generated an overcharge of _____ percent; and (4) including only the second agnostic period and excluding Prof. Elhauge's pre–conduct period data which generated an overcharge of _____ percent. Johnson Rpt. at ¶ 133–34, Ex. 28.

Dr. Johnson contends these modifications demonstrate Prof. Elhauge's model is unreliable because they show Prof. Elhauge's results are "sensitive" to the specification of the benchmark periods. But in each of his modifications, Dr. Johnson assumed that Prof. Elhauge's

[6] Prof. Elhauge contends that both assumptions to include conduct or conduct free periods in place of his agnostic periods are equally objectionable because they assume facts about anticompetitive conduct that are not sufficiently based in the record. See Elhauge Reply at ¶ 321.

agnostic periods are conduct free periods. Elhauge Reply at ¶¶ 301, 320. Thus, he seems to ignore the predicate question of determining how the data should be included in the regression based on a factual analysis of the presence of anticompetitive conduct. In order to "test" and "separate out the lawful from the unlawful conduct" Dr. Johnson presumes the very thing he claims to be testing that the agnostic periods are conduct free. Prof. Elhauge emphasizes that the conduct free determination has mathematical significance – it involves deciding the value of the conduct variable in the regression equation. Elhauge Reply at ¶¶ 319-20. That leads Prof. Elhauge to contend that Dr. Johnson is actually "making up" data rather than "including" known datasets. Id.

Indeed, the importance of being circumspect about the predicate conduct determination in terms of overcharge results is evidenced by Dr. Johnson's sensitivity analysis and Prof. Elhauge's response. Prof. Elhauge points out that under Dr. Johnson's logic Dr. Johnson also should have "tested" the model by "including" the agnostic periods as "conduct" periods. Elhauge Rpt. at ¶¶ 320–21. Prof. Elhauge ran that test by including both his agnostic periods as conduct periods instead of conduct free periods, input the relevant sales data and generated an average overcharge of _____ percent compared to Dr. Johnson's _____ percent. Id. at ¶ 321. Prof. Elhauge ran the test to include just the second agnostic period as a conduct period instead of a conduct free period and generated an estimated overcharge of _____ percent instead of Dr. Johnson's _____ percent. Id. These results show that it is indeed significant whether a time period is included as a conduct or a conduct free period in the regression model and supports Prof. Elhauge's decision to use agnostic periods as a conservative method of mediating the underlying factual uncertainty that would give rise to such disparate results depending on the expert's factual assumptions.

But even accepting Dr. Johnson's sensitivity analysis on its face, he does not demonstrate that Prof. Elhauge's use of agnostic periods creates an unreliable model. Assuming Prof. Elhauge's agnostic periods were conduct free periods does not always create such pronounced effects that excluding Prof. Elhauge's model would be justified. For example, Dr. Johnson reduced the estimated overcharge from _____ percent to _____ percent by changing the first agnostic period to a conduct free period. Elhauge Reply at ¶ 327. While Dr. Johnson emphasizes that he was able to generate a _____ percent overcharge by altering Prof. Elhauge's benchmark periods, Daubert Hr'g Tr. (May 20, 2015) at 86:21, 93:6–8, 13–20, to reach that result Dr. Johnson must make what seem to be unreasonable assumptions – not only that the second agnostic period is a conduct free period but also that all of the pre–conduct period data should be disregarded, including data from before _____, 2000, a time that the parties do not even dispute is a conduct free period. See Elhauge Reply at ¶ 326.

Lastly, defendants contend that Prof. Elhauge's second agnostic period is improper because Dr. Johnson can empirically demonstrate there was no overcharge during that time period. Daubert Hr'g Tr. (May 20, 2015) at 84:22. Prof. Elhauge's decision to use a second agnostic period was based on two considerations: (1) potential lingering effects of the minimum pricing policy and (2) evidence of another possible conspiracy to affect prices through a non–compete agreement after the expiration of the minimum pricing policy. Elhauge Rpt. at ¶ 67. Dr. Johnson attempts to demonstrate that there were no lingering effects of the alleged conspiracy during Prof. Elhauge's second agnostic period by changing Prof. Elhauge's average overcharge model to vary the overcharge by month. Daubert Hr'g Tr. (May 20, 2015) at 85:1-16. Dr. Johnson's modification resulted in the model generating no overcharge towards the end of Prof. Elhauge's conduct period from August, 2004 until _____ 2005. Id. at 86:16–

17. Dr. Johnson concludes that if there was no overcharge at the end of the conduct period, that there is no reason to assume there would be lingering effects after the conduct period to justify Prof. Elhauge's inclusion of a second agnostic period rather than a conduct free period.

First, to the extent Prof. Elhauge's decision to use an agnostic period is due to the existence of a non–compete agreement among some EMMC members following the cessation of the minimum pricing policy, I find that Dr. Johnson's analysis focusing on a decline in overcharges at the end of the minimum pricing policy conduct period is inapposite. See Elhauge Reply at ¶¶ 291–93. Second, Prof. Elhauge contends that Dr. Johnson's monthly overcharge example produces negative coefficients on some of the variables which indicates a multicollinearity problem. Multicollinearity exists when independent variables are highly correlated with each other and it prevents the model from isolating which variable is causing observed effects. See Elhauge Reply at ¶ 333. Prof. Elhauge argues that using two month intervals removes the multicollinearity problem and generates a more accurate model. Id. at ¶ 336. It appears that reasonable experts could disagree about what Dr. Johnson's modification of Prof. Elhauge's overcharge coefficient suggests about the reliability of Prof. Elhauge's model. At least, I find that Prof. Elhauge has effectively addressed Dr. Johnson's modifications and established the reliability of his model. I also note that Prof. Elhauge has provided several convincing analogies and formal hypothetical models/proofs to illustrate that remaining agnostic about periods of unclear anticompetitive impact does not bias – and indeed can generate more accurate – results than making an alternative assumption that the period is either a conduct or conduct free period. See Id. at in ¶¶ 294–314.

To conclude the discussion of Prof. Elhauge's use of agnostic periods, Prof. Elhauge has relied upon "facts and assumptions as the basis for his opinion", and defendants "can highlight

those weaknesses" if any "through effective cross–examination." Stecyk, 295 F.3d at 444. Prof. Elhauge's analysis, as discussed above, is clearly not a "haphazard" inquiry. Oddi, 234 F.3d at 156. "[T]hose assumptions" that Prof. Elhauge has made to support his agnostic period determinations "are sufficiently grounded in available facts" such as evidence of pre–conduct discussions of the minimum pricing policies and of a non–compete agreement in the post-conduct period to establish the reliability of his agnostic periods under Rule 702. Edison Wetlands, 2009 WL 5206280, at *4. I reiterate that Prof. Elhauge's benchmark determinations need not be perfect, indeed they could even be "shaky" but "admissible" under Daubert. 509 U.S. 579, 596 (1993). Defendants' "criticisms" of Prof. Elhauge's "potential benchmark years go to the weight of [his expert] opinions and not their admissibility." Urethane, 2012 WL 6681783 at *6, aff'd, 768 F.3d 1245 (10th Cir. 2014). For the reasons stated above, I find that Prof. Elhauge's use of agnostic periods in his regression analysis is reliable under Rule 702.

