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

IN RE: CHOCOLATE CONFECTIONARY ANTITRUST LITIGATION	:	**MDL DOCKET NO. 1935 (Civil Action No. 1:08-MDL-1935)**
	:	**(Judge Conner)**
THIS DOCUMENT APPLIES TO: ALL INDIVIDUAL PLAINTIFF ACTIONS EXCEPT CIVIL ACTION NO. 1:12-CV-1604 (ASSOCIATED WHOLESALE GROCERS, INC.)	:	

MEMORANDUM

Presently before the court in the above-captioned matter is the motion to exclude the testimony and reports of individual purchaser plaintiffs' expert Dr. Christopher A. Vellturo (Doc. 1214), filed by defendants The Hershey Company, Mars, Inc., and Nestlé USA, Inc. (collectively, "defendants"), pursuant to Federal Rule of Evidence 702. The matter has been fully briefed, and is ripe for disposition. For the reasons that follow, the court will grant the motion in part, and deny it in part.

I. Factual and Procedural History

The instant motion comes before the court as part of a multidistrict litigation, consolidating ninety-one separate actions. Individual plaintiffs allege that defendants, multi-national corporate entities producing approximately 75 percent of America's chocolate confectionary products, conspired to implement three price increases on chocolate from 2002 through 2007. Individual plaintiffs have retained

Dr. Vellturo to offer an opinion on the issues of antitrust liability, impact, and damages.

Dr. Vellturo holds a Ph.D. in economics from the Massachusetts Institute of Technology. (Vellturo CV, Doc. 1295-5 at 84). His research has been published in leading academic journals, including *Antitrust*, the *Antitrust Law Journal*, and the *Journal of Economics and Management Strategy*. (Id.) He has served as an expert witness on economics-related matters before numerous United States District Courts, the Canadian Competition Bureau, and the American Arbitration Association. (Id.) He has also appeared before the United States Department of Justice, the Federal Trade Commission, and the Federal Reserve Bank Board of Governors, among other government agencies.

Dr. Vellturo submitted his opening report on May 14, 2012. Defendants took his deposition on July 10 and 11, 2012, and for reasons to be discussed *infra*, Dr. Vellturo filed an addendum to his report on July 19, 2012. The reports of defense experts Dr. Robert C. Marshall, Dr. John H. Johnson, IV, and Dr. Joseph P. Kalt were filed on August 3, 2012, and Dr. Vellturo submitted his rebuttal report on September 19, 2012. Defendants filed this motion on November 5, 2012, in conjunction with the motions for summary judgment of Nestlé USA (Doc. 1205) and Hershey (Doc. 1206), each filed on November 2, 2012. Oral argument on defendants' motions for summary judgment is currently scheduled for September 19, 2013. On December 7, 2012, pursuant to Federal Rule of Civil Procedure 23(a) and 23(b)(3), the court certified a litigation class consisting of "[a]ll persons and entities who

directly purchased" certain chocolate candy products for re-sale from any defendant, in the United States or for delivery to the United States, at any time between December 9, 2002 and December 20, 2007. The instant motion concerns those plaintiffs that elected to pursue their claims individually.

Defendants' motion to exclude attacks Dr. Vellturo's report and testimony on a variety of grounds, and the court will examine the details of Dr. Vellturo's analysis in the context of defendants' specific objections. Generally speaking, individual plaintiffs retained Dr. Vellturo to evaluate economic evidence and to determine whether defendants engaged in coordinated price-fixing conduct resulting in reduced competition and higher prices, and if so, to quantify the damages sustained. Dr. Vellturo originally concluded that between late 2002 and 2007, the defendants "undertook coordinated anti-competitive conduct," resulting in damages of at least $258,100,793 between 2003 and 2008. (Vellturo Report, Doc. 1295-4 at ¶ 10). For reasons to be discussed *infra*, Dr. Vellturo has revised his damages estimate to $175,211,039. (See Vellturo Addendum, Doc. 1295-8, Ex. 2).

II. Standard of Review

The admission of expert testimony in federal court is governed by Federal Rule of Evidence 702, which states:

> 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 case.

FED. R. EVID. 702. Rule 702 requires district court judges to act as "gatekeepers" to ensure that expert testimony is both reliable and relevant. See Daubert v. Merrell Dow Pharmaceuiticals, Inc., 509 U.S. 579, 589 (1993). Notwithstanding their role as gatekeepers, district courts must adopt a "liberal policy of admissibility," and favor the admission of any evidence that may assist the trier of fact. Pineda v. Ford Motor Co., 520 F.3d 237, 243 (3d Cir. 2008).

III. Discussion

Broadly speaking, defendants attack Dr. Vellturo's testimony on three fronts. First, they argue that Dr. Vellturo's expert analysis relies upon flawed data and, therefore, his opinions flowing from that data are unreliable and must be excluded. See *In re* Paoli R.R. Yard PCB Litig., 35 F.3d 717, 748 (3d Cir. 1994). Second, defendants argue that Dr. Vellturo's econometric model is flawed because his methodology is not based upon sound economic principles, rendering his opinions unreliable. See, e.g., Pineda v. Ford Motor Co., 520 F.3d 237, 247 (3d Cir. 2008). Third, defendants assert that Dr. Vellturo's liability analysis regarding the impact of an alleged Canadian price-fixing conspiracy on the American chocolate industry is entirely speculative, and therefore should be excluded. The court will address each of these contentions *seriatim*.

