IN THE UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF CALIFORNIA

IN RE: PACKAGED SEAFOOD PRODUCTS ANTITRUST LITIGATION

3:15-md-02670-JLS-MDD

COMMERCIAL FOOD PREPARER PLAINTIFFS

EXPERT MERITS REPORT OF MICHAEL A. WILLIAMS, PH.D.

I.	INTRODUCTION	1
А.	Summary of qualifications	1
B.	Assignment	2
C.	Overview of opinions	4
D.	Outline of report	5
II.	INDUSTRY BACKGROUND	6
А.	Production of packaged tuna	6
В.	Distribution of packaged tuna	8
III.	COMMON ECONOMIC EVIDENCE SUPPORTS THE EXISTENCE OF A CONSPIRACY	8
A.	Defendants have pleaded guilty to fixing the prices of packaged tuna	9
В.	Industry characteristics	13
i.	High seller concentration	13
ii	. Commodity-like product	19
ii	i. Antitrust barriers to entry	20
iv	y. Stable or declining demand	21
C.	Defendants' actions against their independent self-interests but for the existence of an agreement	c 23
i.	Actual packaged tuna prices exceed but-for prices	23
ii	Defendants reduced output consistent with cartel conduct	24
ii	<i>i.</i> Defendants' communications and monitoring of one another reflect actions against self-interests but for the existence of an agreement	25
iv	v. Information exchanges occurred at high levels in the structural hierarchy of Defendant firms	28
v.	Defendants' pattern of simultaneous and nearly identical price increase announcements	29
vi	i. Defendants concealed their anticompetitive conduct	31
D.	Conclusion based on all plus factors	32
IV.	CLASSWIDE IMPACT	32
A.	Datasets	34
B.	Dummy variable regression methodology for overcharge estimation	36
C.	Model specification for Overcharge Regressions	38
D.	Explanatory variables	39

TABLE OF CONTENTS

i.	Damages period indicator
ii.	Control variables
Е.	Estimated overcharges
F.	Pass through of prices by Distributors
G.	Demonstrating common impact
i.	Product-specific regressions and other analyses relying on common evidence
ii.	Class-member-specific regressions
V.	CLASSWIDE DAMAGES
VI.	RESPONSES TO THE REPORT OF DR. HAIDER
А.	Summary of responses to the report of Dr. Haider
В.	Dr. Haider's analysis of sales by "non-Defendants" to Sysco and US Foods
C.	Dr. Haider incorrectly claims that my report ignores supplies from non-Defendants 73
i.	Prices convey information to buyers and sellers74
D.	<i>Time periods used in my regression analysis are well supported by record evidence and relevant economic theory</i> 76
i.	Summary of economic evidence supporting my definitions of the benchmark, contaminated, and damages periods77
ii.	Dr. Haider's definitions of the benchmark, contaminated, and damages periods are inconsistent with record evidence
Е.	<i>Dr. Haider's proposal to use Defendants' accounting costs makes no economic sense</i>
F.	Dr. Haider fails to understand my Class-member-specific regressions
G.	Dr. Haider's criticisms of my pass-through analysis contain numerous errors90
i.	Dr. Haider incorrectly claims that my pass-through regression models do not test whether an alleged overcharge was passed through to CFP purchasers
ii.	Dr. Haider's pass-through analysis shows that the Large Distributors passed Defendants' price increases through to proposed Class members
iii	Dr. Haider's claim that my proposed methodology for the assessment of impact is incomplete is directly contradicted by her own report
VII.	Conclusions
APPEN	DIX I: RESUME
APPEN	DIX II: DOCUMENTS RELIED UPON
Appen	DIX III: SUPPLEMENTAL TABLES AND FIGURES

I. INTRODUCTION

A. Summary of qualifications

1. My name is Michael A. Williams. I am a Director at Competition Economics, LLC. I specialize in analyses involving antitrust, industrial organization, and regulation. I have published articles in a number of academic journals, including *Proceedings of the National Academy of Sciences, American Economic Review, Journal of Law and Economics, International Journal of Industrial Organization, Journal of Industrial Economics, Physica A, Journal of Economics and Management Strategy, Economics Letters, Journal of Public Economic Theory, Behavioral Science, Review of Industrial Organization, Antitrust Bulletin, Texas Law Review,* and the Yale *Journal on Regulation.*

2. I have provided testimony before the United States District Court, Middle District of Alabama; United States District Court, Western District of Arkansas; United States District Court, Central, Northern, and Southern Districts of California; United States District Court, District of Delaware; United States District Court, Middle District of Florida; United States District Court, Northern District of Georgia; United States District Court, Eastern Division, District of Idaho; United States District Court, Southern District of Illinois; United States District Court, District of Kansas; United States District Court, District of Massachusetts; United States District Court, District of Minnesota; United States District Court, District of New Jersey; United States District Court, Southern District of New York; United States District of Pennsylvania; United States District Court, Eastern District of Tennessee; United States District Court, Northern and Southern Districts of Texas; United States Court of Federal Claims; State of Connecticut, Superior Court; State of New Mexico, Second Judicial District; State of Nevada, Gaming Commission and State Gaming Control Board; and public utilities commissions in

Arkansas, Hawaii, Michigan, Minnesota, Missouri, Nebraska, New Mexico, Texas, and Washington.

3. I have been retained as an economic consultant by the U.S. Department of Justice, Antitrust Division, the U.S. Federal Trade Commission, and the Canadian Competition Bureau. Previously, I was an economist with the U.S. Department of Justice, Antitrust Division.