**2. Omitted Variables**

Prof. Elhauge's second step in constructing his regression model was to determine what market factors affect mushroom prices and create control variables for those factors. Id. at ¶ 70. Defendants contend that Prof. Elhauge's regression fails to account for mushroom farm closings that affected mushroom prices. Dkt. No. 515 at 19.

While it is the case that a regression analysis must account for all of the major explanatory variables to ensure its reliability, "[n]ormally, failure to include variables will affect the analysis' probativeness, not its admissibility." Bazemore v. Friday, 478 U.S. 385, 400 (1986). Applying Bazemore to the antitrust context, "it 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." Linerboard, 497 F. Supp. 2d at 678 (internal

citations omitted); see, e.g., Blue Cross & Blue Shield United of Wisc. v. Marshfield Clinic, 152 F.3d 588, 593 (7th Cir. 1998) (finding expert damages reports were "worthless" because they controlled for only a single factor). Indeed, defendants "cannot exclude a regression analysis . . . simply by pointing to variables not taken into account." Mehus v. Emporia State Univ., 222 F.R.D. 455, 462 (D. Kan. 2004). "Rather, the challenging party must introduce evidence to support its contention that the failure to include those variables would actually change the outcome of the analysis," In re Indus. Silicon Antitrust Litig., No. 95–1131, 1998 WL 1031507, at *9 (W.D. Pa. Oct. 13, 1998); see also In re Polypropylene Antitrust Litig., 93 F. Supp. 2d 1348, 1365 (N.D. Ga. 2000). Thus, defendants must generally provide alternative variables or attempt an alternative regression analysis that might "weaken the results of [the expert's] analysis." Indus. Silicon, 1998 WL 1031507, at *9; see also Live Concert, 863 F. Supp. 2d at 974 (stating there "must be some indication that the excluded variables would have impacted the results").

As a threshold issue, defendants' argument about an omitted control variable for mushroom farm closings is closely related to the issue of Prof. Elhauge's agnostic periods because they contend the inclusion of agnostic periods essentially "omitted" the first group of mushroom farm closings during the first agnostic period and the mushroom farm closing that occurred during the second agnostic period. Dkt. No. 515 at 23. However, defendants seem to conflate the two issues methodologically by primarily discussing mushroom farm closings that occurred during Prof. Elhauge's first agnostic period as a question of omitted variable bias. Cf. Daubert Hr'g Tr. (May 20, 2015) at 82:14–17 with id. at 83:10–12; see Dkt. No. 515 at 23–24. The two issues are distinct, however, since the issue of omitted variable bias relates to

whether Prof. Elhauge has included the proper control variables, not whether his model excludes otherwise relevant data such as through benchmark determinations.

I have already found that Prof. Elhauge's agnostic periods are reliable, so the only issue is whether Prof. Elhauge's model is unreliable because he did not include a control variable for mushroom farm closings during the conduct period. Defendants argue four farm closings during the conduct period should have–been accounted for in Prof. Elhauge's model. See Dkt. No. 515 at 23. First, defendants have not shown how failing to account for those closings rendered his "regressions [ ] so incomplete as to be irrelevant . . . ." Linerboard, 497 F. Supp. 2d at 678 (internal citations omitted). Defendants have "simply [ ] point[ed] to variables not taken into account," Mehus v. Emporia State Univ., 222 F.R.D. 455, 462 (D. Kan. 2004), but have not provided an alternative mushroom farm closing variable that might "weaken the results of [Elhauge's] analysis." Indus. Silicon, 1998 WL 1031507, at *9. Again, that Dr. Johnson ran sensitivity analysis regarding Prof. Elhauge's use of agnostic periods during times that mushroom farms closed is separate from whether defendants have offered alternative control variables to account for mushroom farm closings in the regression.

Second, Prof. Elhauge's model controls for a number of important variables relevant to mushroom price. In fact, M.D. Basciani's expert Dr. Lopez suggested alternative variables for a number of other factors he believed more accurately reflect mushroom prices. Lopez Rpt. at ¶¶ 46–52. Prof. Elhauge ran his regressions with Dr. Lopez's suggestions and in many cases the regression then generated a larger overcharge due to defendants' alleged conspiracy than with Prof. Elhauge's original variables. Elhauge Reply at ¶¶ 240–82. Here, Prof. Elhauge's "failure to include variables" regarding mushroom farm closings, if any, will only "affect the analysis' probativeness, not its admissibility." Bazemore, 478 U.S. at 400. Thus, I find that Prof. Elhauge

has sufficiently included and justified his control variables to conclude his regression is reliable under Rule 702.

### 3. Representativeness of the Data

Prof. Elhauge's third step in constructing his regression model was to determine what price data to input from the available sales data and to calculate the results. Elhauge Rpt. at ¶¶ 85, 88. Prof. Elhauge did not use paper transaction data supplied by some defendants due to the cost of converting voluminous paper records to electronic form. Elhauge Reply ¶¶ 224–25. He also did not utilize data from defendants who did not buy the same products in both pre–conduct and conduct periods to ensure the statistical validity of his analysis. Id. at ¶¶ 232–36. Thus, in constructing his model Prof. Elhauge used all of the electronic transaction data produced by defendants who supplied data for both the pre–conduct and conduct periods.[7]

Then, in order to estimate overcharges and damages for defendants who did not produce electronic sales data Prof. Elhauge began with an estimated sales volume using the EMMC's interrogatory responses. Elhauge Rpt. at ¶ 114. Second, he multiplied that by partial years to account for the beginning and end dates of the conduct period. Id. Third, from this amount he excluded sideways sales – sales between EMMC members. Id. Fourth, he multiplied the resulting sales volume by the average price per pound based on the electronic sales data. Id.