A. The Sufficiency of Dr. Vellturo's Data

An expert's opinion must be based on "sufficient facts or data." FED. R. EVID. 702(b); see also FED. R. EVID. 703 ("An 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."). District courts have an independent responsibility to evaluate the reliability not only of the methodology the expert employs, but also of the facts and data upon which the expert's methodology rests. ZF Meritor, LLC v. Eaton Corp., 696 F.3d 254, 291 (3d Cir. 2012) (citing Heller v. Shaw Indus., Inc., 167 F.3d 146, 155 (3d Cir. 1999)); see also id. at 294 ("Where proffered expert testimony's 'factual basis, data, principles, methods, or their application are called sufficiently into question, . . . the trial judge must determine whether the testimony has a 'reliable basis in the knowledge and experience of the relevant discipline.'" (quoting Kumho Tire Co. v. Carmichael, 526 U.S. 137, 149 (1999))); Elcock v. Kmart Corp., 233 F.3d 734, 754-55 (3d Cir. 2000) (explaining that an economist's expert testimony regarding future earning potential "must be accompanied by a sufficient factual foundation") (internal quotation marks and citation omitted). When an expert's opinion derives from fundamentally flawed data, it is nothing more than a "castle made of sand," id. at 755, and must be excluded.

Defendants attack the sufficiency of Dr. Vellturo's data in two ways: first, that the Mars profit and loss data is rife with accounting allocations that, while useful for

business purposes, are unhelpful when attempting to determine economic profit margins; and second, that even assuming the reliability of the Mars data, Dr. Vellturo improperly extended his conclusions based upon that data to Nestlé USA. The court will address each argument in turn.

i. The Reliability of the Mars Profit and Loss Data

Dr. Vellturo employs a difference-in-difference ("DiD") analysis in order to measure the difference in profit margins between those products allegedly the subject of anti-competitive conduct (i.e., "accused products") and those that were not (i.e., "non-accused products"). The DiD analysis compares the profit margins of accused products during the alleged conspiracy period with non-accused products during the same period, and with accused products during a non-conspiracy period. (See generally, Vellturo Report, Doc. 1295-4 at ¶¶ 230-42). Controlling for economic factors such as brand equity or changes in production costs, Dr. Vellturo seeks to isolate the price impact of the alleged collusion. Id.

Dr. Vellturo requested profit and loss data for defendants' products, but the scope of available data varied significantly among Hershey, Mars, and Nestlé USA. Mars provided profit and loss data at the product UPC level, tracked at four-week intervals, from 2002 through 2008. (Vellturo Report, Doc. 1295-4 at App. A ¶¶ 13-14). Hershey provided profit and loss data at the brand level only. (Id. at App. A ¶ 16). Brand-level data tracks profitability of a brand in its entirety – for example, all varieties of Almond Joy – rather than a single, particular product, such as Almond

Joy singles. (Id. at ¶¶ 243-45). Nestlé USA provided no margin data. (Id. at App. A ¶ 12).

This incongruity in data was problematic, and it affected the manner in which Dr. Vellturo constructed his antitrust impact and damages analysis. He first analyzed the UPC-level data provided by Mars in order to "isolate the margin effects (and corresponding price effects)" of the allegedly anti-competitive price increases. (Id. at ¶ 228). He then compared the results of his Mars analysis with brand-level margin data from Hershey, in order to determine whether "trends" seen in the Mars data were evident at Hershey. (Id.) Dr. Vellturo also compared trends in realized prices for all three defendants to determine whether prices were "tightly correlated" during the conspiracy period, evaluated trade spend[1] data to determine whether price increases were partially or completely offset by trade spend increases, and considered the individual plaintiffs' prices and trade spend levels "to determine if these data indicate any material diversions in impact among Plaintiffs or with respect to Plaintiffs and the customer population as a whole." (Id.)

Defendants posit that Dr. Vellturo's analysis rests on flawed data, creating an unstable foundation for his conclusions. They draw a distinction between

[1] "Trade spend" refers to the promotional money defendants spend to obtain benefits from retailers, such as preferential "product placement and display, product promotions, and increased advertising of their products designed to increase the volume of sales." *In re* Chocolate Confectionary Antitrust Litig., — F.R.D. —, 2012 WL 6652501, at *2 n.3 (M.D. Pa. Dec. 7, 2012).

"economically meaningful" profit margin data, and data that contain "economically-meaningless accounting allocations of trade spend." (Def. Amended Br. in Supp., Doc. 1329-2 at 12). It is therefore necessary to discuss briefly the differences between the two types of data.

Companies are required to follow "generally accepted accounting principles" when preparing financial statements for submission to the Securities and Exchange Commission, but these principles "imperfectly reflect economic realities." ABA SECTION ON ANTITRUST DAMAGES: LEGAL AND ECONOMIC ISSUES 97 (2d ed. 2010). Defendants' expert Dr. Robert C. Marshall describes the problem as follows:

> At the core of Dr. Vellturo's approach to measuring overcharges is a comparison of economic profit margins. . . . Dr. Vellturo, however, does not observe economic profit margins directly. Instead, he relies on an accounting measure of profit margins in Mars profit and loss accounting data to make inferences about the economic profitability of Mars' "accused" and "non-accused" products.

(Marshall Rep., Doc. 1278-6 at ¶ 191). The reason for the discrepancy is that certain costs, such as advertising, overhead, or trade expenditures, are not tracked at the UPC level, but rather are calculated on a division level and allocated to individual products. (May 11, 2011 letter from S. Meisner to M. Kane, Doc. 1279-9). Allocations are defined in terms of the gross sales volume of a particular product relative to the total gross sales volume of all snack food products. (Id.) In other words, Mars does not track its trade spend and advertising costs by specific product, for example, M&M's singles. Rather, if gross M&M's singles sales constituted 5 percent of the total sales volume, and Mars spent $250,000 in trade

spend and advertising for *all* sales, then Mars allocates 5 percent of its trade spend and advertising costs to M&M's singles – $12,500 – regardless of whether Mars *actually* spent $12,500 promoting M&M's singles. For this reason, defendants argue, the accounting margins utilized by Dr. Vellturo do not reflect actual profit margins.