4. I hold a B.A. degree in economics from the University of California, Santa Barbara, and I received my M.A. and Ph.D. degrees in economics from the University of Chicago. My resume, which contains more information on my background and qualifications, is contained in Appendix I.

5. Competition Economics LLC is being compensated at my standard hourly rate of \$575, and neither my compensation nor the compensation of Competition Economics LLC is contingent on the outcome of this proceeding. My research into the matters discussed in this report is ongoing, and I reserve the right to modify or supplement my opinions as additional information becomes available.

B. Assignment

6. I have been asked by Counsel for Commercial Food Preparer Class Plaintiffs to prepare my Merits Report, which includes my responses to a report filed on behalf of Defendants by Dr. Laila Haider.¹

My assignment in this report is to determine how the agreement among Defendants²
 to fix prices for large-sized (i.e., greater than or equal to 40 ounce cans or pouches) packaged tuna

¹ Expert Report of Dr. Laila Haider (October 2, 2018) (hereinafter "Haider Report").

² Defendants are Bumble Bee Foods LLC ("Bumble Bee"), Tri-Union Seafoods LLC, Thai Union Group Public Company Limited ("Thai Union Group"), which owns Chicken of the Sea ("Chicken of the Sea" or "COSI"), Del Monte Corporation ("Del Monte"), and Dongwon

products within the United States impacted members of the Commercial Food Preparer Class and what, if any, damages were caused to members of the putative Commercial Food Preparer Class.

8. I understand that Plaintiffs seek to certify a class (the "Class") under California's Cartwright Act defined as follows:

Food Service Product Class: All persons and entities in 27 named states and D.C., that indirectly purchased packaged tuna products produced in packages of 40 ounces or more that were manufactured by any Defendant (or any current or former subsidiary or any affiliate thereof) and that were purchased directly from DOT Foods, Sysco, US Foods, Sam's Club, Wal-Mart, or Costco (other than inter-company purchases among these distributors) from June 2011 through December 2016 (the "Class Period").

9. My analysis in this report also shows that well-accepted economic methodologies and common evidence could be applied to reach the same or similar conclusions for an alternative class consisting of purchasers in a subset of the 27 named states and D.C. identified in the proposed Class definition. In the course of my work, I analyzed detailed sales transaction data covering sales of packaged tuna by Defendants and Large Distributors.³ This sales data (produced by Defendants and third parties in the course of discovery), includes information regarding individual shipments, prices, and price adjustments. In addition to this sales data, I was provided with access to and have incorporated into my analyses contemporaneous business records, communications, and studies generated by the Defendants. I also have researched publicly available information on the U.S. tuna industry including data available from the U.S. Department of Agriculture ("USDA"), economic studies of the industry, as well as economic studies and academic literature on anti-competitive behavior and methods of economic analysis used to study such behavior. I also was

Industries Co., Ltd. ("Dongwon"), which owns StarKist Company ("StarKist"), (hereinafter "Defendants").

³ "Large Distributors" are Costco Wholesale Corporation ("Costco"), Dot Foods, Inc. ("Dot Foods"), Sam's Club, Inc. ("Sam's Club," a subsidiary of Walmart, Inc.), Sysco Corporation ("Sysco"), US Foods Holding Corp. ("US Foods"), and Walmart, Inc. ("Walmart").

provided with, and have reviewed and considered, transcripts of depositions and exhibits to those depositions. Counsel for Plaintiffs have provided me with access to the entire record in this case. A detailed list of the materials and resources I considered in the preparation of this report is contained in Appendix II.

C. Overview of opinions

10. This section summarizes my findings and conclusions to date. Because the report contains a detailed analysis, the following summary does not reflect all of my findings and conclusions or all of the bases for those findings and conclusions. I may revise my analyses in light of any additional facts or evidence that comes to light later in these proceedings. The facts or data upon which I am basing the opinions and inferences discussed in this report are of a type reasonably relied upon by experts in the field of industrial organization.⁴ My primary conclusions are summarized as follows:

<u>Antitrust Violation</u>. There exist well-accepted economic methodologies and other common evidence from which a fact-finder could determine the existence of an agreement among Defendants to fix prices for large-sized packaged tuna within the United States.

⁴ The field of industrial organization has been defined as: "the study of the structure of firms and markets and of their interactions." Carlton, D. and Perloff, J. (2005), *Modern Industrial Organization*, 4th ed., Boston, MA: Pearson Addison-Wesley, p. 2. As one well-known textbook summarizes: "A focus and concern with market power underpins industrial organization. . . . What are the determinants of market power? How do firms create, utilize, and protect it? When are antitrust enforcement or regulation appropriate policy responses to the creation, maintenance, or exercise of market power?" Church, J. and Ware, R. (2000), *Industrial Organization: A Strategic Approach*, Boston, MA: Irwin McGraw-Hill, p. vii. For this reason, Industrial Organization textbooks contain extended analyses of antitrust issues. *See, e.g.*, Carlton, D. and Perloff, J. (2005), *Modern Industrial Organization*, 4th ed., Boston, MA: Pearson Addison-Wesley, Chapters 4, 5, 11, and 19; Church, J. and Ware, R. (2000), *Industrial Organization: A Strategic Approach*, Boston, MA: Irwin McGraw-Hill, Chapters 1, 5, 6, 7, 10, 19, 20, 21, 22, and 23; and Belleflame, P. and Peitz, M. (2015), *Industrial Organization: Markets and Strategies*, Cambridge University Press, Chapters 14, 15, 16, and 17.