Defendants contend that I should exclude Prof. Elhauge's regression model because the data sample he used in his model is not representative of defendants generally and therefore is statistically unreliable. In particular, defendants argue that Prof. Elhauge's sample is unreliable because (1) he only utilized electronic sales data and (2) his sample is too small because it only

[7] A dispute has evolved through the briefing of these motions about exactly what data was produced by defendants and considered by Elhauge. See e.g., Dkt. No. 561 at 4-5; 565 at 8-11. I find that Elhauge has considered enough sales data to make his analysis reliable.

includes 31 percent of defendants. See Dkt. No. 515 14–19; Dkt. No. 521 at 13–23.[8] Also, M.D. Basciani contends that 1 should exclude Prof. Elhauge's regression model as unreliable with respect to defendants who did not produce electronic sales data because Prof. Elhauge's damages estimates regarding those defendants are inflated. See Dkt. No. 595.

As a general matter, "[m]odels are not the real world; rather, such models–are a reasoned and educated attempt to describe reality by accepted methods of statistical analysis using available real world observations, data, and knowledge. The process is not like a Pythagorean demonstration of a mathematical truth that can be revealed indisputably. Neither is it simple `numbers crunching.'" Falise v. Am. Tobacco Co., 258 F. Supp. 2d 63, 67 (E.D.N.Y. 2000). Indeed, "[e]ven if the data relied on by the expert is 'imperfect, and more (or different) data might have resulted in a 'better' or more 'accurate' estimate in the absolute sense, it is not the district court's role under Daubert to evaluate the correctness of facts underlying an expert's testimony.'" Hartle v. FirstEnergy Generation Corp., No. 084019, 2014 WL 1317702, at *9 (W.D. Pa. Mar. 31, 2014) reconsid. denied sub nom. Patrick v. FirstEnergy Generation Corp., No. 084025, 2014 WL 5463885 (W.D. Pa. Oct. 27, 2014); citing i4i Ltd. P'ship v. Microsoft Corp., 598 F.3d 831, 856 (Fed. Cir. 2010), aff'd, 131 S. Ct. 2238 (2011).[9]

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[8] Defendants even imply that Prof. Elhauge's sample needs to be randomized in order to be considered reliable under Rule 702. See Dkt. No. 515 at 15, 18;Lopez Rpt. at ¶ 53 (stating Prof. Elhauge's model is flawed because "it is, non–random and therefore not representative of the market"). It is important that "[m]ost statistical analyses pertinent to judicial proceedings, and certainly those dealing with economic and antitrust issues, are not based on randomized controlled experiments. Rather they are observational studies grounded in real world data." U.S. Info. Sys., Inc. v. Int'l Bhd. of Elec. Workers Local Union No: 3, AFL-CIO, 313 F. Supp. 2d 213, 233 (S.D.N.Y. 2004).

[9] Prof. Elhauge reiterated at the Daubert hearing that in antitrust economics one never has perfect information and that an expert must "do the best with the data you actually have available." Daubert Hr'g Tr. (May 19, 2015) at 54:14–55:9.

Though speaking in the context of an omitted variable question, the Court of Appeals for the Seventh Circuit concluded that "arguments about how the selection of data inputs affect the merits of the conclusions produced by an accepted methodology should normally be left to the jury." Manpower, Inc. v. Ins. Co. of Pa., 732 F.3d 796, 808 (7th Cir. 2013). Thus, in Chocolate Confectionary, the District Court determined that despite the representativeness of the data underlying an expert's econometric model on class certification creating "limitations" and rendering it "imperfect" the model was still admissible because the expert had utilized the data produced by the defendants "to the extent possible." 289 F.R.D. at 213. Similarly, in Inline Connection Corp. v. AOL Time Warner Inc., 470 F. Supp. 2d 435, 441–42 (D. Del. 2007), the District Court disregarded the defendants' "contention that the data lacks 'intellectual vigor' because of the experts' inability to provide a larger sample" and found that argument "goes to weight, and not reliability . . . ." The Court elaborated that, since the experts "did not base their conclusions solely on unverifiable sources or merely on conjecture . . . [their] theories are clearly explained and documented in their reports" and "[t]heir analyses, sources and conclusions can be tested through cross–examination," they were reliable under Rule 702. Id.

First, defendants contend that Prof. Elhauge unreasonably did not consider sales data produced by defendants in paper rather than electronic format, which they contend results in a sample size that is unrepresentative and therefore statistically unreliable. Prof. Elhauge responds that manually coding the tens of thousands of paper invoices was infeasible. Elhauge Reply ¶¶ 224–25. Prof. Elhauge also points out that even if all of that data was manually coded there is no way to know if it would offer enough data to generate statistically reliable results for those defendants. Id, at ¶ 226. Economic modeling in the litigation context poses real world constraints. Prof. Elhauge does not need to utilize the best data set imaginable to satisfy the

reliability standard under Rule 702. His decision not to code thousands of paper sales invoices alone does not impugn the reliability of Prof. Elhauge's sample itself – the question is whether his decision leads to seriously biased results.

Second, defendants contend that because Prof. Elhauge's sample includes only larger producers who used electronic sales records that it is statistically unreliable. Plaintiffs respond that Prof. Elhauge focused on 31 percent of the putative class members to ensure accuracy of the results since these class members were the subset of customers who had purchases in both the pre–conduct and conduct periods and thus provided the best statistical sample. Further, those 31 percent of class members represent 71 percent of all sales volume. See Dkt. No. 535 at 26–27. An expert does not run afoul of Rule 702 simply for extrapolating data from one defendant to another. See Chocolate Confectionary, 289 F.R.D. at 213. Prof. Elhauge has sufficiently shown that his decision to use a subset of defendants' data was reliable since those defendants produced the most complete data over the relevant time period and represented the majority of total sales made by defendants.

Third, in his supplemental report Dr. Lopez, M.D. Basciani's expert, contends that Prof. Elhauge's estimated damages for paper data defendants are unreliable because (1) the sales data from which he extrapolated included processed mushrooms that are not part of the relevant product market definition and (2) the sales estimates produced in the BMW's interrogatory responses are unreliable. Lopez Supp. at ¶ 2, Dr. Lopez attempts to demonstrate that these issues lead to overestimated damages for paper data defendants by applying Prof. Elhauge's model for estimated paper defendant damages to electronic data defendants who provided full electronic sates data. Dr. Lopez finds that when Prof. Elhauge's method is cross–applied in this way, the model overestimates sales for electronic defendants anywhere from .27 percent at the least to

263.7 percent at the most, which Dr. Lopez opines indicates the model is flawed. See Lopez Supp. Table 1.