Defendants' concerns about the sufficiency of the data upon which Dr. Vellturo relied properly go to the weight of the evidence, not its admissibility. First, it is important to note that Dr. Vellturo reasonably relied on all of the profitability data provided by defendants. (See Vellturo Rebuttal, Doc. 1295-2 at ¶ 134 (stating that Dr. Vellturo "considered all of the profitability data provided by Defendants in this action"); Johnson Dep., Doc. 1295-10 at 82 ("I believe we received the data that was available. . . . I don't – you know, I asked for what was available, and my understanding is I was given what was available . . . .")); see also *In re* Chocolate Confectionary Antitrust Litigation, — F.R.D. —, 2012 WL 6652501, at *9 (M.D. Pa. Dec. 7, 2012) (finding admissible the testimony of Dr. McClave at the class certification stage of this litigation, which relied upon the best available pricing data for the relevant time period). This is the data that Mars executives rely upon in the normal course of business to analyze product profitability. (Vellturo Rebuttal, Doc. 1295-2 at ¶ 137).

Second, the touchstone of admissibility is reliability, not perfection. Antitrust plaintiffs "are given some latitude in calculating damages, so long as their theory is not wholly speculative." LePage's Inc. v. 3M, 324 F.3d 141, 166 (3d Cir.

2003). Dr. Vellturo's conclusions are based upon significant data kept and relied upon by Mars executives in the normal course of business, and are far from speculative. Defendants' criticisms concerning the limitations of the data upon which Dr. Vellturo relied may very well cast doubt on the accuracy of his conclusions, but these topics are appropriately explored on cross examination, and do not so completely undermine Dr. Vellturo's methodology as to render his opinion inadmissible. The question for admissibility is whether there are "good grounds on which to find the data reliable." *In re* Paoli R.R. Yard PCB Litig., 35 F.3d 717, 748 (3d Cir. 1994). Dr. Vellturo's reliance upon the Mars profit and loss data for determining the profit margins of Mars' products is based upon good grounds, and his report and opinion are admissible.

ii. Dr. Velturo's Extension of Mars Overcharge Data to Nestlé USA

In the absence of Nestlé USA's profitability data, Dr. Vellturo extended the overcharge estimations he derived from the Mars margin data to Nestlé USA. Defendants argue that Dr. Vellturo "improperly assumes" that conclusions based upon the Mars data can be reliably applied to Nestlé USA. For the reasons to be discussed, the court agrees with defendants.

An expert's opinion must "reliably flow from . . . [the expert's] methodology and the facts at issue." Heller v. Shaw Indust., Inc., 167 F.3d 146, 152 (3d Cir. 1999). An expert's empirical assumptions must be supported by the factual record. Elcock v. Kmart Corp., 233 F.3d 734, 756 (3d Cir. 2000). Dr. Vellturo's assumption that the margins he derived from examining the Mars data could reasonably and reliably be

applied to Nestlé USA is contradicted by facts in the record, as explained by Dr. Marshall:

> Dr. Vellturo did not perform an analysis of overcharges specific to Nestlé USA. He merely assumed that his overcharges derived from Mars profit and loss data applied equally to Nestlé USA, without justifying how one can reach reliable opinions regarding Nestlé USA's overcharges without accounting for the differences between Nestlé USA and its larger rivals, Hershey and Mars. *Even though he recognized that Nestlé USA's trade spend, as a percent of gross sales, increased substantially during the alleged conspiracy, he made no attempt to account for this difference.*

(Marshall Report, Doc. 1278-6 at ¶ 34) (emphasis added). As Dr. Marshall observes, the record reflects that Nestlé USA's trade spend during the alleged conspiracy period ranged from 16.4 percent to 19.8 percent of gross sales, compared with Mars' trade spend which ranged from only 6.9 percent to 12.9 percent. (Vellturo Report, Doc. 1295-4 at Ex. 18). Whereas Dr. Vellturo performed a DiD analysis of Hershey's brand-level profit and loss data in order to determine whether margins derived from the Mars data could reliably be applied to Hershey, see *infra* Part III.B.iii, he performed no such analysis for Nestlé USA because he did not have access to Nestlé USA's margin data.

At his deposition, Dr. Vellturo explained his reasoning for applying the Mars overcharge data to Nestlé USA.

> Q: Well, we're talking about certain costs, right? You didn't study a lot of other costs, did you? You didn't study energy costs; you didn't study labor costs; you didn't study packaging costs, correct?
>
> . . .

A: I studied those costs in the extent of understanding their relative size compared to the major input costs. But having determined that they are a relatively minor part of the input costs, I focused on the major parts of the input costs. So I studied them, but having recognized that they were a relatively small part of the overall costs, I focused on the other costs instead.

Q: Well, where did you find this breakdown of what Nestlé's costs are: cocoa versus sugar versus nuts versus energy versus labor versus healthcare versus all the other aspects of what it costs to get a product out the door? What's the breakdown?

. . .

A: I don't have it memorized.

Q: Well, where is it in your report so we can look at it and check it?

A: We can go to the Mars margin data. You can go to the Hershey brand level profitability data –

Q: I was asking for Nestlé USA.

A. Well, as we discussed earlier, there was a noticeable absence of profitability data produced in this case by Nestlé.

Q: Well, so I'm asking you, point me to your breakdown of costs data for Nestlé USA for chocolate in the U.S.

. . .

Q: The answer is you don't have it, do you?

. . .

