Exhibit 3

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

RESCO PRODUCTS, INC.,

      Plaintiff,

    v.

BOSAI MINERALS GROUP CO., LTD,
CMP TIANJIN CO., LTD

      Defendants.

Civil Action No.: 2:06-cv-325-JFC

SUPPLEMENTAL EXPERT REPORT CONCERNING DAMAGES

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I. Introduction and Summary of Conclusions

A. Expert qualifications

1.   I listed my background and qualifications in my Expert Report Concerning Damages
("Lamb Damages Report"), filed on September 29, 2014. A copy of my C.V., including a list of
the matters in which I have submitted expert testimony in the past four years, is attached to this
report as Appendix A.

B. Assignment

2.   As described in the Lamb Damages Report, I have been retained by Counsel for Plaintiffs
in this matter to determine class-wide damages.[1] In the Lamb Damages Report (as well as this
Supplemental Damages Report), I assume that the Defendants conspired to "[fix] prices and
[control] the supply of refractory grade bauxite" from as early as January 1, 2003 until sometime
in 2009 ("Damages Class Period").[2] I also assume that the trier of fact will determine whether the
alleged misconduct represents a violation of the antitrust laws. I do not, however, assume all
proposed class members were injured and suffered damages as a result of the Defendants' alleged
anticompetitive conduct. Rather, the analysis of those issues is the focus of the Lamb Damages
Report, as well as this Supplemental Damages Report.

3.   Based on my analysis of the market for refractory grade bauxite in the United States and
my training and experience as an economist, I reach the following conclusions in the Lamb
Damages Report:

> a. All proposed class members were injured as a result of the Defendants'
>   alleged misconduct, in that they paid more for refractory grade bauxite
>   products than they would have paid but for the Defendants' alleged
>   misconduct;
>
> b. Estimated damages owed to proposed class members for their total imports
>   are $27.47 million before trebling; and

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[1] Dr. Russell L. Lamb, "Expert Report Concerning Damages," September 29, 2014 (hereafter "Lamb Damages Report") at ¶4.

[2] In the United States District Court for the Western District of Pennsylvania, Resco Products, Inc. v. Bosai Minerals Group Co. Ltd., et al, "First Amended Class Action Complaint," July 17, 2009 (hereafter "Complaint") at ¶¶1, 2. Laura Liang, deputy manager of bauxite exporting department of Bosai, testified that Bosai's bauxite exporting department ceased to exist after 2009. Deposition of Laura Liang, April 18, 2014, p.14.

    c.   Estimated damages that are attributable to the two Defendants, Bosai and CMP, are $2.46 million and $2.19 million, respectively, before trebling.[3]

4.   On November 13, 2014, a liability report was filed by Dr. Frederick Warren-Boulton ("Warren-Boulton Liability Report") on behalf of the Defendants.[4] After the submission of the Warren-Boulton Liability Report, I was asked by Counsel for Plaintiff to:

    a.   Evaluate the Warren-Boulton Liability Report; and

    b.   Evaluate the opinions and conclusions reached in the Lamb Damages Report in light of the opinions offered by Dr. Warren-Boulton.

A complete list of the materials I have relied upon in forming my opinions is contained in Appendix B.

C. Conclusions

5.   Based upon my review of the Warren-Boulton Liability Report, I find that his conclusions fall into one of two categories.

    a.   Many of Dr. Warren-Boulton's analyses and conclusions are flawed and unreliable, based upon unreliable data, incorrect industry facts and economic evidence, and flawed applications of statistics and regression analyses; and

    b.   In some cases, Dr. Warren-Boulton fails to demonstrate his criticisms are material to my conclusions, and in fact, he does not incorporate his own criticisms in his econometric models.

6.   I have reviewed the analyses and conclusions contained in the Lamb Damages Report in light of Dr. Warren-Boulton's criticisms. Nothing in the Warren-Boulton Liability Report, or cited materials contained therein, causes me to change the conclusions summarized in paragraphs 3.a through 3.c above. I have incorporated Dr. Warren-Boulton's criticisms into my multiple regression analyses of the proposed class member overcharge where appropriate (which I discuss in more detail below). However, these modifications result in higher damages and reaffirm that my damages estimate is conservative.

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[3] Lamb Damages Report at ¶7.

[4] Dr. Frederick R. Warren-Boulton, "Expert Report Concerning Liability," November 13, 2014 (hereafter "Warren-Boulton Liability Report").

II. Dr. Warren-Boulton's Key Claims are based on Flawed Data and Analyses and are Therefore Unreliable

7.   I have reviewed the Warren-Boulton Liability Report. Many of Dr. Warren-Boulton's analyses and conclusions are flawed and unreliable, based upon unreliable data, incorrect industry facts and economic evidence, and flawed applications of statistics and regression analyses. I discuss many of the flaws in the Warren-Boulton Liability Report below. The flaws I identify below undermine Dr. Warren-Boulton's opinions and render them unreliable. In fact, when interpreted properly, the Warren-Boulton Liability Report further bolsters my own conclusions and analyses.

A. Contrary to Dr. Warren-Boulton's claim, Chinese domestic price is an invalid benchmark for comparing its export price to the U.S. market

8.   Dr. Warren-Boulton claims that the domestic price of refractory grade bauxite in China should be used as a "control" because all demand and supply "factors can be expected to have affected equally domestic and export prices."[5] The fundamental methodological error in his claim is he fails to recognize that the alleged misconduct (i.e., restricting the supply of refractory grade bauxite) could potentially have impacted both export and domestic prices. As a matter of fact, China's Anti-Monopoly Law ("AML") only became effective in August 2008.[6] During the majority of the Damages Class Period, China did not have a law in place preventing domestic price-fixing. Dr. Warren-Boulton makes no effort to determine if the Chinese domestic market was comparable to the U.S. market, unaffected by the alleged misconduct. Instead, he presumes that the Chinese domestic price is a valid benchmark for comparing its export price to the U.S. market price. Given that the domestic price of refractory grade bauxite could potentially have been tainted by the alleged misconduct, this renders the domestic price variable to be endogenous.[7] Therefore, it is invalid to include the domestic price as a control in regression analyses.

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[5] Warren-Boulton Liability Report, p. 15.
[6] Jones Day Publication, *New Chinese Anti-Monopoly Law*, October 2007, available at http://www.jonesday.com/new_chinese_anti-monopoly_law/.
[7] "When there is correlation between a regressor and the error term, that regressor is said to be endogenous; when no such correlation exists the regressor is said to be exogenous. Endogeneity gives rise to estimates biased even asymptotically, making economists very unhappy." Peter Kennedy, "A Guide to Econometrics," Sixth Edition, 2008, p.139.

9.   In addition, even though Dr. Warren-Boulton claims that the Chinese domestic price of refractory grade bauxite should be used, he has no appropriate variable to represent the domestic price in two of his three preferred regression models (Exhibit 5 and Exhibit 6 in the Warren-Boulton Liability Report). In fact, Dr. Warren-Boulton only uses Defendant Bosai's domestic price and assumes that Defendant CMP's domestic price is the same as Bosai's in his first preferred model (Exhibit 5 in the Warren-Boulton Liability Report).[8] In the absence of collusion in the domestic market, it is unlikely that Bosai and CMP would have had identical domestic prices every year from 2003 to 2008. Assigning identical domestic prices to both Defendants results in Dr. Warren-Boulton's domestic price variable to be measured with error. It is well-established in econometrics literature that as the result of such measurement error, the estimates in this model have attenuation bias, which means they are numerically smaller than the true effects that economists intend to quantify. Standard econometrics textbooks conclude that such estimates are flawed and unreliable.[9]

10.   In his second preferred model (Exhibit 6 in the Warren-Boulton Liability Report), however, Dr. Warren-Boulton takes a different approach. He estimates the regression using only Defendant Bosai's data and completely discards Defendant CMP's data (which accounts for approximately two thirds of the regression data). It is commonly accepted in statistics and econometrics literature that neglecting a large portion of data results in significant information loss, yielding misleading estimates.[10] Using all available and reliable data is preferred.

   B. Contrary to Dr. Warren-Boulton's claim, Bosai's raw material cost is an invalid and
       inferior measure of cost compared to the cost variables used in my regression model

11.   Dr. Warren-Boulton claims that the purchasing price index for raw materials, fuel and power[11] that I use in my regression analyses is "broad" and not "specific to the raw materials used in the production of RGB."[12] Instead, he uses Bosai's cost of refractory grade bauxite in one of his preferred regression models (Exhibit 7 in the Warren-Boulton Liability Report). His raw material cost variable for Bosai is, however, constructed in a peculiar way. Bosai only produced

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[8] See Warren-Boulton backup material regdata.sas7bdat. To the best of my knowledge, Defendant CMP only produced its transaction data on export prices but did not produce its domestic price data.
[9] Jack Johnston and John DiNardo, *Econometric Methods*, Fourth Edition (The McGraw-Hill Companies), 1996, pp. 153-154. Russell Davidson and James MacKinnon, *Econometric Theory and Methods* (Oxford University Press), 2004, pp. 312-313.
[10] See Section II.H for detailed discussion.
[11] http://www.stats.gov.cn/tjsj/ndsj/2010/indexeh.htm
[12] Warren-Boulton Liability Report, p. 18.

its domestic cost data from 2003 through 2008 and not for 2002. Ignoring the 2008 cost data, Dr. Warren-Boulton uses Bosai's raw bauxite annual cost data from 2003 through 2007 to backcast Bosai's 2002 cost.[13]

12.   The fundamental error in Dr. Warren-Boulton's backcasting procedure is that he uses the cost data during the conspiracy period (2003-2007) to estimate the cost for the non-conspiracy period (2002). Because the backcasted 2002 cost is computed as a function of the costs during the conspiracy period, it is potentially tainted by the alleged misconduct, and therefore should not be included in regression analyses for the purpose of calculating damages. As a matter of economics, Defendants' conspiratorial behavior (supply restriction) can impact their internal accounting costs and yield misleading overcharge estimates in regression analyses. My use of publicly available data such as the purchasing price index for raw materials, fuel and power in measuring cost for purposes of conducting regression analyses has been a common practice throughout my over 20 years of experience in economics and econometrics.

13.   Furthermore, not much is known about the statistical properties of estimates from regressions using variables whose missing values are predicted or backcasted. In general, filling in missing values may lead to bias in the estimates which is difficult to quantify.[14]

14.   In addition, Defendant CMP did not produce sufficient cost data during the Damages Class Period. In his third preferred model (Exhibit 7 in the Warren-Boulton Liability Report), Dr. Warren-Boulton again uses only Defendant Bosai's data and discards all of CMP's price data, which account for about two-thirds of the regression data. As discussed above in Section II.A, a significant amount of information is lost when the CMP data is neglected entirely, and the resulting regression analyses are flawed and unreliable, contrary to Dr. Warren-Boulton's claims.

C.   *Dr. Warren-Boulton wrongly claims that mining labor cost instead of manufacturing labor cost should be considered*

15.   Dr. Warren-Boulton claims that the manufacturing labor cost index that I use in my regression analyses "underestimates a significant contributor to rising labor costs overall for RGB" because a "substantial share of the relevant labor cost is associated with mining non-metallurgical bauxite."[15] In the industry background section of the Warren-Boulton Liability Report, however, Dr. Warren-Boulton acknowledges the fact that neither Defendant mined the

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[13] See Warren-Boulton backup material Build Dataset 1.sas.
[14] William Greene, *Econometric Analysis*, Fifth Edition (Pearson Prentice Hall), 2003, pp. 59-60.
[15] Warren-Boulton Liability Report, p. 18 (emphasis in original).

bauxite ore which served as the raw material for the refractory grade bauxite it exported.[16] In fact, mining labor cost is part of Defendants' raw material cost, which I have taken into account in my regression analyses by using the purchasing price index for raw materials, fuel and power. I use the manufacturing labor cost index to account for Defendants' processing labor cost, as I understand that Defendants processed raw bauxite in their factories.[17] Dr. Warren-Boulton's criticism of my use of the manufacturing labor cost index is incorrect and based on his misunderstanding of the Defendants' role in the refractory grade bauxite supply chain.