It bears repeating that "[w]hen facts are in dispute, experts sometimes reach different conclusions based on competing versions of the facts. The emphasis in [Rule 702] on 'sufficient facts or data' is not intended to authorize a trial court to exclude an expert's testimony on the ground that the court believes one version of the facts and not the other." Fed. R. Evid. 702 advisory committee's notes (2000). Fundamentally, the question of whether the EMMC's fee assessment base included sales of processed mushrooms outside of the plaintiffs market definition is the kind of factual issue inappropriate for resolution on a Daubert motion. Indeed, this issue is largely an extension of the parties' continuing disputed over the factual relationship between processed mushrooms and fresh mushrooms. See supra n.4; Elhauge Supp. Rpt. ¶ 2. Next, to the extent that the EMMC's own sales data was unreliable, it is not difficult to appreciate the irony in M.D. Basciani's contention that Prof. Elhauge's report should be excluded for relying upon the data as it was produced by the defendants themselves. Experts are allowed to rely on a defendant's relevant interrogatory responses as a basis for their opinions. See Tormenia v. First Investors Realty Co., 251 F.3d 128, 135 (3d Cir, 2000) (affirming district court's admission of expert testimony relying in part on a defendant's interrogatory responses). Finally, the extent to which Dr. Lopez's cross–application of Prof. Elhauge's methodology for paper data defendants to electronic data defendants raises legitimate questions regarding the accuracy of the estimated damages conclusions that Prof. Elhauge reached is grist for the mill of cross–examination. Thus, I decline to exclude Prof. Elhauge's opinions on the basis of the representativeness of the data which underlies them.

**4. False Positives**

Dr. Johnson ran Prof. Elhauge's model on mushroom sales by EMMC member Monterrey in California, which is outside Prof. Elhauge's proposed geographical market, and returned a _____ percent "overcharge" attributable to anticompetitive conduct. Dkt. No. 515 at 24. Defendants contend that this is a "false positive" that confirms Prof. Elhauge's regression analysis is unreliable. Id. Prof. Elhauge offers a variety of responses to defendants' false positive analysis: (1) there is evidence that there was possibly anticompetitive conduct at play in the mushroom market in the Western United States through an organization called the Western Mushroom Marketing Association (WMMA), Elhauge Reply at ¶ 132; (2) that _____, as a member of both the EMMC and the WMMA, could have shared pricing information between the two organizations to prevent buyers in the border regions between the markets from switching suppliers, id.; and (3) that Dr. Johnson only utilized the data of a single grower in California and that this result thus demonstrates little about the reliability of Prof. Elhauge's model generally. Id. at ¶ 133.

Defendants cite two cases in support of their argument that false positives may demonstrate that a regression analysis is unreliable and inadmissible: In re Rail Freight Fuel Surcharge Antitrust Litig., MDL No. 1869, 725 F.3d 244 (D.C. Cir. 2013) and Comcast Corp. v. Behrend, 133 S. Ct. 1426 (2013). Neither of those cases decided the admissibility of expert regression analysis, but only considered how false positives impacted the weight given to regression analyses on class certification. Thus, those cases more accurately imply that it is proper to consider the issue of false positives as going to the weight of Prof. Elhauge's analysis at class certification rather than exclusion on a Daubert motion. Additionally, in Rail Freight the false positive analysis relied upon comparison to a group of shippers "indisputably unaffected by

the conspiracy" while in this case "the task is considerably more complex" given the possibility that the WMMA cooperative set minimum prices for mushrooms in the Western United States. Allen v. Dairy Mktg. Servs., LLC, No. 09–230, 2013 WL 6909953, at *17 n.9 (D. Vt. Dec. 31, 2013) (denying Daubert motion to exclude expert's regression analysis on the basis of false positives and distinguishing Rail Freight). Prof. Elhauge has raised sufficient questions with a foundation in the record to mitigate the explanatory power of Dr. Johnson's false positive analysis at the Daubert stage. Therefore, I find that Dr. Johnson's false positive analysis at most goes to the weight that should be accorded to Elhauge's conclusions and that Mange's regression model is sufficiently reliable under Rule 702.

**5. Fit of the Regression Model**

Defendants argue that "Prof. Elhauge's regression is incapable of meeting the standards required of Plaintiffs on class certification and on the merits" because it cannot prove injury to every class member and therefore it does not meet the requirement of "fit" under Rule 702. See Dkt. No. 515 at 31–32. Defendants contend that Prof. Elhauge "simply posits applying an average overcharge to all purchases in the Class period" which they argue is insufficient to show individual injury to all or nearly all putative class members. Id. at 31. Again, the "fit" requirement means "the expert's testimony must be relevant for the purposes of the case and must assist the trier of fact." Schneider, 320 F.3d at 404.

Prof. Elhauge explains that the function of his unitary overcharge model is not to demonstrate impact on each individual class member for purposes of the common impact analysis on class certification but rather "is intended to show anticompetitive impact on the market." Elhauge Reply at ¶ 135. In his initial report Prof. Elhauge stated that he ran his unitary overcharge regression to "see whether the EMMC price–fixing conspiracy raised prices

throughout the period when it was in place." Elhauge Rpt. at ¶ 64. Prof. Elhauge does state in his report, however, that because the unitary overcharge regression "controlled for any and all individual buyer characteristics that remain fixed over the period" it "indicates that the proven anticompetitive impact affected all or nearly all customers when coupled" with other evidence of common impact. Id. at ¶ 96. Prof. Elhauge does not primarily rest on his unitary overcharge model in reaching the conclusion of injury to all or nearly all putative class plaintiffs. Thus he is correct that the defendants' contention that his unitary overcharge model does not "fit" the purposes of proving anticompetitive impact on all customers is largely off–base. Prof. Elhauge also runs individual regressions for each putative class member and concludes that at least among the statistically significant results _____ percent of customers suffered an anticompetitive impact in each of two conduct periods he delineated for the purpose of his common impact analysis for the time periods following the publication of two EMMC price lists. Elhauge Rpt. at ¶¶ 105, 108. Although defendants contend that a proper interpretation of Prof. Elhauge's regression results leads to the conclusion that _____ percent or possibly _____ percent of customers were impacted, see Dkt. No. 515 at 33, the dispute over how many putative class members Prof. Elhauge's model indicates were actually injured goes to the sufficiency of Prof. Elhauge's evidence on class certification rather than whether his regressions methodologically "fit" the "purposes of the case" at the Daubert stage. Paoli, 35 F.3d at 743 (emphasis in original). In Paoli, the Court of Appeals explained that the application of a scientific test to humans that is meant to be used on animals would not "fit" a case involving humans if it was not methodologically established that there were "good grounds" to apply the test to humans. Id. In contrast, Prof. Elhauge's regressions clearly have more than "bare relevance" methodologically to the issue of common impact, even if they might not ultimately

show that all or nearly all class members were impacted at a later stage of the litigation. Id. at 745. At least, Prof. Elhauge has robustly supported his conclusions of common impact and opines that the application of his regression model to individual class members shows that all or nearly all class members were injured, in addition to presenting other evidence of common impact such as the nature of the alleged conspiracy and price–spike analysis, Dkt. No. 535 at 18–19; Elhauge Rpt. at ¶¶ 105–106; Elhauge Reply at ¶ 137. I am persuaded that Prof. Elhauge's regression analyses, even if they might not be ultimately persuasive at later stages of the litigation, will assist in those later considerations by providing an empirical basis upon which to consider plaintiffs' motion for class certification. Thus, I find that Prof. Elhauge's regression model sufficiently fits the case under Rule 702 and will not exclude it.