A: The answer – There are two parts to that answer, which is Nestlé didn't provide that kind of information to me, even though I asked for it. But given the relative similarities of the products in the production functions of chocolate, I could learn about where Nestlé's input costs were going based on the study of where Mars' and Hershey's input costs were going.

> Q: So you assumed that Nestlé's input costs were the same or comparable to – Nestlé USA's input costs were the same or comparable to Hershey and Mars in the U.S.?
>
> . . .
>
> A: Roughly comparable, yes.

(Vellturo Dep., Doc. 1295-9 at 136).

Dr. Vellturo assumes that Nestlé USA's costs would be "roughly comparable" to those of Mars and Hershey, but the record makes clear that at least one important component of profit margins – trade spend – differed significantly between Nestlé USA and Hershey and Mars. It is true that antitrust plaintiffs are granted "latitude" to calculate damages, but their opinion must still be more than mere speculation. LePage's Inc. v. 3M, 324 F.3d 141, 166 (3d Cir. 2003). Dr. Vellturo's opinion regarding Nestlé USA's overcharge during the alleged conspiracy period is not built upon a solid factual basis, and in fact disregards important distinctions between Mars and Nestlé USA. It is unreliable, and therefore must be excluded. See Elcock, 233 F.3d at 756.

Defendants' current argument appears, at first blush, quite analogous to one that they presented at class certification, but the instant matter is readily distinguishable from the court's prior ruling regarding the admissibility of Dr. McClave's testimony on class-wide impact. At class certification, defendants argued that Dr. McClave relied on pricing information from only a single customer – Walgreens – and failed to consider the wide variations in prices paid by defendants' other customers. See *In re* Chocolate Confectionary Antitrust Litig., — F.R.D. —,

2012 WL 6652501, at *9 (M.D. Pa. Dec. 7, 2012). The court disagreed, finding that Dr. McClave had properly accounted for price variations by determining that "the median price [paid by] all class members is almost identical to the penny to Walgreens [sic] median price," and by conducting extensive research to determine that Walgreens was the best representative of a typical customer. Id. (alterations in original; citation omitted). The same cannot be said of Dr. Vellturo's attempt to infer profit margins about Nestlé USA from the Mars data, because the record reflects that at least one significant variable impacting on profit margins – trade spend – differed markedly between Nestlé USA and Mars. Dr. Vellturo plainly does not address this variable, an oversight fatal to his analysis.

The court finds that Dr. Vellturo's extension of the Mars margin data to Nestlé USA lacks a sufficient factual basis, and must therefore be excluded.

B. The Reliability of Dr. Vellturo's Econometric Model

Dr. Vellturo constructed an econometric model to assess antitrust impact and damages – the DiD regression analysis – which defendants assert includes "several critical errors" that render his conclusions inadmissible. Defendants first argue that Dr. Vellturo's model lacks certain explanatory variables "that allow margins to differ as they do in the real world," such as between different pack types or time frames. (Def. Amended Br. in Supp., Doc. 1329-2 at 19-20). Lacking these variables, the model may "erroneously interpret" normal differences in profit margin as resulting from collusion. (Id. at 20). They point out that Dr. Vellturo admitted and corrected one error, but has ignored the rest. Second, defendants assert that Dr.

Vellturo improperly included profits earned after 2007, the end of the alleged conspiratorial period. (Id. at 17). Finally, they argue that Dr. Vellturo arbitrarily designated Hershey products as belonging to "accused" or "non-accused" brands. (Id. at 19). For the reasons set forth below, the court finds that these asserted errors go to the weight, rather than the admissibility, of Dr. Vellturo's opinion.

i. Alleged Errors in Dr. Vellturo's Model

Regression analyses are an accepted method of determining antitrust damages, and the results should be admitted "assuming [the analysis] was done properly." Petruzzi's IGA Supermarkets, Inc. v. Darling-Delaware Co., Inc., 998 F.2d 1224, 1238 (3d Cir. 1993). A regression analysis is used "to determine the effect that two or more explanatory independent variables have on a single dependent variable." *In re* Industrial Silicon Antitrust Litig., No. 95-2104, 1998 WL 1031507, at *2 (W.D. Pa. Oct. 13, 1998). Normally, an econometric model's lack of certain variables "will affect the analysis' probativeness, not its admissibility." *In re* Polypropylene Carpet Antitrust Litig., 93 F. Supp. 2d 1348, 1365 (N.D. Ga. 2000) (quoting Bazemore v. Friday, 478 U.S. 385, 400 & n.10 (1986)). "It is only in 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." Gutierrez v. Johnson & Johnson, No. 01-5302, 2006 WL 3246605, at *5 (D.N.J. Nov. 6, 2000) (quoting Bazemore, 478 U.S. at 399 n.10); see also *In re* Industrial Silicon, 1998 WL 1031507, at *3 ("[A] multiple regression analysis need not include every conceivable independent variable to establish a party's case, as long as it includes

those independent variables that account for the major factors that are likely to influence decisions.").