D. Dr. Warren-Boulton wrongly claims that I include no independent variable that would reflect changes in transportation cost, apart from the Chinese consumer price index

16.   Dr. Warren-Boulton claims that I include "no independent variable that would reflect changes in transportation cost," "apart from the Chinese consumer price index."[18] Contrary to Dr. Warren-Boulton's claims, I include in my regression analyses the purchasing price index for raw materials, fuel and power, in part because fuel is an important component of inland transportation cost. This index, criticized by Dr. Warren-Boulton for being "very broad" rather than "specific to the raw materials used in the production of RGB,"[19] is in fact a comprehensive index that measures the overall cost of raw materials, transportation, and energy in China.

E. Dr. Warren-Boulton offers no valid reason to drop the total factor productivity variable from my regression model

17.   Dr. Warren-Boulton criticizes the results of my multiple regression model for being sensitive to the exclusion of "one statistically insignificant variable [total factor productivity]."[20] Consequently, he drops the total factor productivity ("TFP") variable, and claims that that this modification "reduces the estimated conspiracy effect by one third, and renders it statistically insignificant..."[21] I discuss below why Dr. Warren-Boulton's criticism is without merit.

18.   Dr. Warren-Boulton provides no sound economic analysis or justification for why the TFP variable should be dropped from my multiple regression model. His sole reason for excluding this variable is that it is statistically insignificant in my model. In doing so, Dr. Warren-Boulton ignores the evidence that I provided in the Lamb Damages Report from development economics

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[16] Warren-Boulton Liability Report, p. 8.
[17] Jian Hong (John) Liu Deposition at 38: 16-18. John Liu has been the vice president of Bosai since 2003-2004.
[18] Warren-Boulton Liability Report, p. 18.
[19] Warren-Boulton Liability Report, p. 18.
[20] Warren-Boulton Liability Report, p. 14.
[21] Warren-Boulton Liability Report, p. 14.

literature supporting the inclusion of this variable in my model.[22] Moreover, while the statistical significance of a regression coefficient is important in establishing that the estimated relationship between the dependent variable and relevant explanatory variable is not due to random chance, an over-reliance on statistical significance at the cost of economic significance can produce misleading conclusions. Studies contained in economics literature stress the importance of interpreting an empirical result in terms of both statistical and economic significance in order to draw proper inferences from a regression analysis.[23]

19.   By excluding the TFP variable, which has an economically significant impact on the price of refractory grade bauxite, Dr. Warren-Boulton risks subjecting the measured overcharge to "omitted variable bias," which is commonly discussed in statistics and economics literature. Specifically, omitted variable bias arises when a relevant variable that is excluded from a regression model is correlated with other variables that are included in the model.[24] In technical terms, the exclusion of that variable leads to biased coefficient estimates for the variables included in the model. In fact, contrary to Dr. Warren-Boulton's claim, if the TFP variable were not important for explaining variation in refractory grade bauxite prices, the coefficients on the other variables would be robust with respect to the inclusion or exclusion of the TFP variable. However, this is not the case. For example, excluding the TFP variable results in an incorrect sign on the manufacturing labor cost variable. This sensitivity suggests that excluding this variable may result in omitted variable bias. Moreover, omitted variable bias may arise even if the excluded variable is not statistically significant. This suggests that the TFP variable should be included in the multiple regression model. Omission of the TFP variable therefore renders Dr. Warren-Boulton's model and estimates flawed and unreliable.

F.   *Dr. Warren-Boulton misinterprets the signs of estimated coefficients on lagged variables in my regression model*

20.   According to Dr. Warren-Boulton, a "sign of critical flaws in Dr. Lamb's analysis is the fact that the estimated effects of certain independent variables in Dr. Lamb's regression make no economic sense."[25] To support his claim, Dr. Warren-Boulton examines the signs of the coefficients on the *individual* lags of the manufacturing labor cost variable in my regression

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[22] Lamb Damages Report at ¶36.
[23] Stephen Ziliak and Deirdre McCloskey, *The Cult of Statistical Significance: How the Standard Error Costs Us Jobs, Justice, and Lives (Economics, Cognition, and Society)* (University of Michigan Press), 2008.
[24] Robert Pindyck and Daniel Rubinfeld, *Econometric Models and Economic Forecasts*, Fourth Edition (Irwin/McGraw-Hill), 1998 (hereafter "Pindyck and Rubinfeld"), pp. 184-186.
[25] Warren-Boulton Liability Report, p. 22.

model and interprets based on the first lag of the cost variable that "a one percent <u>increase</u> in manufacturing labor costs over a one-year period produces an approximately 12 percent <u>decline</u> in the price of RGB one month after the year-over-year increase."[26]

21.   Dr. Warren-Boulton incorrectly interprets the signs of the coefficients in my multiple regression model; his analysis is based on a flawed understanding of econometric analysis with lagged variables. As stated in the Lamb Damages Report, since it may take time for changes in production costs to be reflected in bauxite prices, I used lagged values of the Chinese purchasing price index and manufacturing labor cost in my model.[27] The correct way to interpret the impact of a variable that enters the model with lags is to look at the sum of the coefficients on the lags of that variable, and examine the *joint* effect of that variable on refractory grade bauxite price. The sum of the coefficients on the lags of the production cost variable captures its full impact on bauxite price.

22.   When interpreted correctly, the estimated effect of manufacturing labor cost on refractory grade bauxite price is 1.567. Therefore, contrary to Dr. Warren-Boulton's criticism that the estimated effect of the manufacturing labor cost variable on bauxite price is negative and "[makes] no economic sense," the joint effect of manufacturing labor cost variable on bauxite price is positive and consistent with economic theory which predicts that increases in input costs lead to increases in price. Similarly, summing the coefficients on the lags of the Chinese CPI variable in my model results in a joint effect of Chinese CPI of 3.947. Again, the joint effect of Chinese CPI on bauxite price is positive, and consistent with economic theory.

G. Dr. Warren-Boulton's Chow Test is unreliable

23.   Dr. Warren-Boulton criticizes my model on the grounds that I have "implicitly assumed that Bosai's prices and CMP's prices were affected to the same extent by changes in [the] independent variables and that the Bosai and CMP data could be 'pooled' (*i.e.,* used in the same regression)."[28] Dr. Warren-Boulton argues that data from Bosai and CMP "should not be pooled", and uses a Chow Test to support his argument.[29] As a matter of econometrics, Dr. Warren-Boulton's test is flawed and provides no reliable, scientific basis for criticizing my analysis.

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[26] Warren-Boulton Liability Report, p. 22 (emphases in original).
[27] Lamb Damages Report at ¶35.
[28] Warren-Boulton Liability Report, p. 20.
[29] Warren-Boulton Liability Report, p. 20.

24.   To implement his Chow Test, Dr. Warren-Boulton adds interactions of all the explanatory variables with a Defendant dummy variable to my model and tests whether the coefficients on the interacted variables are *jointly* significant. Dr. Warren-Boulton has not provided valid economic reasoning for why *all* of the coefficients should be different across the Defendants. Moreover, to implement the Chow Test, Dr. Warren-Boulton estimates a regression with nearly 50 parameters and a sample of 155 observations. Such a sample size is insufficient to accurately estimate these many parameters in his regression. Therefore, his test based on his unreliable regression itself is unreliable.[30]

H. Dr. Warren-Boulton's regression models using only the Bosai data are unreliable as a matter of econometrics

25.   Dr. Warren-Boulton estimates some of his regression models using only Bosai's data. Based on his regression in Exhibit 6, Dr. Warren-Boulton concludes that the "coefficient on the conspiracy indicator variable is 0.079 and is statistically insignificant."[31] Similarly, based on his regression in Exhibit 7, Dr. Warren-Boulton concludes that "'the conspiracy period' variable [is statistically] indistinguishable from zero..."[32] Both of these regressions estimated by Dr. Warren-Boulton are unreliable because he uses only a partial sample.

26.   By ignoring all the data produced by CMP, each of Dr. Warren-Boulton's Bosai-only regressions in Exhibits 6 and 7 of the Warren-Boulton Liability Report makes use of 51 observations, which only accounts for about one-third of the Defendants' data. Using such a small sample, one cannot reliably and credibly estimate an overcharge and, therefore, Dr. Warren-Boulton has incorrectly concluded that the results are statistically insignificant.[33] Dr. Warren-Boulton's regression estimates are unreliable because it does not make use of all the data produced by Bosai and CMP.[34]

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[30] Douglas Bonett, "Sample Size Requirements for Testing and Estimating Coefficient Alpha," *Journal of Educational and Behavioral Statistics*, Winter 2002. p. 335.

[31] Warren-Boulton Liability Report, p. 28.

[32] Warren-Boulton Liability Report, p. 28.

[33] Douglas Bonett, "Sample Size Requirements for Testing and Estimating Coefficient Alpha," *Journal of Educational and Behavioral Statistics*, Winter 2002. p. 335.

[34] Dr. Warren-Boulton claims in footnote 46 of his report that, "Dr. Lamb presumably did not recognize that CMP produced contract data from 2002". I have reviewed CMP's data production and confirmed with Counsel for Plaintiffs that CMP did not produce contract data from 2002. If Dr. Warren-Boulton has received additional data from CMP, he should have used such data in his analyses rather than completely disregard all of the CMP data and estimate Bosai-only regressions.

27.   Furthermore, Dr. Warren-Boulton attempts to "simplify" my model of bauxite prices, however, in the process of doing so, he develops models that fail to explain a large share of the variation in bauxite prices. The R-squared statistic is one measure of the "goodness-of-fit" of an econometric model which explains the percentage of variation in the dependent variable accounted for by the explanatory variables in the model. I discussed the use of R-squared in the Lamb Damages Report.[35] The higher the R-squared, the greater the percentage of the variation in the dependent variable explained by the model. The R-squared for Dr. Warren-Boulton's regression model in his Exhibit 6 is 0.215, indicating that only about 21 percent of the variation in his dependent variable is explained by his explanatory variables. By contrast, the R-squared of my multiple regression model is 0.757, indicating that the model explains 75.7 percent of the variation. The small sample size, together with the low R-squared of his model, suggests that Dr. Warren-Boulton's model is poorly specified and further undermines the reliability of his regression analyses.

I.   Dr. Warren-Boulton's time varying overcharge estimates are flawed and nonsensical as a matter of econometrics

28.   Dr. Warren-Boulton criticizes my multiple regression model for the "use of a single indicator variable to measure the effect of the alleged conspiracy."[36] Consequently, Dr. Warren-Boulton estimates a modified version of my model that allows the overcharge coefficient to be different for each year of the Damages Class Period. In order to implement this, he replaces the single conspiracy variable with separate indicator variables for each of the years from 2003 through 2009 in my regression model.[37] As shown in Exhibit 3 of the Warren-Boulton Liability Report, none of the conspiracy coefficients are statistically significant in any year, and the coefficients for 2003 and 2009 are negative.

29.   Dr. Warren-Boulton's fatally flawed results arise because there is inadequate data with which to reliably estimate an annual overcharge. For example, Dr. Warren-Boulton himself notes that there is "only a single observation for 2009" with which I am "estimating the alleged effect of the conspiracy through 2009...."[38] A sound economic analysis should use all of the Defendants' data, including the one transaction in 2009, to estimate a single overcharge from 2003 through 2009, as I did.

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[35] Lamb Damages Report at ¶41.
[36] Warren-Boulton Liability Report, p. 21.
[37] Warren-Boulton Liability Report, p. 22.
[38] Warren-Boulton Liability Report, footnote 43.

    J.   Dr. Warren-Boulton's outlier identification procedure is flawed and one that he himself
    does not consistently rely upon

30.   Dr. Warren-Boulton applies a "standard statistical procedure known as studentized residuals" to identify a "total of twelve outliers in the CMP data."[39] Dr. Warren-Boulton criticizes me for "[removing] from the data [only] one of [these] 12 outliers...."[40] For the reasons discussed below, Dr. Warren-Boulton's outlier identification methodology and criticism are flawed and without merit.