**B. Supply Control Model**

In addition to his regression analysis, in his report Prof. Elhauge conducts a separate and alternative analysis of defendants' supply control program as evidentiary support for common impact and damages. See Elhauge Rpt. at ¶ 117. To conduct his supply control analysis, Prof. Elhauge uses an elasticity demand formula, id. at ¶ 119, then plugs in a price elasticity of demand figure for mushroom sales taken from a Mushroom Council study and farm production estimates from the EMMC to generate an estimate of damages caused by the supply restrictions beginning on the date the farms were purchased until June 2003. Id. at ¶¶ 119–22, Prof. Elhauge makes several factual assumptions in order to run this model.

First, Prof. Elhauge assumes that defendants' farm purchases and deed restrictions actually prevented the closed mushroom farms from going back into production – meaning he assumes the very purpose of the EMMC's supply control program. For the purposes of calculating damages, that means he assumes that had the supply control program not existed, the

farms would have gone back into production at full capacity from the time that they were purchased from the EMMC. Defendants argue that since the farms were in poor condition and were already dosed when the EMMC purchased them, the assumption that they would have been producing mushrooms at full capacity but–for the EMMC's conduct is an assumption not grounded in the record. See Dkt. No. 515 at 38. Second, Prof. Elhauge assumes that the supply control program removed ___ million pounds of mushroom production. Elhauge Rpt. at ¶ 121, Table 7. Defendants 'contend that Prof. Elhauge cannot rely upon that estimate because he cannot testify to whether that data is reliable. Dkt. No. 515 at 40. Third, Prof. Elhauge uses a "marketwide" elasticity figure because, in his words, "the EMMC's supply control agreement reduced the marketwide quantity of multiple mushroom types." Elhauge Reply at ¶ 397. Defendants contend the figure is inappropriate because (a) Prof. Elhauge drew the figure from a third party source and he has not assessed its reliability independently; (b) the figure includes exotic mushrooms; and (c) he applies a single elasticity to various kinds of fresh agaricus mushrooms. See Dkt. No. 515 at 42. Fourth, Prof. Elhauge used an elasticity demand formula from the Mushroom Council that defendants contend was improper to use without independently assessing its reliability and that Prof. Elhauge did not assess whether the mushroom market behaves the way the elasticity demand formula models. Id.

Again, Daubert "does not preclude testimony merely because it may be based upon an assumption." In re TMI Litig., 193 F.3d at 677. That principle is of even greater significance in the context of factual assumptions underlying expert damages calculations. First, even on the merits, "the actual amount of damages may result from a reasonable estimate, as long as the jury verdict is not the product of speculation or guess work." In re Lower Lake Erie Iron Ore Antitrust Litig., 998 F.2d 1144, 1176 (3d Cir, 1993) (internal citations omitted). Second, the

extent of damages will often be determined by the resolution of underlying disputed factual issues that are the province of the factfinder. Rather than requiring an expert to calculate "damages for every foreseeable interpretation of the record and factual finding . . . it is more practical for each expert to base his calculations on a particular factual scenario, presumably as posited by or on behalf of the party offering the expert." Brill v. Marandola, 540 F. Supp. 2d 563, 570 (E.D. Pa. 2008). Thus, "[f]ederal courts applying the standards established by Rule 702 and 703 have permitted damages experts to make the assumptions of fact necessary to render a, sound opinion, so long as such assumptions have a reasonable basis in the available record and are disclosed to the finder of fact." Id. at 568.

For example, in an employment case where damages depended on how long an employee would have been employed with the plaintiff but–for the defendants' conduct, the Court concluded that "how long [the employee] would have remained employed with Plaintiff is a disputed material fact to be decided by the jury at trial. The jury may then choose to rely upon or disregard" the expert testimony to the extent it relied upon a factual assumption the jury has rejected on the merits. Meyer–Chatfield v. Century Bus. Servicing, Inc., 732 F. Supp. 2d 514, 525–26 (E.D. Pa. 2010). As long as

> the experts present their factual findings as hypothetical (i.e., if propositions A, B and C are found to be true, then the damages amount to X), then testimony regarding their assumptions is admissible. However, an expert may not state such hypothetical propositions as objective facts, unless such facts are clearly undisputed.

Brill, 540 F. Supp. 2d at 570. Prof. Elhauge clearly contemplates this scenario when he explains in his report that, if the factfinder does not credit the EMMC's own estimation of the mushrooms the supply control program prevented from entering the market, it would be straightforward to

plug an alternative number into his model to generate an alternative damages calculation.[10] See Elhauge. Reply at ¶ 378.

[10] Defendants argue that the standard of admissibility for damages experts making factual assumptions is stricter. First, defendants rely upon Elcock v. Kmart Corp., 233 F.3d 734, 756 (3d Cir. 2000), where the plaintiff's expert constructed a damages model to show the plaintiff's lost income due to disability. The Court of Appeals reasoned that the expert's opinion was inadmissible because he (1) had simply assumed 100 percent. disability despite the record specifically identifying the level of disability at 75 percent or less, (2) completely ignored actual evidence of the plaintiff's income, (3) simply substituted his own income figures for income and (4) ignored the fact the plaintiff had continued earning income after becoming disabled. Id. at 755–56. In contrast to the expert in Elcock, Prof. Elhauge does not rely upon factual assumptions that are blatantly contradicted by the record. For example, Prof. Elhauge assumes that defendants' deed restrictions prevented the closed mushroom farms from going back into production meaning he assumes the very purpose of the deed restrictions themselves. That is not "pure speculation," but rather is a plausible inference within the context of defendants' alleged attempt to restrict mushroom supply through buying and deed restricting closed farms. "[E]xperts are expected to make inferences and state opinions and they are granted wide latitude in determining what data is needed to reach a conclusion." Brill, 540 F. Supp. 2d at 568.