Before reaching the specific objections that defendants levy against Dr. Vellturo's model, it is necessary to elucidate certain details of his analysis. Dr. Vellturo's model seeks to evaluate whether accused products were able to earn supra-competitive profit margins during the period in which the conspiracy allegedly occurred, relative to the margins earned by the same products in non-conspiratorial years. (Vellturo Report, Doc. 1295-4 at ¶ 230). He considers the profit margin of a particular chocolate product *i* (e.g., Snickers single packs) during a particular time period *t*. (Id. at ¶ 231). Generally speaking, profit margin is a "function of demand characteristics that can vary across time (*t*) and across products (*i*)," and, in this case, whether the product was the subject of conspiracy. (Id.) Dr. Vellturo's mathematical formula for determining profitability includes variables capturing demand (which varies yearly and by product), supply (consisting of costs and capacity), and applies an overcharge parameter during time periods of the alleged conspiracy. (Id. at ¶¶ 232-33). Mathematically, this may be expressed as:

$$\prod_{it} = G_{it} (D[t, i], C[r_{it}, K_i], F_{it})$$

where *D* captures demand factors varying across products *i* and year *t*; *C* captures supply considerations; and *F* is the overcharge parameter, in place only for accused products and during the conspiracy period. Dr. Vellturo then compares the profitability between accused products *i* during the conspiracy with non-accused

products j, during a conspiracy year, in order to isolate the effect of the conspiracy from other factors that may vary over time. (Id. at ¶ 235). Mathematically, this formula may be expressed as follows:

$$\prod_{it} - \prod_{jt} = G_{it}\,(\,D[t, i], C[r_{it}, K_i], F) - G_{jt}\,(\,D[t, j], C[r_{jt}, K_j]) = \Delta[(i, j), F]$$

Dr. Vellturo determines that the difference in margin is a function of the conspiracy F and the differences in inherent profitability of accused products i and non-accused products j. The difference in margin between accused and non-accused products for non-conspiracy year s is expressed as:

$$\prod_{is} - \prod_{js} = G_{is}\,(\,D[s, i], C[r_{is}, K_i]) - G_{js}\,(D\,[s, j], C[r_{js}, K_j]) = \Delta[(i, j)]$$

Hence, a difference-in-differences model "isolates the effect of the conspiracy in realized margins, and . . . the effect of the conspiracy on prices relative to the levels they would have been at absent the conspiracy." (Id. at ¶ 237). Dr. Vellturo implements the DiD model "using a linear regression model with indicator variables for various stages of the conspiracy (i.e. indicators for each family of products (e.g. Singles, Packaged) applied to the products subjected to each price increase and for periods for which each announced price increase applies)." (Id. at ¶ 238). Dr. Vellturo estimates the overcharges for singles, kings, and multipacks as follows: 11.6 percent for the December 2002 price increase; 0.7 percent for the December 2004 price increase, and 3.7 percent for the March 2007 price increase. For packaged products, he estimates a 6.4 percent overcharge for the December 2004 price increase. (Id. Ex. 13).

Defendants identify several purported errors in Dr. Vellturo's methodology, including one error in the model that Dr. Vellturo was compelled to correct. In his original model, Dr. Vellturo assumed that margins for accused and non-accused products were equal to one another in the benchmark period of 2002. (See Johnson Decl., Doc. 1278-1 at ¶¶ 9-10; id. Ex. 2 (showing that, in the original model, Dr. Vellturo assumed the average operating margin in 2002 was 18.1 percent for both accused and non-accused products)). When questioned about this assumption at his deposition, Dr. Vellturo was initially circumspect about the criticism, and maintained that his model was correct. (See Vellturo Dep., Doc. 1279-3 at 19).[2] However, he did eventually admit that the variable distinguishing accused versus non-accused margin levels in 2002 was "inadvertently removed from the model." (Vellturo Addendum, Doc. 1295-8 at ¶¶ 1, 3; see also Johnson Decl., Doc. 1278-1 Ex. 3 (showing the corrected operating margin in 2002 to be 19.2 percent for accused

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[2] Q: [Mr. Primis] asked if there's anything that allows for the possibility of accused and non-accused products having different margins in 2002. And you were unable to answer that question yesterday definitively. You said you would need to review the code. Have you made any effort to try and to find out what the answer to that question is?

A: I did give that some thought overnight. And the way the model is configured or written, there doesn't need to be an explicit variable that accounts for the difference in 2002.

Q: The difference in what?

A: The difference in the relative profitabilities of the accused and non-accused products.

(Id.)

products, and 10.2 percent for non-accused products)). With this adjustment properly incorporated into the model, Dr. Vellturo's damages estimate dropped by more than 40 percent, or $108 million, for all defendants combined. (See Vellturo Addendum, Doc. 1295-8, Ex. 2).

Highlighting this error, defendants suggest that additional variables in the model may alter the damages calculation by a similar magnitude. According to defendants, the model should have included variables accounting for profit margin differences "across packtype, timeframe, or any other measure that might result in different margins." (Def. Amended Br. in Supp., Doc. 1329-2 at 19). Individual plaintiffs point out that Dr. Vellturo re-ran his model, incorporating defendants' criticisms, and found that the alterations "did not materially affect his results." (Ind. Pl. Opp. Br., Doc. 1295-2 at 27; Vellturo Rebuttal, Doc. 1295-5 at ¶¶ 118-21 (noting that the Vellturo overcharge estimates consistently "understate the damages implied by Dr. Johnson's work"); id. at ¶ 141 (finding that Dr. Marshall's estimates were "directly in line with [Dr. Vellturo's] original findings, and actual[ly] imply somewhat higher overcharges and corresponding damages")). To this, defendants respond that Dr. Vellturo did not "re-run" his analysis, but rather came up with a new and unrelated "alternative analysis" in his rebuttal report. (Def. Reply Br., Doc. 1326 at 16).