- Well-accepted economic methodologies and other common evidence support the allegation that Defendants conspired to fix prices for packaged tuna within the United States.
- Common evidence shows that there exist a number of industry characteristics conducive to cartel behavior: (1) high seller concentration, (2) commodity-like product, (3) substantial antitrust barriers to entry, and (4) stable or declining demand.
- Defendants engaged in a number of actions contrary to their independent selfinterests but for the existence of an agreement.

Antitrust Impact.

• Using well-accepted econometric methodologies and common evidence, my analyses demonstrate that the anticompetitive effects of the alleged conspiracy were widespread across members of the proposed Class, causing harm to all or virtually all Class members.

Classwide Damages.

• Using well-accepted econometric methodologies and common evidence, my analyses reliably quantify classwide damages by comparing the prices actually paid for packaged tuna to the estimated prices of packaged tuna but for the alleged agreement.

D. *Outline of report*

11. Section II provides pertinent information on the packaged tuna industry generally and large-sized packaged tuna products in particular. Section III presents my analysis of whether there exist well-accepted economic methodologies and other common evidence from which a factfinder could determine the existence of an agreement among Defendants to fix prices for largesized packaged tuna within the United States. Using well-accepted econometric methodologies and common evidence, Section IV presents my econometric analysis demonstrating that the anticompetitive effects of the alleged anticompetitive agreement were widespread across proposed Class members, causing harm to all or virtually all of them. Section V compares the actual prices sized packaged tuna but for the alleged agreement to quantify classwide damages. Section VI contains my responses to the report of Dr. Haider. Section VII contains my conclusions.

II. INDUSTRY BACKGROUND

A. Production of packaged tuna

12. COSI summarizes the production of packaged tuna as follows:

Sourcing:

Tuna is highly migratory and found in all the major oceans around the globe. Once our wild-caught tuna is caught, it is flash frozen and delivered to one of our processing facilities.

Fish Receiving:

Fish are delivered to canneries frozen or refrigerated. Quality evaluations are performed during unloading, which include monitoring the temperature and condition of the fish and collecting samples for histamine and salt analysis. Lots found unacceptable are rejected.

Cold Storage:

Fish are maintained at temperatures near 0° until processing.

Pre-Processing Evaluation:

Prior to being scheduled for processing, representative samples from each lot are test-packed and samples are evaluated before and after canning to assess quality. Test-pack results are used to determine acceptability and process requirements of fish remaining in each lot.

Thawing:

When lots are scheduled for processing in our canneries, fish are brought out of cold storage and thawed to backbone temperatures sufficient to facilitate evisceration and sensory evaluation.

Evisceration & Evaluation:

Viscera are removed and each fish is evaluated by trained staff for physical characteristics associated with decomposition or contamination. Any fish exhibiting unacceptable characteristics is rejected.

Pre-Cooking:

Acceptable fish are placed on racks and transferred to large ovens, where they are cooked sufficiently to facilitate cleaning of the fish.

Cleaning:

Each fish is manually cleaned and inspected for quality attributes. The cleaning operation consists of removing the head, tail, skin, bones and dark flesh known as red meat.

Can Filling:

Cleaned tuna loins are fed into filling machines where prescribed amounts of fish are placed into cans. Via a separate system, empty cans are conveyed to filling machines after having been inverted and flushed with air jets and/or water sprays.

Ingredient Addition:

Cans leaving the filling machine are conveyed past points where prescribed amounts of spring water or canola oil and other ingredients are added.

Can Sealing:

Filled cans are conveyed to sealing machines where lids are put in place and the cans hermetically sealed. Each can or lid is affixed with a permanent production code that identifies plant, product, date packed, batch and other pertinent information. The integrity of the hermetic seal is evaluated at frequent intervals during processing to ensure product safety.

Thermal Processing:

Sealed cans are retorted (cooked) under pressure utilizing process time and temperature schedules designed by processing experts to render the product commercially sterile. All aspects of thermal processing are strictly monitored and controlled.

Finished Product Evaluation:

Samples of each finished production code receive qualitative (e.g., color, odor, flavor, texture and cleaning) and quantitative evaluations prior to being released for labeling.

Labeling & Casing:

Product lots meeting finished product evaluation criteria are delivered to labeling lines where they are labeled and cased. Cased products are appropriately marked with information necessary to facilitate product tracing.

Warehousing & Shipping:

Cased products are shipped or are staged in warehouses for later shipment.⁵

B. Distribution of packaged tuna

13. Large Distributors purchase packaged tuna produced by Defendants, and Large Distributors in turn sell the products to proposed Class members. Large Distributors do not alter the packaged tuna products they purchase from Defendants. Nor do Large Distributors use the packaged tuna products as an input to the production of some other products.

14. Proposed commercial food preparer ("CFP") Class members are first-level purchasers of large-sized (i.e., greater than or equal to 40 ounce cans or pouches) packaged tuna products from Large Distributors. The vast majority of packaged tuna products purchased by proposed Class members are in 43 ounce pouches or 66.5 ounce cans. Such sizes of packaged tuna products are sometimes called "food service sizes."⁶

15. Among the Large Distributors, their sales share of large-sized packaged tuna produced by Defendants are as follows: Costco (14%), Dot Foods (13%), Sam's Club (10%), Sysco (29%), US Foods (33%), and Walmart (1%).

III. COMMON ECONOMIC EVIDENCE SUPPORTS THE EXISTENCE OF A CONSPIRACY

16. In this section, I examine whether there exists common economic evidence supporting the existence of a conspiracy among Defendants. I begin by recognizing the fact that Defendants have pleaded guilty to fixing the prices of packaged tuna. I also consider whether the structure of the packaged tuna industry in the United States is favorable to collusion, and whether Defendants acted against their independent self-interests but for the existence of an agreement. I

⁵ Chicken of the Sea, "Know your seafood," *available at*

https://chickenofthesea.com/company/know-your-seafood/tuna.