31.   In the context of linear regression, an observation with a large studentized residual may be considered an outlier. In order to identify outliers on the basis of estimated residuals, one must specify an appropriate threshold for which observations outside of this threshold may be flagged as outliers. Dr. Warren-Boulton selects a threshold of 2.0. In other words, observations for which the value of the studentized residuals is greater than 2.0 or less than -2.0 are designated as outliers based on his threshold. His threshold, however, is not based on standard statistical procedures. Sound statistics practice requires using a Bonferroni-type approach to determine the appropriate threshold with which to detect outliers on the basis of studentized residuals.[41] Based on this approach, the threshold for an observation to be considered a *definite outlier* is 4.31, rather than Dr. Warren-Boulton's threshold of 2.0.[42] Based on the correct threshold, there is only one observation detected as a definite outlier, which is the outlier identified in the Lamb Damages Report.[43]

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[39] Warren-Boulton Liability Report, p. 21.

[40] Warren-Boulton Liability Report, footnote 50.

[41] Peter Bajorski, *Statistical Models, in Statistics for Imaging, Optics, and Photonics* (John Wiley & Sons, Inc.), 2011 (hereafter "Statistics for Imaging, Optics and Photonics") pp. 107-110.

[42] According to the Bonferroni-type approach, the studentized residual follows a Student-t distribution with $(n\text{-}k\text{-}1)$ degrees of freedom, where n is the sample size and k denotes the number of predictors in the regression model. Then, a studentized residual that exceeds the threshold $t_{n\text{-}k\text{-}1}\,(\alpha/2n)$ is detected to be an outlier, where α is the level of significance. In the present context, the regression data that I have used has 156 observations. There are a total of 24 predictors in my multiple regression model. I have chosen α to be 0.01, as this is the recommended value for α when trying to detect observations to be *definite outliers* (See Statistics for Imaging, Optics and Photonics, pp.107-110). The threshold is 4.31 based on the critical value for the t distribution with 131 degrees of freedom, $\alpha = 0.01$, and $n=156$.

[43] This observation has a Contract No. "04-ZT500." I also implemented the Bonferroni-type approach to detect *likely outliers*, rather than definite outliers, in order to be less conservative in my outlier identification procedure. For the likely outlier threshold, it is recommended to use α equal to 0.05. Using the same values for n and k, the critical value for the t-statistic with 131 degrees of freedom and $\alpha = 0.05$ is 3.8874, which, when multiplied by *0.05/2n*, yields an outlier threshold value of 3.89. Even based on this alternative outlier threshold, the method detects only one observation to be a *likely outlier*, which is again the same observation that was considered to be an outlier in the Lamb Damages Report.

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32.   Furthermore, although Dr. Warren-Boulton opines that 12 outliers be dropped from the data based on his chosen threshold of 2.0, he does not consistently apply this rule in his own analyses. For example, in Dr. Warren-Boulton's model in which he drops the TFP variable, he estimates the new model on a sample that excludes just the one outlier identified in the Lamb Damages Report. He claims that "the estimated conspiracy effect [from this model] drops by one third and is no longer statistically significant."[44] However, if Dr. Warren-Boulton's model without the TFP variable is estimated on a sample that excludes the 12 outliers that he identified, the coefficient on the conspiracy indicator variable is 0.178 and statistically significant, and the estimated overcharge percentage indicates that the prices paid for refractory grade bauxite were 19 percent higher than the but-for prices as a result of the alleged conspiracy.[45] These results are shown in Figure 1 and Figure 2 below.

33.   In conclusion, Dr. Warren-Boulton's outlier identification methodology is flawed, without merit, and not based on standard statistical practice. Moreover, he does not consistently apply his own preferred procedure. Finally, assuming Dr. Warren-Boulton's outlier identification procedure is correct, implementing his outlier removal on his own analyses demonstrates that proposed class members were overcharged on their purchases of refractory grade bauxite.

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[44] Warren-Boulton Liability Report, p. 23.

[45] In order to obtain the percentage overcharge from the estimated coefficient it is necessary to make a technical adjustment. For a discussion of this issue see Robert Halvorsen and Raymond Palmquist, "The Interpretation of Dummy Variables in Semilogarithmic Equations," *American Economic Review*, June 1980 and Peter Kennedy, "Estimation with Correctly Interpreted Dummy Variables in Semilogarithmic Equations," *American Economic Review*, September 1981.

Figure 1. Regression without TFP and excluding 12 outliers

Observations	144			F Statistic	148.11
Root MSE	0.14146			Prob > F	0.000
				R-squared	0.934

Explanatory variables	Coefficient estimate	Standard error	t-Statistic	p-value	Statistical significance [a]
(1) Annual growth in Chinese steel production					
1 month lag	1.053	0.456	2.310	0.023	**
2 month lag	-0.623	0.337	-1.850	0.067	*
3 month lag	0.265	0.384	0.690	0.491	
(2) Annual growth in US steel production					
1 month lag	-0.082	0.330	-0.250	0.804	
2 month lag	-0.799	0.463	-1.730	0.087	*
3 month lag	0.864	0.362	2.390	0.018	**
(3) Annual growth in Chinese purchasing price index of raw materials, fuel and power					
1 month lag	2.507	1.976	1.270	0.207	
2 month lag	-2.727	1.872	-1.460	0.148	
3 month lag	1.334	0.994	1.340	0.182	
(4) Annual growth in Chinese manufacturing labor cost					
1 month lag	-11.287	3.372	-3.350	0.001	***
2 month lag	7.757	4.879	1.590	0.115	
3 month lag	-3.051	2.509	-1.220	0.226	
(6) Annual growth in the Chinese Consumer Price Inflation					
1 month lag	-2.510	3.322	-0.760	0.451	
2 month lag	8.186	3.982	2.060	0.042	**
3 month lag	-0.228	2.561	-0.090	0.929	
(7) Annual growth in the Yuan / USD foreign exchange rate					
1 month lag	-16.565	5.898	-2.810	0.006	***
2 month lag	28.181	12.232	2.300	0.023	**
3 month lag	-30.223	7.599	-3.980	0.000	***
(8) Annual growth in the Yuan / World foreign exchange rate					
1 month lag	-1.109	0.926	-1.200	0.234	
2 month lag	-0.043	1.350	-0.030	0.975	
3 month lag	-0.517	1.076	-0.480	0.632	
(9) Defendant indicator	0.133	0.031	4.340	0.000	***
(10) Constant	5.249	0.260	20.190	0.000	***
(11) Conspiracy indicator [b]	0.178	0.076	2.350	0.020	**

[a] Statistical significance levels: *** < 1% significance level, ** < 5% significance level, and * < 10% significance level.

[b] Conspiracy period is from January 2003 to March 2009.

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Figure 2. Estimated overcharge percentage

Collusion Period	Estimated overcharge percentage
January 2003 to March 2009	19.2%

K. *Dr. Warren-Boulton's market share argument overlooks other exporting markets besides the U.S. market*

34.   Dr. Warren-Boulton argues that "[w]ide swings in the 'market' shares of the Chinese companies exporting RGB from China during the alleged conspiracy provides additional evidence that an effective cartel did not exist."[46] To support his argument, he calculates Defendants' shares of exports to the U.S. (Exhibit 8 in the Warren-Boulton Liability Report) and claims that because "defendants' shares of exports [to the U.S.] fell substantially during the period of the alleged conspiracy," it is highly unlikely the Defendants joined a cartel "in 2003 and remained in it until at least 2009."[47] However, instead of calculating Defendants' market shares of all exports of refractory grade bauxite from China, Dr. Warren-Boulton restricts his analysis to Chinese companies' exports to the U.S. market only. Because Defendants exported to many countries besides the U.S., it is possible that they and their co-conspirators allocated the exporting market amongst each other based on geographic regions. In doing so, some companies would have higher market shares in certain countries and lower market shares in other countries at different times during the Damages Class Period.[48] By focusing on market shares in the U.S. market only, Dr. Warren-Boulton's market share analysis is wrong as a matter of economics and meaningless.

35.   In fact, a file in Dr. Warren-Boulton's backup materials indicates that Defendant Bosai had a stable market share in the Chinese refractory grade bauxite exporting market during the Damages Class Period. The file shows that the ratios of Bosai's export quota to the total Chinese export quota were 14.05% in 2005, 12.37% in 2006, 12.26% in 2007, 14.29% in 2008, and 14.03% in 2009.[49]

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[46] Warren-Boulton Liability Report, p. 5.

[47] Warren-Boulton Liability Report, p. 29.

[48] Market allocation can take place on a global scale. See Daniel Karon, "Collusion Central Helping Your Clients Deal with Price Fixers," *American Bar Association*, January 2002, available at http://apps.americanbar.org/buslaw/blt/2002-01-02/karon.html.

[49] See Warren-Boulton backup material 201407~1.XLS. To the best of my knowledge, defendant CMP has not provided its market share data.

III. Dr. Warren-Boulton Fails to Show His Criticisms are Material to My Conclusions, and in some Instances Does Not Incorporate His Own Criticisms in His Analyses

36.   In some instances, Dr. Warren-Boulton criticizes my analyses without taking into account his own criticisms when building his preferred regression models. I discuss some examples below that demonstate that some of Dr. Warren-Boulton's criticisms are speculative and immaterial to my conclusions.

   A. Dr. Warren-Boulton's claim that Chinese aluminum production should be included in my model is without merit

37.   Dr. Warren-Boulton claims that there was an increase in the use of refractory grade bauxite by the growing domestic Chinese aluminum industry during the Damages Class Period and that this surge in demand could have affected the price of refractory grade bauxite.[50] He criticizes my model for not including this variable. However, as shown in Figure 3 below, Chinese aluminum production and Chinese steel production follow a very similar pattern. In fact, the two series are highly correlated, with a correlation coefficient of 0.933, so adding Chinese aluminum production in my regression model is redundant given that my model includes Chinese steel production to control for the domestic demand in China. In fact, Dr. Warren-Boulton fails to even account for aluminum production in any of his models.

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[50] Warren-Boulton Liability Report, pp. 12-13.

Figure 3. Steel and Aluminum production in China (January 2002 – January 2009)
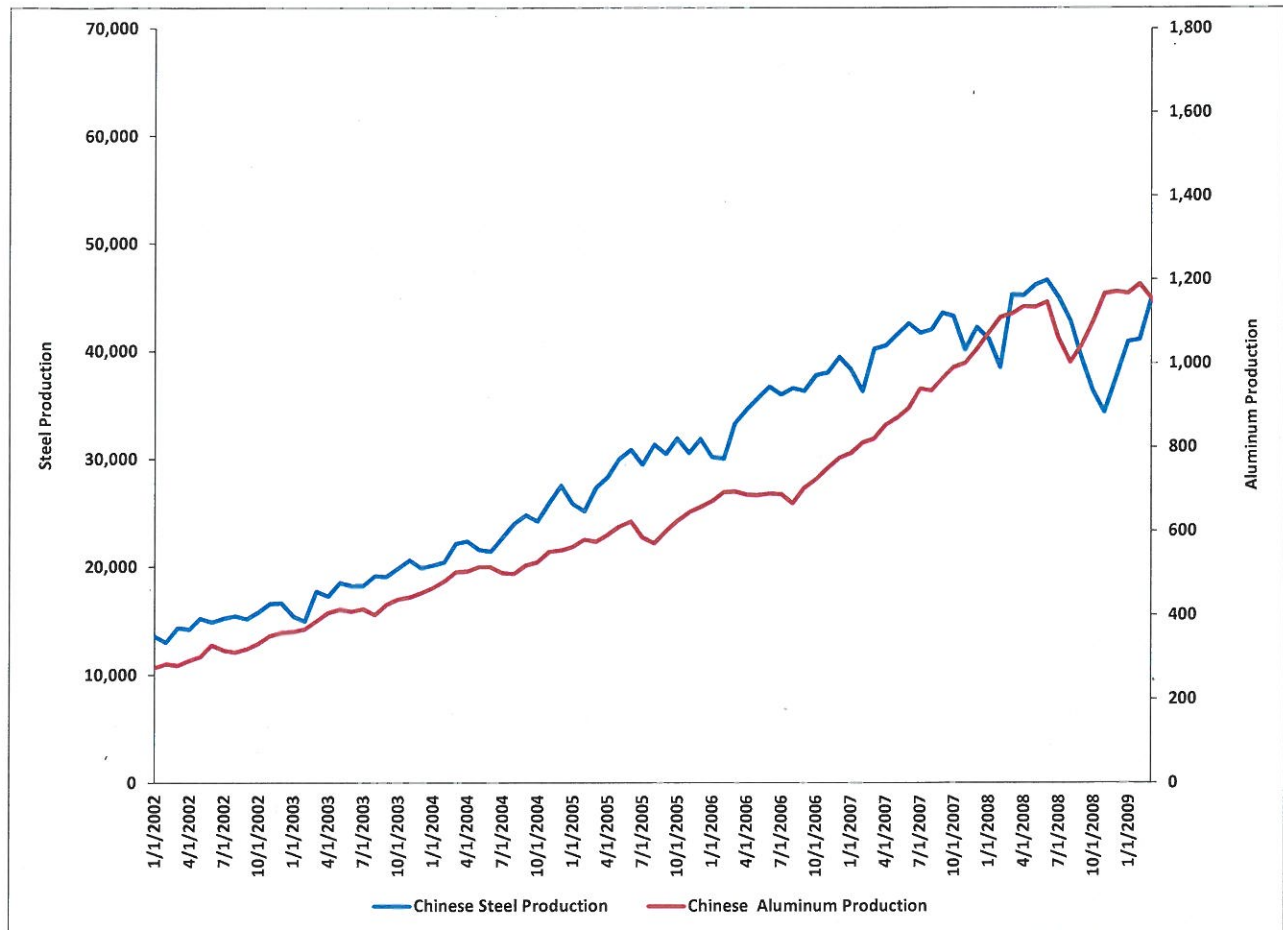
Source: World Steel Association, World Aluminum