Second, defendants rely on In re TMI Litigation, 193 F.3d 613, 671 (3d Cir. 1999), where the Court of Appeals excluded an expert's opinion regarding radiation exposure in part because he had received a critical piece of data needed "to calculate the radiation exposure from Trial Plaintiffs' counsel" and did not attempt to verify the data. But the Court of Appeals also reasoned that the expert was not qualified in radiation dose reconstruction, "violated an elementary principle of credible dose reconstruction" and that he could not justify his calculations after they were contradicted by another expert. Id. Prof. Elhauge's assumptions are also not analogous to the expert's errors in TMI, Prof. Elhauge reasonably relied upon record evidence produced by defendants regarding the market impact of their supply reduction program.

In ZF Meritor, the Court of Appeals stated that "[i]n some circumstances, an expert might be able to rely on the estimates of others in constructing a hypothetical reality, but to do so, the expert must explain why he relied on such estimates and must demonstrate why he believed the estimates were reliable." 696 F.3d at 292. There, the plaintiff's expert had "relied on a one–page set of profit and volume projections" to calculate damages that the plaintiff prepared and provided. Id. Here, Prof. Elhauge relies upon record evidence of defendants' own contemporaneous internal estimates of the effectiveness of their supply control program. Where a factual issue is disputed and there are reasonable grounds for experts' contradicting assumptions, it is for the jury to weigh the parties' respective evidence regarding the amount of mushroom production removed from the market as a result of the defendants' supply control agreement in determining damages, It is sufficient under Rule 702 that Prof. Elhauge grounded his opinion on factual evidence in the record produced by defendants.

Finally, defendants also contend that Total Containment, Inc. v. Dayco Products, Inc., No. 1997–6013, 2001 WL 1167506, at *7 (E.D. Pa, Sept. 6, 2001) supports their position because there the Court excluded the plaintiff's expert's testimony based upon unconfirmed

I find that Prof. Elhauge's damages analysis of the supply control program has "a reasonable basis in the available record" with regard to the question of whether the supply control program reduced supply and the magnitude of that reduction, even if defendants dispute the record evidence. Brill, 540 F. Supp. 2d at 568. I find Prof. Elhauge's choice to begin his damages calculation on the date that the EMMC acquired the mushroom farms as part of its supply control agreement has sufficient basis in the factual record. I also find that Prof. Elhauge's use of _____ million pounds as the amount of production reduced by the supply control agreement was sufficiently based in the factual record. Prof. Elhauge based that estimate on defendants' own estimates. See Elhauge Rpt. at ¶ 117. Defendants' witnesses have testified that number was inflated. See Dkt. No. 515 at 40, citing Ex. K, Ex. K; Elhauge Reply at ¶ 388. Defendants point out that the Department of Justice estimated that 42–44 million pounds were removed from supply by defendants' supply control agreement. Id. Which number is most accurate is a disputed question of fact for the factfinder. Prof. Elhauge's use of _____ million pounds is clearly based on "sufficient, though perhaps not overwhelming, facts and assumptions" which the defendants may challenge "through effective cross–examination" and presentation of contradicting evidence including their own expert testimony. Stecyk, 295 F.3d at 414; Brill, 540 F. Supp. 2d at 568 (noting each side had opposing experts to address assumptions made by the other expert).

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business projections by the plaintiff's own executive and where the executive could "provide[ no explanation of how he arrived at that crucial figure under accepted accounting of economics methods." In Total Containment, however, the expert relied upon the executive's unconfirmed projections rather than the "sales figures" which "were presented to [the expert] in abundance, and [the expert] could have computed such a crucial figure on his own, [but] he did not." Id. Defendants do not contend that Prof. Elhauge ignored undisputed mushroom farm production data in favor of relying upon the EMMC's supply control impact estimations.

Finally, I find that Prof. Elhauge's use of industry data in the form of an elasticity demand formula and elasticity figure did not render his opinions unreliable or represent improper factual assumptions. This challenge to Prof. Elhauge's reliance on industry data implicates Federal Rule of Evidence 703, which provides in relevant part that "[a]n expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed. If experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject, they need not be admissible for the opinion to be admitted." Fed. R. Evid. 703. In conducting that analysis, I "should assess whether there are good grounds to rely on this data to draw the conclusion reached by the expert." Montgomery Cnty. v. Microvote Corp., 320 F.3d 440, 448 (3d Cir. 2003) (citation omitted). I find that an industry elasticity demand study and an industry elasticity demand formula are the kind of evidence that an expert calculating damages would reasonably rely upon. See Viking Yacht Co. v. Composites One LLC, 613 F. Supp. 2d 637, 642 (D.N.J. 2009) (noting that the expert properly relied on "industry publications, academic articles, and the record evidence" even though he "did not test each of the[ ] alternative causes" that could have led to the gel coat cracking at issue in the case). Prof. Elhauge has "good grounds" to rely upon an independent mushroom industry study calculating the elasticity of demand for mushrooms. Montgomery, 320 F.3d 440, 448 (3d Cir. 2003). Additionally, I will ensure that Prof. Elhauge's factual assumptions are "disclosed to the finder of fact" at trial and that Prof. Elhauge presents his damages estimate as a hypothetical based on certain factual predicates. Brill, 540 F. Supp. 2d at 568. Thus, while there might be a factual dispute about the true extent of any reduction in supply caused by the EMMC's supply control efforts, Prof. Elhauge's analysis has sufficient foundation in the factual record to be admissible.

## C. Market Analysis

### 1. Product Market

Prof. Elhauge defines the relevant product market in this case as fresh agaricus mushrooms. Elhauge Rpt. at ¶ 47. "The relevant product market is defined as those commodities reasonably interchangeable by consumers for the same purposes. Factors to be considered include price, use and qualities." Tunis Bros. Co. v. Ford Motor Co., 952 F.2d 715, 722 (3d Cir. 1991) (internal citations omitted). M.D. Basciani's expert Dr. Lopez opines that it is not disputed the relevant product market in this case is fresh agaricus mushrooms, though he takes issue with Prof. Elhauge's methodology for defining the market. Lopez Rpt. at ¶ 32. Dr. Johnson contends that the relevant product market is not all fresh agaricus mushrooms, but that white and brown mushrooms are in separate markets. Johnson Rpt. at ¶ 96.