⁶ Deposition of Donald M. Gallagher (April 19, 2018), at 162:1-7.

recognize that courts have used a number of "plus factors" in evaluating market conditions and defendant conduct because "unlawful conspiracies tend to form in secret, . . . proof will rarely consist of explicit agreements."⁷ Rather, the presence or absence of conduct constituting collusion can be evaluated by examining "inferences that may fairly be drawn from the behavior of the alleged conspirators."⁸

A. Defendants have pleaded guilty to fixing the prices of packaged tuna

17. In November 2016, a senior executive of Bumble Bee (Walter Scott Cameron) pleaded guilty to price fixing in the sale of packaged seafood, including "shelf-stable tuna fish."⁹ In December 2016, a second senior executive of Bumble Bee (Kenneth Worsham) pleaded guilty to price fixing in the sale of packaged seafood, including "shelf-stable tuna fish."¹⁰ In May 2017, the U.S Department of Justice issued a press release stating: "Bumble Bee Foods LLC has agreed to plead guilty for its role in a conspiracy to fix the prices of shelf-stable tuna fish, such as canned and pouch tuna, sold in the United States. . . ."¹¹ As part of its plea agreement, Bumble Bee agreed "to pay to the United States a criminal fine of \$25 million. . . ."¹² Although the recommended range of fines under the U.S. Sentencing Guidelines was substantially higher (between \$136.2 million

⁷ See In re Elec. Books Antitrust Litig., 859 F. Supp. 2d 671, 681 (S.D.N.Y. 2012), quoting Anderson News, L.L.C. v. Am. Media, Inc., 680 F.3d 162, 183 (2nd Cir. Apr. 3, 2012); see also Monsanto Co. v. Spray–Rite Service Corp., 465 U.S. 752, 761 (1984).

⁸ See In re Elec. Books Antitrust Litig., 859 F. Supp. 2d at 681 (S.D.N.Y. 2012), quoting Anderson News, L.L.C., 680 F.3d at 183; see also Monsanto Co., 465 U.S. 752, 761 (1984).

⁹ U.S. v. Cameron, No. 16-CR-501-EMC (N.D. Cal. January 25, 2017), Plea Agreement, at ¶ 4.

¹⁰ U.S. v. Worsham, No. 16-CR-535-EMC (N.D. Cal. March 15, 2017), Plea Agreement, at ¶ 4.

¹¹ U.S. Department of Justice, "Bumble Bee Agrees to Plead Guilty to Price Fixing" (May 8, 2017), *available at* https://www.justice.gov/opa/pr/bumble-bee-agrees-plead-guilty-price-fixing.

 $^{^{12}}$ U.S. v. Bumble Bee Food, LLC, No. CR 17-00249 EMC (N.D. Cal. August 2, 2017), Amended Plea Agreement, at ¶ 9.

and \$272.4 million), Bumble Bee's fine was substantially reduced by "the inability of the defendant to pay a greater fine without substantially jeopardizing its continued viability."¹³ The plea agreement states:

For purposes of this Plea Agreement, the "relevant period" is that period beginning at least as early as the first quarter of 2011 and continuing through at least as late as the fourth quarter of 2013... During the relevant period, the defendant, through its officers and employees, including high-level personnel of the defendant, participated in a conspiracy among major packaged-seafood-producing firms, the primary purpose of which was to fix, raise, and maintain the prices of packaged seafood sold in the United States.¹⁴

18. In May 2018, the DOJ announced that a "federal grand jury returned an indictment against Christopher Lischewski, the President and Chief Executive Officer of Bumble Bee Foods LLC, for participating in a conspiracy to fix prices for packaged seafood sold in the United States. . . . The indictment, filed in the U.S. District Court for the Northern District of California in San Francisco, charges Lischewski with participating in a conspiracy to fix prices of packaged seafood beginning in or about November 2010 until December 2013."¹⁵

19. In June 2017, a senior executive of StarKist (Stephen L. Hodge) pleaded guilty to price fixing in the sale of packaged seafood, including "shelf-stable tuna fish."¹⁶ As plea agreement further states: "For purposes of this Plea Agreement, the 'relevant period' is that period from at least 2011 through at least 2013."¹⁷

¹³ *Id.*, at ¶ 10.

¹⁴ *Id.*, at \P 4.

¹⁵ U.S. Department of Justice, "Bumble Bee CEO Indicted for Price Fixing: Fourth Individual Charged in Ongoing Investigation" (May 16, 2018), *available at* https://www.justice.gov/opa/pr/bumble-bee-ceo-indicted-price-fixing.

 $^{^{16}}$ U.S. v. Hodge, No. 17-CR-297-EMC (N.D. Cal. June 28, 2017), Plea Agreement, at \P 4. 17 Id.

20. In October 2018, Department of Justice stated that StarKist "agreed to plead guilty for its role in a conspiracy to fix prices of packaged seafood sold in the United States. . . . StarKist and its co-conspirators agreed to fix the prices of canned tuna fish from as early as November 2011, through at least as late as December 2013. In addition to pleading guilty, StarKist has agreed to cooperate in the investigation. StarKist faces a criminal fine of up to \$100 million."¹⁸

21. Also in October 2018, COSI admitted in its second supplemental responses to Plaintiffs' interrogatories that Bumble Bee and COSI had agreements (1) "to reduce the size of cans from 6 oz to 5 oz for branded tuna products . . . as early as March 2008;" (2) "on timing of list price increase for branded tuna products . . . as early as June 2008;" and (3) "on timing of net price increase for branded tuna products . . . as early as May 2010."¹⁹

22. Finally, I understand that COSI has confirmed that it is the amnesty applicant in the present case.²⁰ I also understand that under the DOJ's "Leniency Program," in order for COSI to receive conditional amnesty, the company must admit to its participation in a criminal antitrust violation, such as price fixing.²¹

¹⁸ U.S. Department of Justice, "StarKist Co. Agrees to Plead Guilty for Price Fixing," (October 18, 2018), *available at* https://www.justice.gov/opa/pr/starkist-co-agrees-plead-guilty-price-fixing.