These arguments properly go to the weight that the jury should accord to Dr. Vellturo's testimony, not its admissibility. As discussed *supra*, arguments that a regression model fails to properly include certain independent variables should

generally be reserved for exploration on cross-examination. *In re* Polypropylene Carpet Antitrust Litig., 93 F. Supp. 2d 1348, 1365 (N.D. Ga. 2000). Defendants assert that Dr. Vellturo's model "does not do what he claims," (Def. Reply Br., Doc. 1326 at 14), but the court disagrees. Defendants simply believe that a more fine-grained analysis could have been obtained by parsing out and evaluating potentially divergent profit margins between pack type and various time frames. Ultimately, this amounts to little more than disagreement with the breadth of Dr. Vellturo's independent variables and, concomitantly, the relative strength of his conclusions. Whether certain omitted variables diminish the probative value of Dr. Vellturo's model is a subject for cross-examination. See FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 314 (3d ed. 2011) ("In general, omitted variables that are correlated with the dependent variable reduce the probative value of the regression analysis."). Dr. Vellturo's regression model is not "so incomplete as to be inadmissible as irrelevant," Bazemore v. Friday, 478 U.S. 385, 399 n.10 (1986), and therefore defendants' motion to exclude on these grounds will be denied.

ii. Dr. Vellturo's Incorporation of Post-2007 Profits

The final allegedly collusive price increase occurred in early 2007. Two parallel list-price increases occurred in January and August 2008, but these increases are not alleged to have been conspiratorial in nature. (See Johnson Decl. ¶ 19). Dr. Vellturo incorporated post-2007 margin data from Mars in his calculation of impact and damages, but Dr. Johnson asserts that any data derived from events

occurring after January 2008 "upwardly biase[s]" the estimated overcharge – so much so, according to defendants, that upon exclusion of the 2008 data, the estimated overcharge drops to negative 3.5 percent – i.e., no overcharge at all during the entire conspiracy period. (Def. Amended Br. in Supp., Doc. 1329-2 at 24). Dr. Vellturo, by contrast, considered the addition of the 2008 data relatively unsubstantial, finding that its exclusion resulted in "essentially the same [results] as those found in my base model - estimated overcharges derived from the two models differ by only about 5 percent." (Vellturo Rebuttal, Doc. Doc. 1295-5 at ¶ 168).

The difference between Dr. Vellturo and Dr. Johnson's calculations is a function not of the inclusion or exclusion of the 2008 data, but of the model to which they are applied. Dr. Johnson performed his calculations based upon his belief that Dr. Vellturo's regression model was deficient because it failed to incorporate variables accounting for year-to-year and pack type margin change. (Def. Reply Br., Doc. 1326 at 18). However, the court has already determined that Dr. Vellturo's econometric model, while perhaps limited in some respects, is nonetheless admissible. See Part III.B.i, *supra*. Defendants' argument that exclusion of data from 2008 evaporates any overcharge during the conspiratorial period is therefore predicated on the premise that Dr. Vellturo's model is otherwise flawed. Absent that premise, the differences between Dr. Vellturo's and Dr. Johnson's analyses are not particularly vast.

With respect to the more fundamental question of whether it is proper to include any data post-dating the alleged conspiracy period in his damages and impact calculation, Dr. Vellturo provides a reasonable answer:

> Finally, Dr. Johnson rejects my use of data provided by Mars for 2008, noting that additional price increases were implemented by Defendants in 2008 that are not accused in this action. The presence of such additional price increases does not render such data unusable; indeed, under Defendants' claim that such price increases were purely cost-based, the Mars margin data should reflect comparable increases in price and costs, thus leaving the effects of the prior anticompetitive overcharges in place and measurable using the 2008 data.

(Vellturo Rebuttal, Doc. Doc. 1295-5 at ¶ 168). He further stated that he has "seen no evidence to suggest that these anti-competitive price increases have been eradicated from the current prices paid by Plaintiffs; therefore the damages due to Defendants' conduct extend beyond 2008 and to the present." (Id. at ¶ 121 n.201). Without adoption of plaintiffs' liability theories, but rather in the context of the instant motion, the court finds these statements reasonable and sufficiently supported by the present record. What defendants call a "baseless assumption," (Def. Amended Br. in Supp., Doc. 1329-2 at 25), that the effects of the allegedly collusive price increases persist to the present day is in fact a logical inference based upon the absence of evidence to the contrary. If one accepts the vigorously disputed premise that defendants collusively raised prices three times, and prices have neither been lowered nor costs significantly increased – i.e., the effect of the conspiratorial overcharge has never been "eradicated" – then it is logical to conclude that any subsequent price increases, *even if* they occur for wholly

innocent reasons, *necessarily* build upon and incorporate prior collusive increases. Defendants argue that Dr. Vellturo assesses impact and damages based on price increases not the subject of the conspiracy. He does not. Dr. Vellturo simply opines that the 2008 increases built upon a foundation of illegal overcharges, and that those overcharges endured even post-2007.

Defendants will be free to cross-examine Dr. Vellturo on this issue. It may be that, for example, the cost of commodities post-2007 increased so precipitously that the overcharge allegedly resulting from conspiratorial conduct was negated. Dr. Vellturo's conclusion to the contrary is an appropriate topic for a jury to evaluate, and therefore defendants' motion to exclude on these grounds will be denied.

iii. Dr. Vellturo's Designation of Products as "Accused" or "Non-accused"

Defendants' final point in arguing against the reliability of Dr. Vellturo's econometric analysis regards the manner in which he classifies certain Hershey brands as "accused" or "non-accused." Recall that Hershey provided brand-level margin data, not UPC-level data (e.g., Almond Joy generally versus Almond Joy singles). Given these limitations, Dr. Vellturo was unable to parse out the margin data for products that were allegedly the subject of the conspiracy from those that were not. (Vellturo Report, Doc. 1295-4 at ¶¶ 243-44). Therefore, in order to conduct a brand-level DiD analysis similar to the UPC-level analysis of the Mars products, Dr. Vellturo devised a method to classify a particular brand as accused or

non-accused.[3] Dr. Vellturo elected to classify a brand as accused if any product within the umbrella of that brand was accused (e.g., if Almond Joy singles were accused, then the entire Almond Joy brand is accused, even if fun size Almond Joy escaped accusation). (Id. at ¶ 244). Thus, some accused brands contain non-accused products. We can refer to these as "mixed brands."