B. *Dr. Warren-Boulton claims my model does not take into account increased cost attributable to government-mandated technology change but fails to show it would make any difference to my analyses*

38.   Dr. Warren-Boulton criticizes that my model does not take into account "increased cost attributable to the government-mandated closure" of old-technology kilns (i.e., round and shaft kilns) and shift towards newer and higher cost technology (i.e., rotary kiln).[51] However, Defendants' data does not contain sufficient information distinguishing round, shaft, and rotary kilns. Among the 157 Defendant price data entries, there are only eight transactions that indicate and explicitly state the product name as round kiln bauxite, while only thirteen transactions

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[51] Warren-Boulton Liability Report, p. 19.

indicate rotary kiln bauxite as the product name.[52]   When I add the round and rotary kiln indicator variables to my model, the estimated coefficients of both indicator variables are statistically insignificant, while the estimated coefficient of the conspiracy indicator remains virtually unchanged.

C. Dr. Warren-Boulton claims the Chinese export quota should be included in the regression analyses, yet he fails to include it in any of his preferred models

39.   Dr. Warren-Boulton claims that the Chinese export quota should be included in my regression model in order to separate the effect of governmental actions from any purported effect of the alleged conspiracy.[53]   In his Exhibit 1, Dr. Warren-Boulton presents the Chinese export quotas from 2005 to 2012. For 2009, he divides the official Chinese export quota of 930,000 metric tons by 2 based on an argument that the Chinese government did not go through the bidding process for the second half of 2009 and therefore the quota was effectively cut in half.[54] However, the last transaction I use in my regression model is from March 2009, which is during the first half of 2009, for which the quota was 464,998 metric tons, based on Dr. Warren-Boulton's backup material.[55]

40.   Figure 4 below is a corrected version of Dr. Warren-Boulton's Exhibit 1. This figure demonstrates that Chinese export quotas declined slightly from 2005 to the first half of 2009, but there were no dramatic changes during this period. Although Dr. Warren-Boulton criticizes my regression model for not including the Chinese export quota, he does not include this variable in his own models. In fact, he acknowledges in the Warren-Boulton Liability Report that "[the] export quota was in effect in five of the seven years during which Dr. Lamb assumes a conspiracy was in effect. As a result, when an indicator variable for the quota is added to the regression, the regression cannot distinguish between the effect of the alleged conspiracy and the effect of the (known and certain) quota."[56]

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[52] See BOS_001422 - order confirmation, BOS_002445, BOS_002447, BOS_002023 - order confirmation, BOS_000266, BOS_002454, BOS_000283, BOS_002462, BOS_002443, BOS_000268, BOS_002456, BOS_002460, BOS_002427, BOS_002428, BOS_002429, BOS_002430, BOS_002431, CMP_000422, CMP_000184, CMP_000187. There is no invoice that indicates the product is shaft kiln bauxite.
[53] Warren-Boulton Liability Report, pp. 5, 13-14, 17, 24.
[54] See Warren-Boulton backup material Quota Exhibit.xlsx.
[55] See Warren-Boulton backup material 201407~1.XLS.
[56] Warren-Boulton Liability Report, footnote 47.

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Figure 4. Chinese semiannual export quota of refractory grade bauxite (2005 –first half 2009)
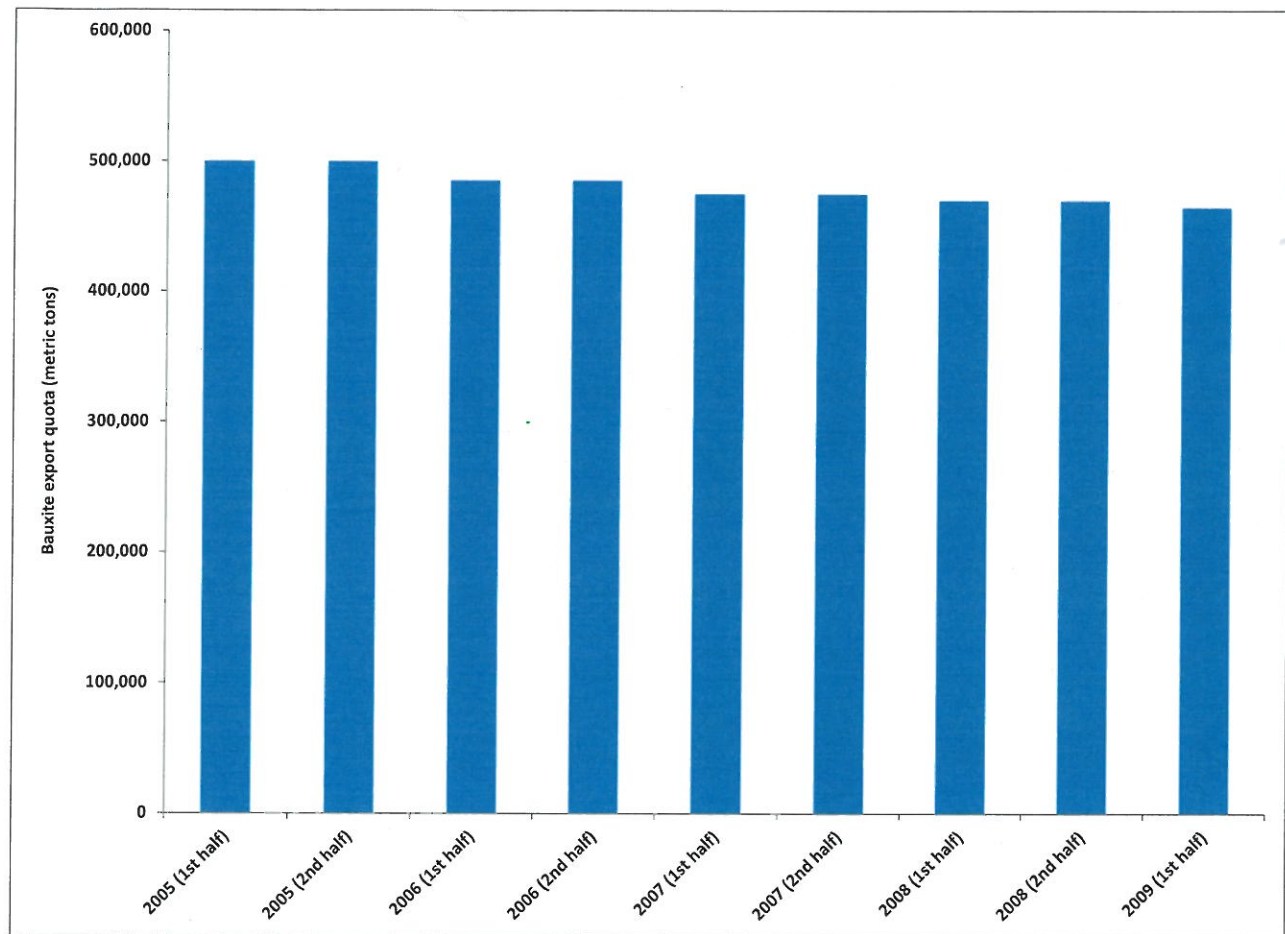
Source: Defendant data 201407~1.XLS.

IV. Accounting for Dr. Warren-Boulton's Criticisms in My Model Yields Slightly Higher Overcharges and Proves Injury to Proposed Class Members

41.　　My analyses in the Lamb Damages Report establish that the prices for refractory grade bauxite exported to the U.S. market were artificially inflated generally as a result of the alleged misconduct, and that all, or nearly all, proposed class members paid these artificially inflated prices. Dr. Warren-Boulton criticizes my conclusions in this regard. I have reviewed my analyses and conclusions in light of Dr. Warren-Boulton's criticisms. As I discuss in more detail below, none of these criticisms have caused me to change my conclusion regarding the overcharge paid by proposed class members.

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A.   *Replacing my Chinese and U.S. steel production variables with Dr. Warren-Boulton's*
     preferred worldwide steel production variable results in higher damages

42.   Dr. Warren-Boulton agrees with my use of steel production in the regression to control for demand shifts. However, he claims that I erred by not using the right measure of steel production. Dr. Warren-Boulton asserts that "worldwide steel production would offer a more appropriate measure of steel-related demand for RGB" since "RGB is exported to produce refractories for steel plants throughout the world, not just for plants in China and the U.S."[57]

43.   In order to account for the possibility that worldwide steel production is a more appropriate demand shifter, I replace the variables representing Chinese and U.S. steel production in my regression with Dr. Warren-Boulton's preferred measure of worldwide steel production. To account for the fact that worldwide steel production affects demand for refractory grade bauxite with a significant lag, I use lagged values of the change in worldwide steel production over the past twelve months as explanatory variables.

44.   As shown in Figure 5 and Figure 6 below, the estimated coefficient on the overcharge variable is 0.23 and statistically significant, indicating that prices paid for refractory grade bauxite were 25 percent higher than the but-for prices as a result of the alleged conspiracy.

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[57] Warren-Boulton Liability Report, p. 16.

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Figure 5. Using worldwide steel production instead of Chinese and U.S. steel production

Observations 155				F Statistic	79.04
Root MSE 0.3068				Prob > F	0.000
				R-squared	0.748

Explanatory variables	Coefficient estimate	Standard error	t-Statistic	p-value	Statistical significance [a]
(1) Annual growth in World Steel production					
1 month lag	1.134	1.105	1.030	0.307	
2 month lag	-3.273	1.614	-2.030	0.045	**
3 month lag	2.735	1.616	1.690	0.093	*
(2) Annual growth in Chinese purchasing price index of raw materials, fuel and power					
1 month lag	-0.718	3.058	-0.230	0.815	
2 month lag	0.339	2.544	0.130	0.894	
3 month lag	0.459	1.665	0.280	0.783	
(3) Annual growth in Chinese manufacturing labor cost					
1 month lag	-9.992	6.886	-1.450	0.149	
2 month lag	0.977	7.992	0.120	0.903	
3 month lag	3.774	5.531	0.680	0.496	
(4) Chinese total factor productivity	-0.144	0.233	-0.620	0.537	
(5) Annual growth in the Chinese Consumer Price Inflation					
1 month lag	4.141	7.060	0.590	0.559	
2 month lag	2.321	7.574	0.310	0.760	
3 month lag	-2.579	4.275	-0.600	0.547	
(6) Annual growth in the Yuan / USD foreign exchange rate					
1 month lag	-5.371	11.895	-0.450	0.652	
2 month lag	-1.063	20.739	-0.050	0.959	
3 month lag	-10.365	14.786	-0.700	0.485	
(7) Annual growth in the Yuan / World foreign exchange rate					
1 month lag	0.229	1.816	0.130	0.900	
2 month lag	-1.151	2.881	-0.400	0.690	
3 month lag	-0.323	1.618	-0.200	0.842	
(8) Defendant indicator	0.224	0.056	4.020	0.000	***
(9) Constant	5.360	0.423	12.670	0.000	***
(10) Conspiracy indicator [b]	0.229	0.102	2.260	0.026	**

[a] Statistical significance levels: *** < 1% significance level, ** < 5% significance level, and * < 10% significance level.