¹⁹ Defendant Tri-Union Seafoods LLC d/b/a Chicken of the Sea International's Second Supplemental Responses and Objections to Plaintiffs Second Set of Interrogatories— Interrogatory No. 1 (October 18, 2018), at 4.

²⁰ Peterson, L., "DOJ's Packaged Seafood Probe Yields Conditional Leniency Applicant," *Antitrust Alert* (Sept. 14, 2017), *available at*

https://www.antitrustalert.com/2017/09/articles/cartel-enforcement/the-latest-dojs-packaged-seafood-probe-yields-conditional-leniency-applicant/.

²¹ U.S. Department of Justice, "Frequently Asked Questions About the Antitrust Division's Leniency Program and Model Leniency Letters" (Jan. 26, 2017), *available at* https://www.justice.gov/atr/page/file/926521/download.

23. Defendants have pleaded guilty to a conspiracy that began "at least" as early as 2011 and their collusive price increases began no later than June 2011. These guilty pleas not only provide direct evidence of the existence of a conspiracy among Defendants, but also guided me in determining the start of the damages period. Thus, as discussed in Section IV.C, I define the damages period to begin in June 2011. I define the period January 2011 through May 2011 as part of the benchmark period, along with the period January 2001 through June 2008. Packaged tuna prices in the intervening period (i.e., July 2008 through December 2010) were affected by Defendants' conduct such that the resulting prices do not reflect conditions that would exist in a market unaffected by anticompetitive conduct.²² As a result, prices in that intervening period do not serve as part of an appropriate benchmark.

24. In sum, Defendants' guilty pleas provide sufficient evidence from which a factfinder could determine the existence of an agreement among Defendants to fix prices for largesized packaged tuna within the United States.

25. Dr. Haider's report fails to mention—much less rebut—my conclusion that Defendants' guilty pleas, as well as the guilty pleas of their senior executives, constitute common, direct economic evidence of the existence of a conspiracy among Defendants.

²² See, e.g., COSI-CIV-000094950; BB_Civil_000092285; BB_Civil_000092221; BB_Civil_000000329; BB_Civil_000031673; BB_Civil_000858399, and Defendant Tri-Union Seafoods LLC d/b/a Chicken of the Sea International's Second Supplemental Responses and Objections to Plaintiffs Second Set of Interrogatories—Interrogatory No. 1 (October 18, 2018). In particular, I end the benchmark period in 2008 in June for StarKist, August for COSI, and September for Bumble Bee.

B. Industry characteristics

i. High seller concentration

26. Agreements are less costly to reach, all else equal, when there are few participants in a market or when a small number of suppliers collectively have a large market share. The more participants, the more difficult is the task of reaching consensus and coordinating behavior, all else equal.²³ As the U.S. Department of Justice ("DOJ") states: "Collusion is more likely to occur if there are few sellers. The fewer the number of sellers, the easier it is for them to get together and agree on prices, bids, customers, or territories. Collusion may also occur when the number of firms is fairly large, but there is a small group of major sellers and the rest are 'fringe' sellers who control only a small fraction of the market."²⁴

27. Table 1 shows the total annual sales of packaged tuna in the U.S. From 2008-2016, the three Defendants accounted for approximately 80% to 84% of U.S. sales, as shown in Table 2. I also measure industry concentration using the Herfindahl-Hirschman Index ("HHI").²⁵ The HHI values are near or above the 2,500 level used by the DOJ to indicate that an industry is "highly concentrated."²⁶ To be conservative, I assume that manufacturers of "private label" and "other"

²³ See, e.g., Carlton, D. and Perloff, J. (2005), *Modern Industrial Organization*, 4th ed., Boston, MA: Pearson Addison Wesley, Chapter 5.

²⁴ U.S. Department of Justice, "Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For" (June 25, 2015), *available at* http://www.justice.gov/atr/public/guidelines/211578.htm.

²⁵ The HHI equals the sum of firms' squared market shares. For example, "a market consisting of four firms with market shares of thirty percent, thirty percent, twenty percent, and twenty percent has an HHI of 2,600 $(30^2 + 30^2 + 20^2 + 20^2 = 2,600)$. The HHI ranges from 10,000 (in the case of a pure monopoly) to a number approaching zero (in the case of an atomistic market)." U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines* (August 19, 2010) (hereinafter, "*Horizontal Merger Guidelines*"), at § 5.3, footnote 9.

²⁶ Horizontal Merger Guidelines, at § 5.3.

are all atomistic, and so I do not include the shares of "Private Label" or "Other" in calculating the HHI statistics.