Defendants assert that this method of assigning products is "unscientific" and distorts the data. (Def. Amended Br. in Supp., Doc. 1329-2 at 25). Dr. Johnson, for example, states that Dr. Vellturo fails to isolate a conspiratorial effect from other marketplace factors, because the assignment of products should be based only on whether a particular product was the subject of collusion. (Johnson Decl., Doc. 1295-4 at ¶¶ 25-26).

This argument is unpersuasive. Obviously, it would have been ideal to construct a DiD analysis for Hershey products at the UPC level; however, that data was simply unavailable to Dr. Vellturo. In the absence of UPC-level data, Dr. Vellturo's approach was the next most logical and conservative means of estimating Hershey's overcharge. As Dr. Vellturo reasonably concludes:

> The inclusion of Non-Accused Products in the Accused Hershey Brands dilutes the effect of the conspiracy since the price/margin effects of the accused UPCs are intermingled with the prices and margins on non-accused UPCs (the converse is not true with respect to Non-Accused Brands). Thus, I expect to see more modest differences in prices/margins between the two groups in my difference in

[3] It is worth noting that Dr. Vellturo did not use the Hershey DiD analysis to arrive at specific damages estimations, but rather to confirm the effects he observed in the Mars data. (Vellturo Report, Doc. 1295-4 at ¶ 245).

> differencing analysis than I would expect to see if the Accused Hershey Brands did not include any Non-Accused Products.

(Vellturo Report, Doc. 1295-4 at ¶ 244). Dr. Johnson responds to this by way of example, considering Hershey's Reese's brand. Somewhat more than half of the products within the Reese's brand are non-accused, but Dr. Vellturo deemed the brand accused in accordance with his methodology. (Johnson Decl., Doc. 1295-4 at ¶ 29). Dr. Johnson found that if Reese's was classified as *non*-accused, the overcharge falls from 7.8 percent to negative 0.7 percent. (Id.) Thus, he argues, Dr. Vellturo's methodology is neither reasonable nor conservative.

Dr. Johnson's argument is flawed for a variety of reasons. First, it misapprehends Dr. Vellturo's reasoning. Dr. Vellturo does not suggest that designating mixed brands as accused is more conservative than designating mixed brands as non-accused. Rather, he argues that designating mixed brands as accused produces a more conservative damages estimate than comparing *only* accused products to non-accused products, such as he did with the Mars data. (Vellturo Report, Doc. 1295-4 at ¶ 244). Second, although Dr. Johnson's Reese's example properly calls into question the Vellturo damages estimate – albeit only with respect to a specific brand – his critique does not beget a more accurate analysis. Perhaps, as he suggests, designating mixed brands as accused upwardly skews an overcharge estimate because the non-accused products within the mixed brand naturally earn higher margins on the basis of non-collusive factors. Conversely, it may be that designating a mixed brand as *non*-accused downwardly

skews the overcharge estimate, because the products that were the subject of collusive behavior have been assumed away. Dr. Johnson's critique identifies ways in which Dr. Vellturo's method may bias his conclusions, but he does not offer a methodology that would produce more accurate results, considering the limitations of the available data. Given the imprecision of historical financial information, both rubrics for categorizing products are reasonable and sufficiently supported by the present record. Dr. Vellturo's methodology may be imperfect, a fact that he tacitly acknowledges by suggesting that it produces "conservative" estimates, but it is a reasonable means of arriving at an overcharge estimate under the constraints of the Hershey data. The court finds that a jury will be able to compare the experts' opinions and conclusions and, thereafter, determine which expert's testimony is more compelling.

Defendants may feel that Dr. Vellturo's overcharge estimates for the Hershey brands are skewed by the manner in which he classifies brands as accused or non-accused, but his methodology is far from random or arbitrary and reflects considered, professional judgment deriving a reliable damages estimate from available data. Therefore, the court will deny defendants' motion to exclude on this ground.

C. Defendants' Challenge to Dr. Vellturo's Liability Analysis

In addition to his antitrust impact and damages opinion, defendants have moved to exclude Dr. Vellturo's opinion on the question of liability. Specifically, they argue that Dr. Vellturo has no scientific basis to offer an opinion that (1) an

alleged trade-spend conspiracy was a "catalyst" that "actuated" a price-fixing conspiracy in the United States; and (2) that defendants entered into a price-fixing conspiracy in the United States to limit trade spend.

Dr. Vellturo devoted a significant portion of his expert report to an economic assessment of antitrust liability. (See generally Vellturo Report, Doc. 1295-4 at ¶¶ 165-218). He evaluated "factors conducive to a price-fixing conspiracy . . . and the extent to which those factors are present in the setting of the price of chocolate candy products in the United States," and assessed "the conduct of Defendants as reflecting the product of coordinated behavior." (Id. at ¶ 164). He opines that the parallel list-price changes that began in 2002 reflect "the implementation of collusion . . . that was actuated as a result of information and confidence collected by Defendants on the development, execution and conduct of conspiratorial action among their Canadian operations." (Id. at ¶ 193).