[b] Conspiracy period is from January 2003 to March 2009.

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Figure 6. Estimated overcharge percentage

Collusion Period	Estimated overcharge percentage
January 2003 to March 2009	25.1%

B.   Including export taxes on refractory grade bauxite results in positive overcharges

45.   Dr. Warren-Boulton criticizes my multiple regression model for not including variables that "reflect changes in the Chinese government's tax treatment of RGB exported from China."[58] Accordingly, Dr. Warren-Boulton modifies my regression model in his Exhibit 5 to include two additional variables (i.e., the domestic price of refractory grade bauxite in China and export taxes on refractory grade bauxite), and his resulting estimated coefficient on the conspiracy indicator becomes statistically insignificant.[59] I discuss in Section II.A above why it is inappropriate to use the domestic price of refractory grade bauxite in China as a control in my regression analysis. Below I demonstrate that even accounting for export taxes in my model according to Dr. Warren-Boulton's criticism still results in positive and significant overcharges to proposed class members.

46.   Dr. Warren-Boulton constructs an export tax variable using the sum of value added tax ("VAT") and export duty taxes.[60] However, Dr. Warren-Boulton ignores the fact that the Chinese CPI is based on actual expenditure which already accounts for sales taxes such as VAT.[61] This is evident from the high correlation between VAT and Chinese CPI (the correlation coefficient is 0.74). Given this fact, the only potentially relevant component of his export tax variable is export duty taxes. Accordingly, I re-estimated my original regression model to include export duty taxes as an additional control variable. These results are shown in Figure 7 and Figure 8 below. The coefficient on the overcharge variable in this model is 0.237 and statistically significant, indicating that the prices paid for refractory grade bauxite were nearly 26 percent higher than the but-for prices as a result of the alleged conspiracy.[62]

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[58] Warren-Boulton Liability Report, p. 17.

[59] Warren-Boulton Liability Report, p. 25.

[60] Warren-Boulton Liability Report, Exhibit 7.

[61] See Table 1 in OECD's Methodological Notes on Compilation of G20 Consumer Price Index, available at http://www.oecd.org/std/prices-ppp/CPI-G20-methodology.pdf; also see Price Indices, Classifications and Methods, National Bureau of Statistics of China, available at http://www.stats.gov.cn/english/ClassificationsMethods/Definitions/200205/t20020517_72386.html.

[62] Moreover, summing the estimated coefficients on the lags of the manufacturing labor cost variable in Exhibit 5 of the Warren-Boulton Liability Report results in a joint effect of manufacturing labor cost on refractory grade bauxite price of -2.419. This negative sign of the joint manufacturing cost variable is inconsistent with economic theory. In

Figure 7. Including export duty taxes

Observations	155				F Statistic	96.52
Root MSE	0.30421				Prob > F	0.000
					R-squared	0.759

Explanatory variables	Coefficient estimate	Standard error	t-Statistic	p-value	Statistical significance [a]
(1) Export Duty Tax	-3.830	4.160	-0.920	0.359	
(2) Annual growth in Chinese steel production					
1 month lag	1.817	0.759	2.390	0.018	**
2 month lag	-0.711	0.619	-1.150	0.253	
3 month lag	1.619	0.788	2.060	0.042	**
(3) Annual growth in US steel production					
1 month lag	-0.592	0.728	-0.810	0.417	
2 month lag	-1.445	1.108	-1.300	0.195	
3 month lag	1.769	0.948	1.870	0.064	*
(4) Annual growth in Chinese purchasing price index of raw materials, fuel and power					
1 month lag	2.138	3.682	0.580	0.562	
2 month lag	-3.003	2.744	-1.090	0.276	
3 month lag	0.635	1.793	0.350	0.724	
(5) Annual growth in Chinese manufacturing labor cost					
1 month lag	-10.725	7.634	-1.400	0.162	
2 month lag	11.450	7.833	1.460	0.146	
3 month lag	2.035	6.624	0.310	0.759	
(6) Chinese total factor productivity	-0.772	0.553	-1.400	0.165	
(7) Annual growth in the Chinese Consumer Price Inflation					
1 month lag	4.346	8.299	0.520	0.601	
2 month lag	6.181	8.472	0.730	0.467	
3 month lag	-7.129	4.776	-1.490	0.138	
(8) Annual growth in the Yuan / USD foreign exchange rate					
1 month lag	5.259	13.556	0.390	0.699	
2 month lag	-9.768	20.357	-0.480	0.632	
3 month lag	-9.379	14.600	-0.640	0.522	
(9) Annual growth in the Yuan / World foreign exchange rate					
1 month lag	-1.179	1.908	-0.620	0.538	
2 month lag	-1.693	2.785	-0.610	0.544	
3 month lag	-0.324	1.599	-0.200	0.840	
(10) Defendant indicator	0.210	0.055	3.860	0.000	***
(11) Constant	4.785	0.681	7.020	0.000	***
(12) Conspiracy indicator[b]	0.237	0.113	2.090	0.038	**

[a] Statistical significance levels: *** < 1% significance level, ** < 5% significance level, and * < 10% significance level.

[b] Conspiracy period is from January 2003 to March 2009.

contrast, when the export tax variable is treated correctly (as I discussed above), as Figure 7 demonstrates, the sum of the lags on the manufacturing cost variable has a positive sign and is therefore consistent with economic theory.

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Figure 8. Estimated overcharge percentage

Collusion Period	Estimated overcharge percentage
January 2003 to March 2009	25.9%

47.   As demonstrated above, it is my opinion that proposed class members were overcharged on their purchases of Chinese refractory grade bauxite, even after accounting for Dr. Warren-Boulton's criticisms regarding the appropriateness of the steel production variables and the inclusion of export taxes.

V. Conclusions

48.   I have reviewed the Warren-Boulton Liability Report. In particular, I consider his criticisms of my analyses in order to determine if any of those criticisms cause me to change the opinions that I reached in the Lamb Damages Report. I discuss above the flaws in Dr. Warren-Boulton's analyses and opinions. Based on my review of the Warren-Boulton Liability Report, my previous analyses and research on the market for refractory grade bauxite, and my training and more than 20 years of experience in economics and econometrics, I reaffirm the conclusions set forth in the Lamb Damages Report.

49.   In particular, I reaffirm my conclusions that 1) all proposed class members were injured as a result of the Defendants' alleged misconduct; 2) the estimated damages owed to proposed class members for their total imports are $27.47 million before trebling; and 3) the estimated damages that are attributable to the two Defendants, Bosai and CMP, are $2.46 million and $2.19 million, respectively, before trebling.

50.   In addition, although I believe the multiple regression analyses in the Lamb Damages Report to be sound, I consider Dr. Warren-Boulton's criticisms and incorporate these criticisms into my multiple regression analyses when appropriate. Doing so yields an overcharge that is higher than the one that I present in the Lamb Damages Report, thus affirming that my damages estimate is conservative.

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I declare under penalty of perjury that the foregoing is true and correct. Executed this 15th day of December, 2014, at Arlington, Virginia.

Russell L. Lamb, Ph. D.

Appendix A

Russell Lamb, Ph.D.

Senior Vice President
Nathan Associates Inc.
Phone: (703) 615-3474
Email: rlamb@nathaninc.com

Professional Summary

Russell Lamb is an expert in antitrust economics and has testified concerning antitrust liability, impact, and damages in U.S. District Court. He has an extensive background in applied econometrics and has developed econometric models to measure damages in a number of matters involving allegations of horizontal price fixing. He has provided expert testimony in State and Federal Courts in the United States and in Canada on a range of issues including class-certification and economic damages in antitrust, RICO and consumer fraud matters. In addition, he has provided expert advice to client attorneys at all levels of the litigation. Dr. Lamb has an extensive background in the analysis of domestic and international agricultural markets, and has authored more than 50 articles in peer-reviewed economics journals, trade press, and major newspapers.

Dr. Lamb's work has been cited by courts in certifying classes in the United States and Canada. For example, in *In re Aftermarket Automotive Lighting Products Antitrust Litigation*, the court held that his analysis provided "a sufficient basis from which to conclude that Plaintiffs would adduce common proof concerning the effect of Defendants' alleged price-fixing conspiracy on prices class members paid." In certifying the Class in *In re: Titanium Dioxide Antitrust Litigation*, the Court said, "This Court finds that Dr. Lamb's regression analysis accurately reflects the characteristics of the titanium dioxide industry, and the facts in this case." In the Canadian LCD Competition Act Class Action, the Court held that Dr. Lamb's analysis provided "evidence of a viable methodology for the determination of loss on a class-wide basis." In *In re: Puerto Rican Cabotage Litigation*, the Court held that "Dr. Lamb [had] set forth a reputable and workable model for determining damages as to individual class members." In certifying the class in *Clarke and Rebecca Wixon, et al. v. Wyndham Resort Development Corp., et al.*, the Court held that "Dr. Lamb [had] presented a plausible class-wide method of proof." In certifying the class in *Eugene Allan, et al., v. Realcomp II, Ltd., et al.*, the Court held that "the Plaintiffs have produced sufficient evidence that common proofs will yield a finding of class-wide damages that predominates over any specific individualized damages. The

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Lamb Report and Lamb Reply are sufficient to establish this fact." Furthermore, Dr. Lamb was the Indirect Purchaser Plaintiffs' expert in the *In re: Polyurethane Foam Antitrust Litigation* matter, which was certified by the Court in April 2014.

With regard to agricultural economics, Dr. Lamb has a particular expertise in agricultural markets and has undertaken extensive original research and econometric analysis on markets for agricultural commodities. His articles on agricultural economics have been published in peer-reviewed journals, trade press, and major newspapers. Dr. Lamb regularly presents at conferences on topics including the state of the U.S. Economy and farm policy.

Prior to rejoining Nathan Associates, Dr. Lamb established the Arlington, VA office of Advanced Analytical Consulting Group where he served as a Principal, as well as the Washington, DC office of Econ One where he served as Managing Director and DC Office Head. In these positions, he developed and managed a practice of ten litigation professionals. He earlier served as an Assistant Professor of Agricultural Economics and faculty member of the Graduate Group in Economics at North Carolina State University and as an Economist and Senior Economist in the Federal Reserve System of the United States, at the Federal Reserve Board and the Federal Reserve Bank of Kansas City.

Dr. Lamb received his Ph.D. in Economics from the University of Pennsylvania.

Education

- Ph.D., Economics, University of Pennsylvania, 1994
- M.A., Economics, The University of Maryland, 1989
- B.A., Economics, The University Tennessee, 1987

Expert Testimony Offered

2014   *Sheridan Chevrolet Cadillac Ltd., et al., v. Furukawa Electric Co. Ltd., et al.*
Ontario Superior Court of Justice
Court File No. CV-12-446737-00CP

Sheridan Chevrolet Cadillac Ltd., et al., v. Mitsubishi Electric Corporation, et al.
Ontario Superior Court of Justice
Court File No. CV-14-496994-00CP

- Expert Report, October 14, 2014
- Opinion concerning class certification issues

- Retained by Siskinds LLP

Resco Products, Inc., v. Bosai Minerals Group Co., Ltd., et al.

- United States District Court for the Western District of Pennsylvania
- Civil Action No.: 2:06-cv-325-JFC
- Expert Report, September 24, 2008
- Expert Report, September 29, 2014
- Opinion concerning damages
- Retained by Boies, Schiller & Flexner LLP

Fond Du Lac Bumper Exchange Inc., v. Jui Li Enterprise Company Ltd.