	Revenue (\$)						
Year	Chicken of the Sea	Star Kist	Bumble Bee	Private Label	Other	Total Revenue	
2008/1	176,414,367	325,925,410	315,729,298	131,055,398	30,280,187	979,404,660	
2009/2	195,096,574	356,657,749	322,147,873	152,057,757	33,226,066	1,059,186,019	
2010/3	185,742,744	357,298,587	328,574,992	149,230,015	32,890,028	1,053,736,366	
2011/4	184,951,611	364,742,900	295,054,408	153,959,808	32,587,608	1,031,296,335	
2012/5	185,906,693	356,056,280	296,255,065	162,809,479	38,623,356	1,039,650,873	
2013/6	234,623,409	655,106,930	452,812,762	278,339,953	52,999,847	1,673,882,901	
2014/7	235,780,971	656,032,599	433,749,019	254,262,292	61,056,252	1,640,881,133	
2015/8	211,988,974	670,631,434	415,719,204	221,772,735	63,814,857	1,583,927,204	
2016/9	193,608,851	681,061,784	400,941,371	206,235,630	69,800,214	1,551,647,850	

TABLE 1 ANNUAL U.S. SALES OF PACKAGED TUNA 2008-2016

Sources:

^{/1} COSI-CIV-000424415 (52 WEEKS END JAN0309.1); COSI revenue includes the revenues of Genova and 3 Diamonds.

^{/2} COSI-CIV-000424414 (52 WEEKS END JAN0210.1); COSI revenue includes the revenues of Genova and Ace of Diamonds.

^{/3} COSI-CIV-000424413 (52 WEEKS END JAN0111.1); COSI revenue includes the revenues of Genova and Ace of Diamonds.

^{/4} COSI-CIV-000424417 (52 WEEKS END DEC3111.1); COSI revenue includes the revenues of Genova and Ace of Diamonds.

¹⁵ COSI-CIV-000424416 (52 WEEKS END DEC2912.1); COSI revenue includes the revenues of Genova and Ace of Diamonds.

^{/6} COSI-CIV-000424411 (52 WEEKS END JAN0414.1); COSI revenue includes the revenues of Genova and Ace of Diamonds.

⁷⁷ COSI-CIV-000424410 (52 WEEKS END JAN0315.1); COSI revenue includes the revenues of Genova and Ace of Diamonds.

^{/8} COSI-CIV-000424412 (52 WEEKS END JAN0916.1); COSI revenue includes the revenues of Genova and Ace of Diamonds.

¹⁹ COSI-CIV-000424409 (52 WEEKS ENDING 12/24/16); COSI revenue includes the revenues of Genova and Ace of Diamonds.

	Market Share (%)					Defendants'	
Year	Chicken of the Sea	Star Kist	Bumble Bee	Private Label	Other	Aggregate Market Share	HHI Index
2008/1	18.0	33.3	32.2	13.4	3.1	83.5	2,471
2009/2	18.4	33.7	30.4	14.4	3.1	82.5	2,398
2010/3	17.6	33.9	31.2	14.2	3.1	82.7	2,433
2011/4	17.9	35.4	28.6	14.9	3.2	81.9	2,391
2012/5	17.9	34.2	28.5	15.7	3.7	80.6	2,305
2013/6	14.0	39.1	27.1	16.6	3.2	80.2	2,460
2014/7	14.4	40.0	26.4	15.5	3.7	80.8	2,504
2015/8	13.4	42.3	26.2	14.0	4.0	82.0	2,661
2016/9	12.5	43.9	25.8	13.3	4.5	82.2	2,750

 TABLE 2

 MARKET SHARES AND MARKET CONCENTRATION FOR PACKAGED TUNA

 2008-2016

Sources:

¹ COSI-CIV-000424415 (52 WEEKS END JAN0309.1); COSI market share includes the market shares of Genova and 3 Diamonds.

¹² COSI-CIV-000424414 (52 WEEKS END JAN0210.1); COSI market share includes the market shares of Genova and Ace of Diamonds.

^{/3} COSI-CIV-000424413 (52 WEEKS END JAN0111.1); COSI market share includes the market shares of Genova and Ace of Diamonds.

⁴ COSI-CIV-000424417 (52 WEEKS END DEC3111.1); COSI market share includes the market shares of Genova and Ace of Diamonds.

^{/5} COSI-CIV-000424416 (52 WEEKS END DEC2912.1); COSI market share includes the market shares of Genova and Ace of Diamonds.

⁶ COSI-CIV-000424411 (52 WEEKS END JAN0414.1); COSI market share includes the market shares of Genova and Ace of Diamonds.

⁷⁷ COSI-CIV-000424410 (52 WEEKS END JAN0315.1); COSI market share includes the market shares of Genova and Ace of Diamonds.

^{/8} COSI-CIV-000424412 (52 WEEKS END JAN0916.1); COSI market share includes the market shares of Genova and Ace of Diamonds.

¹⁹ COSI-CIV-000424409 (52 WEEKS ENDING 12/24/16); COSI market share includes the market shares of Genova and Ace of Diamonds.

28. I conclude that the U.S. packaged tuna industry was highly concentrated during the alleged damages period.

29. I note that there are no available data with which to calculate firms' sales shares for large-sized packaged tuna only.²⁷ However, while there are no available data with which to calculate firms' sales shares of large-sized packaged tuna, there is direct evidence of market power in the form of inflated prices. First, as discussed in the U.S. Department of Justice and Federal Trade Commission (2010), *Horizontal Merger Guidelines*, ("*Horizontal Merger Guidelines*"): "The Agencies look for historical events, or 'natural experiments,' that are informative regarding the competitive effects of the merger."²⁸ In the present case, my regression analyses in Section IV below show that Defendants had sufficient market power to elevate prices above competitive levels. This demonstrated ability to raise prices above what they would have been but for a price-fixing agreement shows that Defendants exercised market power, and this finding neither relies on nor requires a definition of the relevant market.