Defendants argue that Prof. Elhauge's market definition is based upon analysis that is "insufficient as a matter of law" to prove anything about the relevant markets because he does not conduct a "cross–elasticity study" and thus does not "fit" the legal standards applicable to market definition. Dkt. No. 515 at 43, 45. As a matter of law "[t]he inquiry with respect to fit under Daubert is not whether expert testimony is sufficient to meet any of the [legal] elements; rather, the fit inquiry 'goes primarily to relevance.'" Patrick v. FirstEnergy Generation Corp., No. 08–1025, 2014 WL 1318017, at *12 (W.D. Pa. Mar. 31, 2014). Thus, "[w]hether [expert] testimony is sufficient to meet plaintiffs' burden on the merits of those elements is not properly before the court on a Daubert motion." Id. Defendants do not cite a case in the section of their

brief addressing Prof. Elhauge's relevant market analysis that discusses admissibility under Rule 702.[11]

Prof. Elhauge provides three analyses of the relevant product market that are all relevant to the question of the proper product market definition in this case. First, he opines that price correlation evidence supports the conclusion that fresh agaricus mushrooms are all in the same market with each other but not with either canned or fresh non–agaricus mushrooms. See Elhauge Rpt. at ¶¶ 50–52; Elhauge Reply at ¶ 83. Defendants assert that Prof. Elhauge only conducted a price correlation as evidence of his market definition. See Dkt. No. 515 at 45. But contrary to defendants' contentions, Prof. Elhauge does not rely exclusively on a price correlation analysis as evidence of the relevant product market definition. Rather, Prof. Elhauge uses price correlation as only one piece of evidence supporting his product definition. See Elhauge Reply at ¶¶ 84–88.

Second, Prof. Elhauge opines that fresh agaricus mushrooms are not functionally interchangeable with canned or fresh non–agaricus mushrooms. See Elhauge Rpt. at ¶¶ 49;

[11] Instead, defendants cite Brown Shoe Co. v. United States, 370 U.S. 294, 325 (1962), which found on appeal from a final judgment of antitrust liability that market boundaries can be determined by "examining such practical indicia as industry or public recognition of the submarket as a separate economic entity, the product's peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors." Defendants next cite to U.S. Horticultural Supply v. Scotts Co., 367 F. App'x 305, 311 (3d Cir. 2010), which found on summary judgment that a plaintiff had not carried its burden of showing the relevant product market. But far from mandating any special kind of analysis, the Court of Appeals simply noted that the plaintiff's evidence had failed "to discuss price and use implications within its proposed market," that the expert report at issue did not even include information "relating to price increases or price stability for substitute products" 'or "to provide any economic analysis of these substitutes." Id. Finally defendants cite to Queen City Pizza, Inc. v. Domino's Pizza. Inc., 124 F.3d 430, 436 (3d Cir. 1997), which found that a plaintiff had failed to plead the relevant product market under Rule 12(b)(6) because it did not even "reference . . . reasonable interchangeability and cross–elasticity of demand . . . ." In addition to the different procedural posture here, Prof. Elhauge's product market analysis is more complete he discusses practical indicia of market boundaries, functional interchangeability of the products at issue, price correlations and direct evidence of market power in the relevant market.

Elhauge Reply at ¶¶ 80–81. Defendants do not dispute Prof. Elhauge's functional interchangeability analysis or address its relevance to the question of market definition other than to say it is only "supportive" evidence and fails to meet the legal standard for product definition on the merits. Dkt. No. 550 at 35; Elhauge Reply at ¶ 81.

Third, defendants contend that Prof. Elhauge's opinion is faulty because he did not perform the SSNIP test. Dkt. No. 515 at 46. The SSNIP test seeks to answer whether a hypothetical monopolist in the posited market could sustain a profitable price increase of at least five percent above the competitive level. See Elhauge Rpt. at ¶ 50. Prof. Elhauge argues that his overcharge regression satisfies the hypothetical monopolist test because it is direct evidence that the EMMC could raise prices profitably over five percent in the relevant market. See Elhauge Rpt. at ¶ 54; Elhauge Reply at ¶ 82–83. I find that Prof. Elhauge has sufficiently established that direct evidence of market power such as his regression analysis is at least relevant to the question of market definition (though he contends it is actually superior to other methods of market definition) and "fits" the case. See Elhauge Reply at ¶ 82. Without deciding the ultimate significance of his direct evidence of market power on the relevant market definition, I note that where direct evidence of market power is offered courts have found a plaintiff only needs to "show the rough contours of a relevant market . . . ." In re Comp. of Managerial, Prof'l & Technical Empls. Antitrust Litig., No. 02–2924, 2008 WL 3887619, at *7 (D.N.J. Aug. 20, 2008). Further, the Court of Appeals has noted that "market share and barriers to entry are merely surrogates for determining the existence of monopoly power . . . direct proof does not require a definition of the relevant market." Broadcom Corp. v. Qualcomm, Inc., 501 F.3d 297, 307 (3d Cir. 2007). Indeed, Dr. Johnson testified at the Daubert hearing that "market definition is an evolving antitrust exercise" – in contrast to defendants' claims in their Daubert briefing that

Prof. Elhauge was required to perform a specific form of analysis to render his product market testimony admissible. Daubert Hr'g Tr. (May 20, 2015) at 114;17–18. Defendants also object to Prof. Elhauge's direct evidence of market definition because they argue his regression analysis is unreliable. See Lopez Rpt. at ¶ 34. I have already found that Prof. Elhauge's regression analysis is sufficiently reliable under Rule 702. Thus, I will deny defendants' motions to exclude Prof. Elhauge's product market analysis.

**2. Geographic Market**

Prof. Elhauge defines the relevant geographic market as the non–Western United States, which he specifies is the area east of the Rocky Mountains. Elhauge Rpt. at ¶¶ 55–57. "The relevant geographic market, from which the court calculates the market share in the relevant product markets, is that area in which a potential buyer may rationally look for the goods or services he seeks." Gordon v. Lewistown Hosp., 423 F.3d 184, 212 (3d Cir. 2005). Further, "[t]he geographic scope of a relevant product market is a question of fact to be determined in the context of each case in acknowledgment of the commercial realities of the industry being considered." Id. Elhauge reaches his opinion regarding the relevant geographic market by considering (1) that fresh mushrooms are highly perishable and that transport over the Rocky Mountains is impractical and (2) that his regression analysis provides direct evidence of the EMMC's ability to raise prices in the non–Western United States. See Elhauge Rpt. at ¶¶ 56–57. Dr. Johnson opines that Prof. Elhauge's geographic market definition is too large and should be limited to smaller regional markets in part because (1) of the perishability concerns also relied upon by Prof. Elhauge as well as (2) the existence of Canadian imports in border states and other regional variations in mushroom production and distribution. See Johnson Rpt. at ¶¶ 100–04. In contrast, Dr. Lopez opines that Prof. Elhauge's geographic market definition is too small and

should be expanded to include the entire United States. See Lopez Rpt. at ¶ 32. Prof. Elhauge argues that Dr. Johnson's proposal of smaller relevant markets in particular is irrelevant because (1) Prof. Elhauge's regression controls for differences in geographic location; (2) the EMMC minimum price lists applied in every region; and (3) if Prof. Elhauge's proposed market was too broad it would only understate defendants' market power. See Elhauge Reply at ¶ 106.