- United States District Court Eastern District of Wisconsin
- Case No.: 2:09-cv-00852-LA
- Affidavit, August 1, 2014
- Affidavit, November 4, 2014
- Opinion concerning class certification and damages issues
- Opinion concerning Defendants' replacement data
- Retained by Stueve Siegel Hanson, LLP

Meredith Corporation, et al., v. SESAC, LLC, et al.

- United States District Court for the Southern District of New York
- 09 Civ. 9177 (PAE)
- Expert Report, July 10, 2014
- Opinion concerning class certification issues
- Retained by Weil, Gotshal & Manges LLP

Janet Skold, et al., v. Intel Corporation, et al.

- Superior Court of the State of California for the County of Santa Clara
- Case No. 1-05-CV-039231
- Expert Report, June 14, 2007
- Testified at deposition, August 31, 2007
- Testified at deposition, January 10, 2014
- Opinion concerning class certification issues
- Opinion concerning damages issues
- Retained by Girard Gibbs LLP

2013   *William P. Elliott v. Delhaize America, Inc., d/b/a Food Lion, LLC*

- United States District Court Eastern District of Virginia Alexandria Division
- Civil Action No. 1:12-CV-01426-LO-TRJ
- Expert Report Concerning Damages, July 5, 2013
- Testified at deposition, September 16, 2013
- Opinion concerning damages
- Retained by EvansStarrett PLC

Charles Benson, et al. v. Dean Foods Company, et al.

- United States District Court Eastern District of Tennessee at Greenville
- No. 2:13-CV-00026
- Declaration, June 14, 2013
- Opinion concerning size of commerce at issue
- Retained by Gordon Ball Law Firm

In Re: Polyurethane Foam Antitrust Litigation

- United States District Court Northern District of Ohio Western Division
- MDL No. 2196
- Declaration, June 11, 2013
- Reply Declaration, October 23, 2013
- Trial Declaration, March 18, 2014
- Reply Trial Declaration, June 30, 2014
- Testified at deposition, August 20, 2013
- Testified at deposition, November 20, 2013
- Testified at class certification hearing, January 15, 2014
- Testified at deposition, April 14, 2014
- Testified at deposition, July 14, 2014
- Opinion concerning class certification issues regarding indirect purchasers
- Opinion concerning merits and damages issues
- Retained by Miller Law LLC

Jabo's Pharmacy, Inc., et al. v. King Pharmaceuticals, Inc.

- In the Circuit Court for Cocke County, Tennessee
- No.: 31,973 (Class Action)
- Expert Affidavit, May 10, 2013
- Reply Affidavit, August 22, 2013
- Testified at deposition, May 30, 2013
- Opinion concerning class certification issues
- Retained by Hausfeld LLP

In Re: Skelaxin (Metaxalone) Antitrust Litigation

- United States District Court Eastern District of Tennessee at Chattanooga
- Lead Case No.: 2:12-cv-4
- MDL Case No.: 1:12-md-2343
- Expert Declaration, May 6, 2013
- Reply Declaration, August 13, 2013
- Testified at deposition, May 30, 2013
- Opinion concerning class certification issues for indirect purchaser for resale plaintiffs
- Retained by Hausfeld LLP

Amvac Chemical Corporation v. RedEagle International LLC

- Before the American Arbitration Association
- Case No.: 16 171 00285 11
- Testified at trial, April 10, 2013
- Retained by McKenna Long & Aldridge LLP

2012   *Thomas Boland, v. Consolidated Multiple Listing Service, Inc., et al.*

- United States District Court for the District of South Carolina
- Case No.: 3:09-1335-SB
- Expert Report, December 10, 2012
- Affidavit, March 15, 2013
- Testified at deposition, January 10, 2013
- Opinion concerning class certification
- Retained by Goldman Scarlato Karon & Penny, P.C.

David Osmun, et al., v. Cadbury Adams Canada Inc., et al.
Ontario Superior Court of Justice
Court File No.: 08-CV-347263PD2

Jacob Stuart Main, et al., v. Cadbury Schweppes Plc, et al.
In the Supreme Court of British Columbia
S078807 (Vancouver Registry)

Gaetan Roy v. Cadbury Adams Canada Inc., et al.
Canada Superior Court (Province of Quebec, District of Quebec)
No.: 200-06-000094-071

- Expert Report, September 24, 2012
- Opinion concerning pass-through
- Retained by Sutts, Strosberg, LLP

Eugene Allan, et al., v. Realcomp II, Ltd., et al.

- United States District Court for the Eastern District of Michigan Southern Division
- Case No.: 2:10-cv-14046
- Expert Report, August 1, 2012
- Reply Expert Report , October 26, 2012
- Testified at deposition, September 14, 2012
- Opinion concerning class certification and damages issues
- Retained by Goldman Scarlato Karon & Penny, P.C.

Nancy Jean Adams v. Apple, Inc., et al.

- Ontario Superior Court of Justice
- Court File No.: CV-12-17511
- Expert Report, July 12, 2012
- Opinion concerning class certification issues

• Retained by Sutts, Strosberg, LLP

Animal Science Products, Inc., et al., v. China National Metals & Minerals Import & Export Corporation, et al.

• United States District Court District of New Jersey
• Expert Affidavit, May 24, 2012
• Retained by Boies, Schiller & Flexner LLP

In Re: Titanium Dioxide Antitrust Litigation

• United States District Court of Maryland (Northern Division)
• Case No.: 10-cv-00318-RDB
• Expert Declaration, February 22, 2012
• Expert Rebuttal Declaration, July 24, 2012
• Expert Trial Report, October 1, 2012
• Trial Expert Rebuttal Report, February 18, 2013
• Testified at deposition, April 20, 2012
• Testified at deposition, August 6, 2012
• Testified at deposition, November 9, 2012
• Testified at deposition, March 5, 2013
• Opinion concerning class certification issues
• Opinion concerning merits and damages issues
• Retained by Gold Bennett Cera & Sidener LLP

2011 *Brokers' Services Marketing Group, LLC, et al., v. Cellco Partnership*

• United States District Court District of New Jersey
• Expert Report, October 14, 2011
• Retained by Hagens Berman LLP

Westminster Mutual Insurance Company, v. TYC Brother Industrial Co. Ltd., et al.

• Ontario Superior Court of Justice
• Court File No.: 62732
• Expert Report, September 14, 2011
• Opinion concerning class certification issues
• Retained by Siskinds LLP

CEMEX Caracas Investments B.V. and CEMEX Caracas II Investments B.V., v. The Bolivarian Republic of Venezuela

• Before the International Centre for Settlement of Investment Disputes ("ICSID")
• Expert Report, September 6, 2011 (with Dr. Juan F. Riveros, Ph.D.)
• Opinion concerning the value of the operating assets of CEMEX Venezuela
• Retained by Curtis, Mallet-Prevost, Colt & Mosle LLP

Henry Kahwaty, v. LECG, LLC and LECG Corporation

- Before PAX ADR
- Expert Report, August 22, 2011
- Opinion concerning damages arising from a breach of contract dispute
- Retained by Katz, Marshall & Banks, LLP

David Osmun, et al., v. Cadbury Adams Canada Inc., et al.

- Ontario Superior Court of Justice
- Court File No.: 08-CV-347263PD2
- Expert Report, August 12, 2011
- Opinion concerning class certification issues
- Retained by Sutts, Strosberg, LLP

Danny Lynn Electrical & Plumbing, et al., v. Veolia ES Solid Waste Southeast, Inc., et al.

- United States District Court, Middle District of Alabama, Northern Division
- Case No. 2:09cv192-MHT
- Expert Report, July 19, 2011
- Testified at deposition, August 2, 2011
- Retained by McCallum Methvin & Terrell, P.C.

Daesang Corporation against The NutraSweet Company, NutraSweet IP Holdings, Inc. and, Sweeteners Holdings Korea LTD.

- International Court of Arbitration International Chamber of Commerce
- Reference: 15 641 / VRO
- Written Testimony, May 31, 2011
- Testified at Tribunal Hearing, July 21, 2011
- Response to the opinions of Daesang's economic expert
- Retained by NutraSweet

Thomas L. Logue, et al., v. West Penn Multi-List, Inc. et al.

- United States District Court for the Western District of Pennsylvania
- Case No.: 2:10-cv-0451
- Expert Report, January 12, 2011
- Testified at deposition, January 26, 2011
- Opinion concerning class certification issues
- Retained by Goldman Scarlato & Karon, P.C.

2010 *In Re: Puerto Rican Cabotage Antitrust Litigation*

- United States District Court for the District of Puerto Rico
- Master Docket No. 08-md-1960 (DRD)
- Affidavit, October 28, 2010
- Affidavit, January 10, 2011
- Opinion concerning the total monetary value of an option in the settlement agreements with the defendants

- Opinion concerning the monetary value of an option elected by the plaintiffs in the settlement agreements with the defendants
- Retained by Grant & Eisenhofer, P.A.

In Re: Mercedes-Benz Tele Aid Contract Litigation

- United States District Court, District of New Jersey
- MDL No. 1914, Civ. No. 07-2720
- Expert Report, October 1, 2010
- Opinion concerning class-wide damages
- Retained by Lieff Cabraser Heimann & Bernstein, LLP

In Re: Aftermarket Automotive Lighting Products Antitrust Litigation

- United States District Court, Central District of California
- Case No. 09-ML-2007 GW (PJWx)
- Expert Report, September 24, 2010
- Expert Reply Report, June 24, 2011
- Expert Trial Report, March 29, 2013
- Expert Trial Rebuttal Report, June 7, 2013
- Expert Declaration, July 8, 2013
- Testified at deposition, April 19, 2011
- Testified at deposition, April 24, 2013
- Testified at class certification hearing, July 25, 2011
- Opinion concerning class certification issues and class-wide damages
- Retained by Stueve Siegel Hanson, LLP

In Re: Air Cargo Shipping Services Antitrust Litigation

- United States District Court for the Eastern District of New York
- Master File No. 06-MD-1775 (CBA) (VVP)
- Expert Declaration, March 29, 2010
- Opinion concerning the use of multiple regression analysis in antitrust contexts and the sufficiency of defendant's data production
- Retained by Levin, Fishbein, Sedran & Berman

Louise Knowles c.o.b. as Special Events Marketing v. Arctic Glacier Inc., Keith E. Corbin and Reddy Ice Holdings, Inc.

- Ontario Superior Court of Justice
- Court File No. CV 10-14457
- Expert Report, March 19, 2010
- Reply Expert Report, November 30, 2010
- Testified at deposition, December 15, 2010
- Opinion concerning class certification issues
- Retained by Sutts, Strosberg LLP

Nathan Nygren, Stephen Shifflette and Amy Fromkin, on behalf of themselves and all others similarly situated, v. Hewlett-Packard Company

- United States District Court for the Northern District of California (San Jose Division)
- Case No. 07-05793 JW
- Expert Report, February 16, 2010
- Expert Reply Declaration, May 21, 2010
- Testified at deposition, March 12, 2010
- Opinion concerning class certification issues
- Retained by Spector Roseman Kodroff & Willis PC

In Re: General Motors OnStar Litigation

- United States District Court for the Eastern District of Michigan
- Master File No. 07-1867
- Expert Report, January 15, 2010
- Testified at deposition, March 3, 2010
- Opinion concerning class certification issues
- Retained by Spector Roseman Kodroff & Willis PC

BabyAge.com, Inc. and The Baby Club of America, Inc., v. Toys "R" Us, Inc., d/b/a Babies "R" Us, et al.

- United States District Court for the Eastern District of Pennsylvania
- C.A. No. 2:05-06792-AB
- Expert Report, December 15, 2009
- Reply Report, February 4, 2011
- Testified at deposition, May 12-14, 2010
- Testified at deposition, February 23, 2011
- Opinion concerning antitrust liability and damages
- Retained by Berger & Montague, P.C.

Chevron Phillips Chemical Company LP, v. BDP International, Inc.