30. Second, as discussed above, Defendants and their senior executives have pleaded guilty to a conspiracy to fix the prices of packaged tuna, including large-sized packaged tuna, which also implies that their market shares are sufficiently large for the Defendants to exert market power. I also note that Dr. Mangum's regression analysis shows that direct purchasers paid a statistically significant overcharge for prices of all sizes of packaged tuna.²⁹

²⁷ Dr. Haider's report shows non-Defendant vendors' sales share to three specific distributors, Sysco, US Foods, and Dot Foods of large-sized tuna were respectively 74.5%, 63.5%, and 1.7%. Her calculation is not based on all products that are at issue in this case. In addition, as discussed in Section VI.B, non-Defendant vendors for Sysco and US Foods purchased a substantial amount of large-sized packaged tuna products from Defendant Thai Union Group (which owns COSI).

²⁸ Horizontal Merger Guidelines, at § 2.1.2. See also, § 4.

²⁹ Expert Report of Dr. Russel W. Mangum III (May 29, 2018) (hereinafter "Mangum Opening Report"), ¶ 22.

31. Third, as discussed in Section VI.D below, prices of large-sized packaged tuna are highly correlated with prices of other smaller-sized packaged tuna (see Tables A1-A3). The high correlations are also reflected in the way that prices of small- and large-sized tuna move together, as shown in Figures A1-A12. The figures show, for example, the clear price jump in third quarter 2008, when Defendants downsized 6 oz. tuna and coordinated their price increases, including price increases on large-sized tuna. These facts support the market share analysis presented in my original report and above, which shows market shares for all packaged tuna—both small and large sizes.

32. Fourth, as discussed in Section VI.B below, Defendant Thai Union Group (which owns COSI) manufactured and sold a substantial amount of large-sized packaged tuna products to non-Defendant vendors, which gives Defendants additional control over non-Defendant brands of large-sized packaged tuna.

33. Fifth, as discussed in Section VI.B below, the empirical evidence shows that Defendants' anticompetitive price increases were associated with corresponding price increases made by non-Defendants, indicating the presence of an "umbrella effect."³⁰ As discussed in Section VI.B below, economic theory predicts that non-Defendants raise their prices following anticompetitive price increases by Defendants. Elementary economics demonstrates that when the price of a product sold by a cartel increases, the price of substitute products also will increase as buyers shift their purchases to substitute products sold by non-cartel member firms. Prices of substitute products do not remain the same simply because they are sold by non-Defendants. This well-known, common-sense outcome is called the "umbrella effect."

³⁰ See, e.g., Inderst, R., Maier-Rigaud, F., and Schwalbe, U. (2014), "Umbrella Effects," *Journal of Competition Law and Economics*, vol. 10, pp. 739-763.

34. Finally, neither my econometric analysis of classwide impact (Section IV) nor my damages calculations (Section V) depend on the market share analysis above.

ii. Commodity-like product

35. Markets in which a homogenous or highly standardized commodity is sold tend to facilitate the formation and maintenance of a price-fixing agreement more than do markets characterized by highly differentiated products. As stated in a well-known textbook on industrial organization: "It is easier for a cartel to spot cheating when all it has to examine is a single price."³¹ As the DOJ states: "The more standardized a product is, the easier it is for competing firms to reach agreement on a common price structure. It is much harder to agree on other forms of competition, such as design, features, quality, or service."³²

36. The United States Department of Labor has stated: "As a relatively undifferentiated commodity, canned tuna is often met with widespread consumer indifference to its country of origin or brand name. Price is often the key factor."³³ A commodity product is "interchangeable with products from other companies and [firms] compete for customers mainly on price."³⁴ An industry analysis prepared for Bumble Bee concluded that the price elasticity of demand for its packaged tuna products exceeded one (in absolute value).³⁵ This indicates that the demand curves

³¹ Carlton, D. and Perloff, J. (2005), *Modern Industrial Organization*, 4th ed., Boston, MA: Pearson Addison Wesley, p. 135.

³² U.S. Department of Justice, "Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For" (June 25, 2015), *available at* http://www.justice.gov/atr/public/guidelines/211578.htm.

³³ United States Department of Labor, "VII. Economic Factors for Consideration that May Weigh Against Minimum Wage Increases," *available at* https://www.dol.gov/whd/as/sec7.htm.

³⁴ Bank, E., "What Is a Commodity-Based Industry?" *Chron, available at* http://smallbusiness.chron.com/commoditybased-industry-75464.html.

³⁵ BB_Civil_000107858; *see also* BB_Civil_000092286, at 296.

for these Bumble Bee products are elastic, which is consistent with consumers regarding the products as commodities. An industry consultant concluded: "The tuna business is a commodity business."³⁶ In sum, I conclude that packaged tuna is a commodity-like product.

37. Dr. Haider's report does not dispute my finding that packaged tuna is a commoditylike product. Her report offers no rebuttal to my conclusion that the commodity-like nature of packaged tuna constitutes common economic evidence supporting the existence of a conspiracy among Defendants.

iii. Antitrust barriers to entry

38. There exist substantial antitrust barriers to entry³⁷ into the U.S. packaged tuna industry. The presence of barriers that delay or limit the entry of firms into a market tends to make that market relatively more conducive to the formation and maintenance of an agreement to collude, since those barriers act to limit that ability of firms potentially disruptive to the agreement.³⁸

39. There were various barriers to entry into the packaged tuna industry during the time period relevant to the Plaintiffs' claims. Operating in the packaged tuna industry required substantial capital investments and access to distribution channels.³⁹ For example, Tri-Marine

³⁶ Deposition of Robert Worsham (May 8, 2018), at 220:9.

³⁷ McAfee, R. P., Mialon, H., and Williams, M. (2004), "What is a Barrier to Entry?" *American Economic Review*, vol. 94, pp. 461-465. "An antitrust barrier to entry is a cost that delays entry and thereby reduces social welfare relative to immediate but equally costly entry." *Id.*, at 463.