According to Dr. Vellturo, the U.S. chocolate industry is "a textbook example of an oligopoly," in that the market is dominated by only a few sellers. (Id. at ¶ 194). In oligopolistic markets where the products are relatively close substitutes – such as the chocolate market, see *In re* Chocolate Confectionary Antitrust Litig., — F.R.D. —, 2012 WL 6652501, at *6 (M.D. Pa. Dec. 7, 2012) – the sellers are "interdependent" in their pricing, meaning that "they base their pricing decisions in part on the anticipated reactions to them." (Vellturo Report, Doc. 1295-4 at ¶ 194). He further explains:

> Unlike the predictable equilibrium in a highly competitive market (price near or equal to marginal cost), a wide range of "competitive" results can occur in an oligopolistic interdependent market. The best result for the oligopolists as a group is for each seller to set its price equal to the joint monopoly price – the price that maximizes the joint profits of all the firms combined. However, this price typically cannot be reached absent collusion or cooperation. . . . In oligopoly markets, there are substantial benefits from developing ways of coordinating pricing to reach equilibrium prices above those that would be achieved through purely independent, though mutually interdependent, pricing. . . . This can be done through explicit agreements to set prices above the oligopolistic competitive levels, *or through actions that impact the expectations of competitors such that the competitors expect price increases to be followed and price cuts to lead to retaliation.*

(Id. at ¶¶ 194-95) (emphasis added). Dr. Vellturo describes ways that a firm's actions can impact the expectations of competitors. Of particular note to the instant matter, Dr. Vellturo explains that "[w]hen firms interact in multiple markets, gains from such interaction in one market can sustain collusion in another market." (Id. at ¶ 198). An express agreement to collude in one market can facilitate collusion in another by communicating between firms that a price raise will not be met with retaliation or defection. (Id. at ¶ 201). Dr. Vellturo concludes that "[f]rom an economic standpoint, the close interrelations between the Canadian and United States marketplaces indicate that anti-competitive practices and outcomes in one market could likely serve as facilitating devices for the establishment and execution of tacitly (or expressly) collusive outcomes in the other." (Id. at ¶ 203).

Defendants assert that Dr. Vellturo's conclusion is not properly anchored in an independent economic analysis. Defendants suggest that his opinion is pure speculation, a quantum leap of logic based solely upon the review of documentary

evidence and witness testimony. (Def. Amended Br. in Supp., Doc. 1329-2 at 29). Dr. Marshall observes that economists are trained to formulate their conclusions only after a carefully documented and independent economic analysis. (Marshall Decl., Doc. 1278-3 at ¶ 32). Defense expert Dr. Joseph P. Kalt concurs with Dr. Marshall, criticizing Dr. Vellturo for failing to delineate a proper factual basis and a corresponding economic analysis for his conclusion that an anti-competitive agreement in the United States could be reached merely on the basis of conduct of the U.S. companies' Canadian counterparts. (Kalt Decl., Doc. 1278-2 at ¶ 34).

The court respectfully disagrees with defendants. First, it is important to note that, at the class certification stage, the court accepted similar testimony on how the structural characteristics of the chocolate industry make collusion possible, and regarding defendants' conduct with respect to price increases generally and the three allegedly collusive price increases specifically, supported by reference to record evidence. See *In re* Chocolate Confectionary, 2012 WL 6652501, at *6. Dr. Vellturo's liability opinion similarly relates to the manner in which collusion could arise in oligopolistic markets in general, and in particular with respect to the U.S. chocolate market, where prior unilateral price increases had been ineffective. (See Vellturo Dep., Doc. 1295-9 at 55 ("I'm trying to identify what changed in terms of conditions of the marketplace and in terms of information the parties would have had that would explain a market change in strategy.")). Second, Dr. Vellturo's conclusions are indeed based on economic principles, applied to evidence in the record. Dr. Vellturo explains how observations about the Canadian chocolate

market would alter expectations about competitor conduct for the firms in the U.S. market, a key element of pricing decisions for interdependent oligopolists. (Vellturo Dep., Doc. 1295-9 at 33).

The remainder of defendants' argument for exclusion amounts to little more than disagreeing with Dr. Vellturo's interpretation of the evidence and with the conclusions that he reaches – particularly with respect to whether any inference can be made about the U.S. chocolate market from the Canadian experience. None of these disagreements mandates exclusion; rather, they should be addressed through cross-examination at trial. (See, e.g., Kalt Report, Doc. 1278-5 at ¶¶ 218-19 (disagreeing with Dr. Vellturo's characterization of the chocolate market pre-2002 as "moribund")). Expert disputes about the meaning and implications of the evidence are properly addressed to the finder of fact. *In re* TMI Litig., 193 F.3d 613, 665 (3d Cir. 1999).

IV. Conclusion

For the reasons discussed *supra*, the court will grant defendants' motion to exclude in part, and deny it in part.

An appropriate order will issue.

S/ Christopher C. Conner
CHRISTOPHER C. CONNER
United States District Judge

Dated: May 10, 2013

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

IN RE: CHOCOLATE CONFECTIONARY ANTITRUST LITIGATION	:	**MDL DOCKET NO. 1935 (Civil Action No. 1:08-MDL-1935)**
	:	**(Judge Conner)**
THIS DOCUMENT APPLIES TO: ALL INDIVIDUAL PLAINTIFF ACTIONS EXCEPT CIVIL ACTION NO. 1:12-CV-1604 (ASSOCIATED WHOLESALE GROCERS, INC.)	:	

ORDER

AND NOW, this 10th day of May, 2013, upon consideration of the motion to exclude the testimony and reports of individual purchaser plaintiffs' expert Dr. Christopher A. Vellturo (Doc. 1214), filed by defendants The Hershey Company, Mars, Inc., and Nestlé USA, Inc. (collectively, "defendants"), and for the reasons discussed in the accompanying memorandum, it is hereby ORDERED that:

1. Defendants' motion is GRANTED with respect to Dr. Vellturo's testimony and report applying the Mars profit and loss data to Nestlé USA.

2. Defendants' motion is DENIED in all other respects.

S/ Christopher C. Conner
CHRISTOPHER C. CONNER
United States District Judge