- District Court of Harris County Texas
- Cause No. 2007-68768
- Expert Report, August 5, 2009
- Testified at deposition, January 21, 2010
- Opinion concerning breach of contract damages
- Retained by Susman Godfrey LLP

Michael Harris, v. LG Philips LCD Co., Ltd., et al.

- Ontario Superior Court of Justice
- Court File No. 54054 CP
- Expert Report, October 17, 2008
- Rebuttal Expert Report, June 19, 2009
- Affidavit, March 7, 2013

- Testified at deposition, December 14, 2010
- Opinion concerning class certification issues
- Retained by Siskinds, LLP

Clarke and Rebecca Wixon, et al., v. Wyndham Resort Development Corp. (F/K/A Trendwest Resorts, Inc.), et al.

- United States District Court for the Northern District of California
- Case No. C 07 2361 JSW
- Expert Report, March 16, 2009
- Expert Rebuttal Report, June 4, 2009
- Expert Report, April 19, 2010
- Expert Rebuttal Report, May 19, 2010
- Testified at deposition, April 29, 2009 and June 15, 2009
- Testified at deposition, June 9, 2010
- Opinion concerning class certification issues
- Opinion concerning class-wide damages arising from breach of contract and unfair business practices
- Retained by Girard Gibbs, LLP

Professional Experience

Economic Consulting Positions

Nathan Associates, Inc., Arlington, VA, *Senior Vice President*, January 2013 – present

Advanced Analytical Consulting Group, Inc., Washington DC area, *Principal*, March 2011 – January 2013

Econ One Research, Inc., Washington, DC, *Managing Director and D.C. Office Head*, July 2006 March 2011

- Opened and staffed the DC office; managed office affairs on a daily basis

- Retained as an expert witness for damages and class certification issues in antitrust, breach of contract, product liability and RICO cases; representative testimony includes determination of liability and damages in a case involving resale price maintenance in consumer products, class certification in a horizontal price-fixing case involving international travel in the airline industry, class certification in a consumer class action involving RICO claims in state court

- Industry pre-litigation analyses for consumer products, chemicals, and other industries

Navigant Consulting, Inc., Washington, DC, *Associate Director*, February 2006 – July 2006

- Case manager for damages analysis in asbestos litigation and personal injury claims

Nathan Associates, Inc., Arlington, VA, *Managing Economist*, July 2004 – February 2006

- Case manager for economic analysis of class certification and damages issues in antitrust and RICO cases involving the chemical, consumer products and tobacco industries

- Retained as expert on damages for direct purchasers of NBR in the Crompton Global Settlement; submitted an Affidavit on damages and appeared before the Special Master for the Crompton Global Settlement (the Hon. Kenneth Feinberg)

Board Membership

- Board of Advisors, American Antitrust Institute, Washington, DC

- Department of Economics Advisory Council, University of Tennessee, Knoxville, *Chairman*, Spring 2006 – April 2011

Teaching Positions

- **The George Washington University**, Washington, DC, *Adjunct Assistant Professor of Economics*, Fall 2004 – present

- **North Carolina State University (NCSU)**, *Assistant Professor* (Department of Agricultural and Resource Economics), Fall 1999 – Spring 2004

- **The University of Pennsylvania**, *Adjunct Instructor*, Summer 1990 – Spring 1994

Additional Teaching Experience

- The Wharton School Evening Division, Philadelphia, PA, summer 1993

- Rutgers University, Camden, NJ, summer 1993

- Philadelphia College of Textiles and Science, Philadelphia, PA, fall 1992

- The Pennsylvania State University, Media, PA, 1991

- St. Mary's College of Maryland, St. Mary's City, MD, summer 1989

- The University of Maryland University College, College Park, MD, 1988-1989

Courses Taught

- Managerial Economics for MBA students (George Washington University)

- Law and Economics (George Washington University)

- Intermediate Microeconomics – graduate level (George Washington University)

- Latin American Economic Development (George Washington University)

- International Trade: Theory and Policy (George Washington University)

- International Finance: Theory and Policy (George Washington University)

- Agricultural Production and Supply – Ph.D. field course (North Carolina State University)

- U.S. Agricultural Policy (North Carolina State University)

- Microfinance: Theory, Practice and Regulation (Superintendencia de Banca y Seguros)

- Statistical Analysis for Economics (University of Pennsylvania)
- Principles of Microeconomics (University of Maryland, St. Mary's College of Maryland)
- Principles of Macroeconomics (University of Pennsylvania, The Wharton School, Penn State University)
- Fundamentals of Micro/Macro Economics (University of Maryland)
- Environmental and Natural Resource Economics (Rutgers)

Federal Reserve Experience

Federal Reserve Bank of Kansas City, *Senior Economist* (Jan. 1998 – Aug. 1999), *Economist* (Jan. – Dec. 1997)

- Analysis of regional, macroeconomic developments in agriculture, and energy
- Research on public policy towards agriculture in the U.S., especially the impact of farm policy reform
- Briefings to the Bank president and outside groups on the regional economy, agriculture, agricultural trade

Board of Governors of the Federal Reserve System, *Economist*, June 1994 – Dec. 1996

- Analysis of macroeconomic conditions, commodity markets and prices (CPI, PPI, Core prices)
- Forecasting of agricultural output, prices, and income
- Briefings to the Board of Governors on agriculture and food-price developments

Other Consulting Experience

World Perspectives, Inc., 2003 - 2004

- Analysis of trade barriers for U.S. exports of feed ingredients, pet food ingredients, and food ingredients
- Analysis of the impact of a Free Trade Area of the Americas on U.S. soybean producers
- Analysis of the potential for U.S. Halal-certified meat exports to the Middle East

Womble Carlyle Sandridge & Rice, LLP, 2003 - 2004

- Provided expert testimony related to the estimation of business profitability

Smith-Moore, 2002 - 2003

- Provided economic analysis of the U.S. Tobacco Program

Superintendencia de Banca y Seguros (Lima, Peru), 1998 - 2000

- Developed and taught a class on Microfinance issues (in English) to students enrolled in a training program for bank examiners; the program was sponsored by the Inter-American Development Bank.

World Bank, Africa Technical Department, 1992 – 1993

- Summarized and provided an overview of data available on African economic and social indicators

ACG-Afrique, January 1993

- Provided critical review of a study document outlining the impact of structural adjustment on African agriculture

Professional Organizations

- National Association for Business Economics

- American Economic Association

Papers, Publications and Speeches

Papers Published in Refereed Journals

- "Government Regulation and Quality in the U.S. Beef Market," (with Peyton Ferrier) *Food Policy*, 32:1 (2006) pp. 84-97

- "Rent-seeking in U.S.-Mexican Avocado Trade," *Cato Journal*, 26:1 (Winter 2006) pp. 159-177

- "Consolidation in U.S. Agriculture and the Role of Public Policy," *The ICFAI Journal of Agricultural Economics*, 1(2004) pp. 7-16

- "Fertilizer Use, Risk, and Off-farm Labor Markets in the Semi-Arid Tropics of India," *American Journal of Agricultural Economics*, 85(2) (May 2003) pp 359-371

- "Inverse Productivity: Land Quality, Labor Markets, and Measurement Error," *Journal of Development Economics*, 71 (2003) pp. 71-95

- "A Market-Forces Policy for the New Farm Economy?" *Review of Agricultural Economics*, 24 (2002) 15-30

- "Food Crops, Exports, and the Short-run Policy Response of Agriculture in Africa," *Agricultural Economics*, 22 (2000) 271-298

- "FAIR Act Implications for Land Values in the Corn Belt," (with Jason Henderson) *Review of Agricultural Economics*, 22 (2000) 102-119

- "Why are Estimates of Agricultural Supply Response So Variable?" (with Francis X. Diebold) *Journal of Econometrics*, 76 (1997) 367-373

Non-refereed Publications, Articles and Editorials

- "The Predominance Requirement for Antitrust Class Actions – Can Relevant Market Analysis Help?" (with Jeffrey Leitzinger) American Bar Association – Section of Antitrust Law, *Economics Committee Newsletter*, Spring 2007, pp. 17-22

- "Reform of U.S. Farm Policy in an Integrating World Economy," forthcoming in *Developing Countries in the WTO System*, published by Rowman & Littlefield, 2006

- "New Farm Economy," *Regulation*, Winter 2003-2004, Washington, DC: Cato Institute for Public Policy Research (2003)

- "What Road Will U.S. Economy Take in 2003?" *Southeast Farm Press*, February 5, 2003

- "Fast Track for the Tax Cuts," guest editorial, *News and Observer* (Raleigh, NC), January 18, 2003

- "The 2002 Farm Bill," (with Blake Brown and Michele Marra) *NC State Economist*, November/December 2002

- "Economy-minded Tax Cuts: Bush's Reductions Provided the Boost to Lift U.S. From Recession," guest editorial, *News and Observer* (Raleigh, NC), July 2, 2002

- "Policy Only Effective if Farm Economy is Recognized," special report to *Feedstuffs*, June 5, 2000

- "Aid During Crisis of Little Long-term Help to Farmers," guest editorial, *Kansas City Star*, August 23, 1999

- "Survey of Agricultural Credit Conditions," Federal Reserve Bank of Kansas City, *Regional Economic Digest*, various issues, 1997-1999

- "U.S. Agriculture at the Crossroads in 1999," *Economic Review*, Federal Reserve Bank of Kansas City, 84 (1999)

- "Can U.S. Oil Production Survive the 20th Century?" *Economic Review*, Federal Reserve Bank of Kansas City, 84 (1999)

- "Will the Tenth District Catch the Asian Flu?" (with Ricardo Gazel) *Economic Review*, Federal Reserve Bank of Kansas City, 83 (1998)

- "From the Plains to the Plate: Can the Beef Industry Regain Market Share?" (with Michelle Beshear) *Economic Review*, Federal Reserve Bank of Kansas City, 83 (1998)

- "U.S. Agriculture: Another Solid Year in 1998?" (with Mark Drabenstott) *Economic Review*, Federal Reserve Bank of Kansas City, 83 (1998)

- "How Will the 1996 Farm Bill Affect the Outlook for District Farmland Values?" *Economic Review*, Federal Reserve Bank of Kansas City, 82 (1997).

- "Food Prices and the Farm Sector," monthly *Greenbook* (various issues, 1994-1996), Federal Reserve Board of Governors, Washington, DC

- "Hedge to Arrive Contracts," Memo to the Board of Governors, Federal Reserve Board of Governors, Washington, DC, June 5, 1996

- "Prices in the May Greenbook," Federal Reserve Board of Governors, Washington, DC, May 19, 1996

- "Prices in the March Greenbook," Federal Reserve Board of Governors, Washington, DC, March 24, 1996

- "Commodity Price Developments," Weekly memo to the Board of Governors, Federal Reserve Board of Governors, Washington, DC, August 1994 – December 1996

Conference Presentations

- "Damages: Go Big or Go Home," presenter at the 360 Advocacy Institute's Conference, Las Vegas, NV, March 24, 2014

- "Class Action Developments," panelist at the American Antitrust Institute's 6th Annual Private Antitrust Enforcement Conference, Washington, DC, December 4, 2012

- "Consequences for Antitrust Thought and Practice," presented at the American Antitrust Institute Invitational Symposium: Antitrust Challenge of Multi-Channel Distribution in the Internet Age, Washington, DC, June 22, 2011

- "The U.S. Economy in the Year Ahead," presented at the Long Company Annual Conference, Chicago, IL, September 11, 2009 and September 19, 2008

- "The U.S. Economic Outlook," presented at the Industry Outlook Conference, Chicago, IL, October 17, 2006 and October 18, 2005

- "How Will the Economy Impact Your Business?" presented at the Long Company Annual Conference, Las Vegas, NV, August 14, 2004

- "Focus on The Economy" presented at *Milling and Baking News* annual Purchasing Managers' Conference, Kansas City, MO, June 14, 2004, June 10, 2003 and June 11, 2002

- "The U.S. Economic Outlook and Agriculture," presented at the Industry Outlook Conference, Chicago, IL, October, 2003