Defendants do not frame their opposition to Elhauge's geographic market definitions under the legal standard applicable on a Daubert motion. They simply argue that "because Prof. Elhauge has not conducted a legally sufficient relevant geographic market analysis, he should be precluded from testifying to the jury about his opinions on the relevant geographic market." Dkt. No. 515 at 45. Defendants improperly assert that if evidence is insufficient on the merits that it should be excluded under Rule 702. Indeed, Prof. Elhauge's geographic market analysis is clearly relevant to the question of the geographic market in this case because he relies upon similar considerations, such as perishability and transportation concerns, that are considered in defendants' own geographic market analysis. See Johnson Rpt. at ¶ 104. Prof. Elhauge's report provides direct quantitative evidence of market power in the defined geographic market. See Elhauge Rpt. at ¶ 57. Additionally, as Prof. Elhauge argues, to the extent that his geographic Market definition is too large, that would only understate market power in the relevant market. Elhauge Reply at ¶ 106. Dr. Lopez's critique that the mushroom price correlations between California and Pennsylvania show that the states are in the same geographic market is a matter appropriate for cross examination rather than support for exclusion of Prof. Elhauge's testimony. See Lopez Rpt. at ¶ 36. Thus, I will deny defendants' motions to exclude Prof. Elhauge's opinion regarding the relevant geographic market.

## III. Credibility

M.D. Basciani moves to exclude Prof. Elhauge's opinions as biased and not credible because Prof. Elhauge is: (1) a practicing attorney; (2) has an agenda; (3) is a plaintiffs' expert; and (4) has previously served as an expert for putative class plaintiffs' counsel. See Dkt. No. 521 at 50–59. Yet the Court of Appeals has found that the district courts should not generally consider an expert's "credibility as a witness when assessing the reliability of his methods." Elcock, 233 F.3d at 751; see also Egg Products, 2015 WL 337224, at *4 (following Elcock and declining to consider an expert's credibility at the Daubert stage). The Court of Appeals noted that certain exceptions to that rule exist where there is a close nexus between credibility and the methodology in question at the Daubert stage. See Id. at n.8 (giving the example of "prior dishonest acts involv[ing] fraud committed in connection with the earlier phases of a research project that serves as the foundation for the expert's proffered opinion"). Defendants have not made any allegation against Prof. Elhauge's credibility sufficient to warrant my consideration of this issue on a Daubert motion. These are issues properly brought out, if at all, on cross–examination. Thus, I will deny M.D. Basciani's motion to exclude Prof. Elhauge's opinions on credibility grounds.

## IV. M.D. Basciani's Rule 403 Motion

M.D. Basciani also moves to exclude Prof. Elhauge from testifying at trial under Federal Rule of Evidence 403 because his "status as a professor of law at Harvard Law School is likely to mislead the jury when he purports to give a strictly economic and not legal opinion." Dkt. No. 521 at 12. Rule 403 provides that "Who court may exclude relevant evidence if its probative value is substantially outweighed by a danger of one or more of the following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting

cumulative evidence." Fed. R. Evid. 403. "Rule 403 necessarily requires that the District Court engage in balancing to determine whether the probative value of the evidence is 'substantially outweighed' by the negative factors listed in Rule 403." Coleman v. Home Depot, Inc., 306 F.3d 1333, 1344 (3d Cir. 2002). The Court of Appeals has "stress[ed] that pretrial Rule 403 exclusions should rarely be granted" and that "if . . . testimony survives the rigors of Rule 702 . . . Rule 403 is an unlikely basis for exclusion." Paoli R.R. Yard PCB Litig., 916 F.2d 829, 859 (3d Cir, 1990). M.D. Basciani relies on In re Titanium Dioxide Antitrust Litig., No. 10¬0318, 2013 WL 1855980, at *8 (D. Md. May 1, 2013), where the Court found that a law professor was not qualified to give economic testimony in an antitrust case under Rule 702 and that in addition his "status as a law professor [was] likely to mislead the jury when he purports to give a strictly economic and not legal opinion." But the Court in Titanium Dioxide also found that the potential prejudice "substantially outweighed] the limited probative value of [the professor's] testimony," which it had already determined was inadmissible under Rule 702. Id. In contrast, I have determined that Prof. Elhauge's testimony is admissible under Rule 702. I find that the probative value of Prof. Elhauge's testimony, upon which plaintiffs' motion for class certification and damages analysis largely rests, is not outweighed by any potential prejudice to defendants before the jury resulting from Prof. Elhauge's status as a law professor. Of course, to reduce any potential prejudice to the defendants, the jury may be instructed at trial regarding the proper limits of Prof. Elhauge's expert testimony. See United States v. Lee, 612 F.3d 170, 192 (3d Cir. 2010) (affirming Rule 403 decision by district court partially because of the limiting instruction given at trial). Thus, I will deny M.D. Basciani's motion to exclude Prof. Elhauge's expert opinions under Rule 403.

## CONCLUSION

For the reasons set forth above, I will deny defendants' motions to exclude the expert opinions of Professor Elhauge,

An appropriate Order follow

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

| | | |
|---|---|---|
| IN RE MUSHROOM DIRECT PURCHASER ANTITRUST LITIGATION | : | Master File NO. 06-0620 |
| THIS DOCUMENT RELATES TO All Actions | : | |

**ORDER**

AND NOW, this 29th of July, 2015, upon consideration of Eastern Mushroom Marketing Cooperative (EMMC) defendants' motion to exclude the expert opinions of Professor Einer Elhauge (Dkt. No. 515), defendant M.D. Basciani's motion to exclude Prof. Elhauge's opinions (Dkt. No. 521), direct purchaser plaintiffs' response (Dkt. No. 535), defendants' replies (Dkt. No. 550, 553) and various surreplies (Dkt. Nos. 561, 565, 569, 595, 633), the Daubert hearing regarding these motions and consistent with the accompanying memorandum of law, it is ORDERED that defendants' motions are DENIED.

It is FURTHER ORDERED that, because this Order and the accompanying memorandum of law may contain confidential information, they have been filed under seal pending review by the parties to permit the parties to meet and confer and propose a single jointly redacted version of the Order and the accompanying memorandum of law. On or before August 21, 2015, the parties shall provide the Court with any proposed redacted Order and accompanying memorandum of law or shall inform the Court that no redactions are required. Thereafter, the Court will issue a publicly-available version of this Order and the accompanying memorandum of law.

*s/Thomas N. O'Neill, Jr.*
THOMAS N. O'NEILL, JR., J.