- "The U.S. Economic Outlook and Agriculture," presented at the Industry Outlook Conference, Breckenridge, CO, April 7, 2002

- "The U.S. Economic Outlook: The Cost of Terror," presented at the Southern Agricultural Outlook Conference, Atlanta, GA, September 24, 2001

- "The Economy in Focus," presented at *Milling and Baking News* annual purchasing managers' conference, Kansas City, MO, June 5, 2001

- "The Great American Growth Machine," presented at the Southern Agricultural Outlook Conference, Atlanta GA, September 27, 2000

- "The Economy in Focus," presented at *Milling and Baking News* annual purchasing managers' conference, Kansas City, MO, June 6, 2000

- "The Outlook for the U.S. Pork Sector," presented to the Industry Outlook Conference, Las Vegas, NV, April 17, 2000

- "The National Economic Outlook: The Road Ahead," presented to the Food Industry Outlook Conference, Breckenridge, CO, April 11, 1999

- "Farm Policy for the New Millennium," presented to Federal Reserve Bank of Kansas City, Division of Bank Supervision and Regulation, Bank Examiners' Annual Training Conference, January 7, 1999

- "The Impact of the 1996 Farm Bill on Farmland Values," (with Jason Henderson) first place poster presentation at the annual meetings of the American Agricultural Economics Association, Salt Lake City, August 4, 1998

- "A Note on the Inverse Productivity Relationship," presented at the annual meetings of the Western Economic Association International, Seattle, July 1997

- "Off-farm Labor Supply and Fertilizer Use in the Semi-Arid Tropics of India," presented at the annual meetings of the American Agricultural Economics Association, August 1995

- "Prices for Food-Away-From-Home and Core Inflation: Some Empirical Relationships," (with James E. Kennedy) presented at the Federal Reserve System Committee on Agriculture, Richmond, VA, October 1995

- "Some Simple Dynamics of Farming," presented at the annual meetings of the American Agricultural Economics Association, Orlando, August 1993

- "Structural Adjustment and Food Security," (with W. Graeme Donovan), presented at the annual meetings of the American Agricultural Economics Association, Orlando, August 1993

- "Structural Adjustment and African Agricultural Supply Response to Exchange Rate and Price Movements," (with W. Graeme Donovan), presented at the annual meetings of the Southern Agricultural Economics Association, Tulsa, January 1993

Other Presentations

- Panelist, "Antitrust Class Actions – Where Are We? A 360 Degree Perspective," NYSBA Annual Antitrust Law Section Meeting," January 30, 2014

- Panelist, Retrospective on the Baby Products Litigation, ABA Section of Antitrust Law: Pricing Conduct Committee, July 31, 2013

- Panelist, Economic Forecasting Summit, Northern Indiana Workforce Investment Board, Inc., March 29, 2007

- "The Welfare Benefits of USDA Beef Quality Certification Programs" (with Peyton Ferrier), presentation memo, 2007

- "Reform of U.S. Farm Policy in an Integrating World Economy," presented to the Cordell Hull Institute, Trade Policy Roundtable on Reform of U.S. Farm Policy and the WTO System, Washington, DC, March 31, 2006

- "The Case for a Market-forces Farm Policy in the U.S." presented at the Cordell Hull Institute Trade Policy Roundtable, Washington DC, May 26, 2005

- "How Will the Economy Impact Your Business?" presented at the Apple Processors Association annual meeting, Homewood Resort, June 20, 2004

- "The U.S. and International Economic Outlook," presented at the AgFirst Loan Officer's Seminar, Atlanta, GA, October 30-31, 2002

- "Will the U.S. Economy Bounce or Crawl?" presented to the Eastern Bankruptcy Institute, North Myrtle Beach, SC, June 1, 2002

- "The U.S. Economic Outlook and Agriculture," presented to the National Pork Producers Pork Action Group, Washington, DC, April 10, 2002

- "The U.S. Economic Outlook" presented to the Risk Management Associates, Raleigh, NC, February 7, 2002

- "The U.S. Economic Outlook: The Cost of Terror," presented at the National Pork Producers Pork Action Group, Marco Island, FL, November 14, 2001

- "Consolidation in Agriculture and the Role of Public Policy," paper presented to the Southern Extension Meetings, Williamsburg, VA, June 13, 2000

- "The New Farm Economy," presented at the annual meetings of the National Association of County Agricultural Agents, Omaha, NE, September 14, 1999

- "Regional Economic Update," presented to bankers in Kansas, Nebraska, Missouri, and Oklahoma as part of the Regulatory Update Seminar, Federal Reserve Bank of Kansas City, April 1999

- "The National Economic Outlook," presented to Oklahoma State University Advanced Cattle Management Seminar, Stillwater, OK, March 11, 1999

- "Regional Economic Update," presented to Thomas Hoenig, President, Federal Reserve Bank of Kansas City, November 13, 1998

- "Can the Tenth District Survive the Asian Flu?" The Federal Reserve Bank of Kansas City Economic Forums, nine presentations to bankers in Wyoming, Oklahoma, and New Mexico, September 21 - October 21, 1998

- "The Impact of Asian Economic Developments on Tenth District Agriculture," presented to Thomas Hoenig, President, Federal Reserve Bank of Kansas City, January 30, 1998

- "The Outlook for the Nebraska Economy," The Federal Reserve Bank of Kansas City: Nebraska Economic Forums, six presentations to bankers in Nebraska, October 6 - 15, 1997

- "Update on the Macroeconomy and Special Briefing on Forecast Performance at the Kansas City Fed," presented to Thomas Hoenig, President, Federal Reserve Bank of Kansas City, August 13, 1997

- "Regional Economic Update," presented to Thomas Hoenig, President, Federal Reserve Bank of Kansas City, May 14, 1997 and March 21, 1997

- "Producer Prices, Retail Sales, and Agricultural Commodity Markets," presented to the Board of Governors of the Federal Reserve System, July 15, 1996

Referee Experience

Referee for the following academic journals:

- World Development, 1993
- Journal of Development Economics, 1994, 1995
- International Economic Review, 1995
- Journal of Human Resources, 1997
- Journal of Business and Economics Statistics, 1997

- American Journal of Agricultural Economics, 1999, 2001, 2002
- Agricultural Economics, 2000, 2001, 2004
- Agricultural Finance Review, 2000, 2004
- Review of Agricultural Economics, 2000, 2002, 2004
- Journal of Agricultural and Resource Economics, 2000, 2001, 2002
- Emerging Markets Review, 2001
- Contemporary Economic Policy, 2004

Fellowships, Honors and Awards

Fellowships

- Departmental Fellowship, University of Pennsylvania, 1989-1990
- Dean's Fellowship, University of Pennsylvania, 1991-1992
- Graduate School Fellowship, University of Maryland, College Park, 1987-1989

Honor Societies and Professional Organizations

- Phi Eta Sigma National Honor Society
- Mortar Board National Honor Society
- Golden Key National Honor Society
- Vice President for Professional Activities, Delta Sigma Pi

Awards

- Top Graduate in Liberal Arts, University of Tennessee, Knoxville, Spring 1987
- Chancellor's Citation for Extraordinary Professional Promise, University of Tennessee, Knoxville
- Chancellor's Citation for Outstanding Academic Achievement, University of Tennessee, Knoxville
- First place poster presentation, American Agricultural Economics Association annual meetings, August 1998 (with Jason Henderson)
- Honorable mention, American Agricultural Economics Association, Essay for the 21st Century, 2001, "A Market Forces Policy for the New Farm Economy"
- Honorable mention, American Antitrust Institute Antitrust Enforcement Awards, Outstanding Antitrust Litigation Achievement in Economics (for work on In Re Titanium Dioxide Antitrust Litigation matter)

External Funding

- "Unmanufactured Flue-Cured Tobacco Exports and the Export Component of the Quota Formula." $13,890 NC Tobacco Foundation. With Blake Brown 2000/2001.

Professional Activities and Services

Graduate Student Advising

M.A. degree, North Carolina State University

- Joe Weinberg (Political Science)

Master of Economics, North Carolina State University

- William Pole (2000)
- Dwight Wilder (Chairman, 2002)
- Adrian Atkeson (2002)
- Sarah Spivey
- Li Zhang (Chairman, 2003)
- Nia Atmadja (2003)

Doctor of Philosophy, North Carolina State University

- William Deese (2003)
- Peyton Ferrier (Chairman, 2004)
- Yang Wang (2003)
- Bobby Huggett (2003)
- Syed Wadood (Chairman, 2004)
- Henry Kuo

Economic and Statistical Modeling Skills

- Experience with all major statistical software including SAS, STATA, LIMDEP and C++; applied econometric modeling skills in damage analysis of consumer industries, chemicals industries, and agricultural markets, correlation analysis for class certification.

Appendix B

Appendix B
Documents Reviewed and Relied Upon

Court Documents:

U.S. District Court Western District of Pennsylvania: *Resco Products, Inc., v. Nanchuan Minerals Group Co. Ltd., Jersey Mineral Processing Co. Ltd., CMP Ltd., Minelco Tianjin Minerals Co. Ltd., Minelco, Inc., USA, and LKAB,* Class Action Complaint.

U.S. District Court Western District of Pennsylvania: *Resco Products, Inc., v. Bosai Minerals Group Co., Ltd. and CMP Tianjin Co., Ltd.,* First Amended Class Action Complaint.

Expert Reports:

Expert Report of Dr. Frederick R. Warren-Boulton, November 13, 2014.

Expert Report of Dr. Russell L. Lamb, September 24, 2008.

Expert Report of Dr. Russell L. Lamb, September 29, 2014.

Publicly Available:

Bajorski, Peter. *Statistics for Imaging, Optics, and Photonics.* 2011.

Bonett, Douglas G., Sample Size Requirements for Testing and Estimating Coefficient Alpha." *Journal of Educational and Behavioral Statistics.* Winter 2002.

China Statistical Yearbook 2010. http://www.stats.gov.cn/tjsj/ndsj/2010/indexeh.htm.

Davidson, Russell and MacKinnon, James. *Econometric Theory and Methods.* 2004

Greene, William. *Econometric Analysis. 5th Edition.* 2003

Halvorsen, Robert and Raymond Palmquist. "The Interpretation of Dummy Variables in Semilogarithmic Equations." *American Economic Review.* June 1980.

Johnston, Jack and Dinardo, John. *Econometric Methods. 4th Edition.* 1996.
Karon, Daniel, "Collusion Central Helping Your Clients Deal with Price Fixers," *American Bar Association,* January 2002

Kennedy, Peter. *A Guide to Econometrics. 6th Edition.* 2008.

Kennedy, Peter. "Estimation with Correctly Interpreted Dummy Variables in Semilogarithmic Equations." *American Economic Review.* September 1981.

"Methodological Notes: Compilation of G20 Consumer Price Index." *OECD.* http://www.oecd.org/std/prices-ppp/CPI-G20-methodology.pdf

"New Chinese Anti-Monopoly Law." *Jones Day Publication.* October 2007.
Pindyck, Robert S. and Rubinfeld, Daniel L. *Econometric Models and Economic Forecasts. 4th Edition.* 1998.

"Price Indices, Classifications and Methods." *National Bureau of Statistics of China.* http://www.stats.gov.cn/english/ClassificationsMethods/Definitions/200205/t20020517_72386.html

Ziliak, Stephen T. and McCloskey, Deirdre N. *The Cult of Statistical Significance: How the Standard Error Costs Us Jobs, Justice, and Lives.* 2008.

Dr. Warren-Boulton's Backup Materials:

201407~1.XLS

Build Dataset 1.sas

Quota Exhibit.xlsx

regdata.sas7bdat

Bates Stamped Documents:

BOS_001422 - order confirmation
BOS_002445
BOS_002447
BOS_002023 - order confirmation
BOS_000266
BOS_002454
BOS_000283
BOS_002462
BOS_002443
BOS_000268
BOS_002456
BOS_002460
BOS_002427
BOS_002428
BOS_002429
BOS_002430
BOS_002431
CMP_000422
CMP_000184
CMP_000187

Depositions:

Deposition of Laura Liang, April 18, 2014.
Deposition of Jianhong Liu, April 22. 2014.