³⁸ See, e.g., Carlton, D. and Perloff, J. (2005), *Modern Industrial Organization*, 4th ed., Boston, MA: Pearson Addison Wesley, Chapter 5.

³⁹ Newsome, J. (2013), "An Analysis of North Carolina's Seafood Industry: National and State Perspectives," *NC Growing Together*, at p. 13, *available at*

https://www.cefs.ncsu.edu/ncgt/analysis-of-nc-seafood-industry-national-and-state-

perspective.pdf. ("Investment costs are also high for wholesaling due to the cost of establishing

spent approximately \$70 million to modernize a plant it had acquired from COSI in Pago Pago, American Samoa in 2010.⁴⁰ In addition, the U.S. maintained tariffs on packaged tuna imports between 6% and 35% from 1997 to 2017.⁴¹

40. I conclude that there exist substantial antitrust barriers to entry into the U.S. packaged tuna industry.

41. Dr. Haider's report does not dispute my finding that there exist substantial antitrust barriers to entry into the U.S. packaged tuna industry. Her report offers no rebuttal to my conclusion that these barriers to entry constitute common economic evidence supporting the existence of a conspiracy among Defendants.

iv. Stable or declining demand

42. In a period of recession or declining demand, firms have a greater incentive to collude with each other to raise prices. In explaining the motive to conspire as a plus factor, an American Bar Association ("ABA") Section of Antitrust Law publication describes "a text book example of an industry susceptible to efforts to maintain supracompetitive prices"⁴² as a market

⁴⁰ "Tri Marine Officially Opens State-of-the-Art Tuna Processing Facility in American Samoa," *TriMarine* (Jan. 30, 2014), *available at*

warehouse and distribution systems. Additionally, building and maintaining business relationships with up and downstream clients require considerable effort and time.").

http://www.trimarinegroup.com/news/press/STP_Inauguration_012415.html.

⁴¹ Campling, L. et al., "Market and Industry Dynamics in the Global Tuna Supply Chain," *Pacific Islands Forum Fisheries Agency* (2011), *available at*

https://www.ffa.int/system/files/Global%20Tuna%20Market%20%26%20Industry%20Dynamics _Part%201b.pdf, p. 171; *see also* U.S. International Trade Commission, Tariff Databases, Yearly Tariff Data 1997-2018, *available at* https://www.usitc.gov/tariff_affairs/tariff_databases.htm.

⁴² ABA Section of Antitrust Law (2010), *Proof of Conspiracy Under Federal Antitrust Laws*, p. 76, quoting from *In re Flat Glass Litigation*, 385 F.3d 350 (3d Cir. 2004).

that "was concentrated in a few large sellers, demand . . . was declining, and suppliers had excess capacity and high fixed costs. . . ."⁴³

43. As shown in Figure 1, data from the USDA shows that the consumption of packaged tuna in the United States has declined in the past 25 years. More specifically, following the peak in packaged tuna consumption of 3.9 pounds per capita in 1989, there has been a steady decline.⁴⁴





Source: U.S. Department of Agriculture, "Meat, poultry, fish, eggs and nuts" (updated 2017), available at https://www.ers.usda.gov/data-products/food-availability-per-capita-data-system/.

⁴³ ABA Section of Antitrust Law (2010), *Proof of Conspiracy Under Federal Antitrust Laws*, p. 75.

⁴⁴ U.S. Department of Agriculture (updated 2017), "Meat, poultry, fish, eggs and nuts," *available at* https://www.ers.usda.gov/data-products/food-availability-per-capita-data-system/.

44. I conclude that declining consumption provided an economic incentive for Defendants to form a price-fixing agreement.

45. Dr. Haider's report does not dispute my finding that data from the United States Department of Agriculture ("USDA") shows that the consumption of packaged tuna in the United States has declined in the past 25 years. Her report offers no rebuttal to my conclusions that (1) declining consumption provided an economic incentive for Defendants to form a price-fixing agreement and (2) the declining demand for packaged tuna constitutes common economic evidence supporting the existence of a conspiracy among Defendants.

C. Defendants' actions against their independent self-interests but for the existence of an agreement

46. I also conclude that common economic evidence can be used to show that Defendants engaged in actions contrary to their independent self-interests but for the existence of an agreement. The ABA Section of Antitrust Law has discussed the importance of evaluating conduct against firms' self-interest:

Courts discuss conduct against self-interest as a plus factor and the fundamental principle underlying many other kinds of conduct to which the plus factor label is attributed. The basic concept behind this factor is that, if the defendants have engaged in conduct that would further the interests of a conspiracy but would be against each defendant's interest if it were acting separately, the actions taken by the defendants are circumstantial proof of conspiracy. Such evidence has been described as "perhaps the strongest plus factor indicative of a conspiracy."⁴⁵

i. Actual packaged tuna prices exceed but-for prices

47. Economic evidence showing that prices are above but-for benchmark prices constitutes a plus factor. As Kovacic et al. discuss, such an analysis:

⁴⁵ ABA Section of Antitrust Law (2010), *Proof of Conspiracy Under Federal Antitrust Laws*, pp. 69-70, quoting from *Merck-Medco Managed Care v. Rite Aid Corp.*, No. 98-2847, 1999 WL 691840, at *10 (4th Cir. 1999).

requires that a reliable predictive econometric model be estimated for a benchmark, usually a time period, where conduct is thought to be noncollusive. The predictive model would account for those demand and cost factors specific to the product market that are not potentially manipulable by a cartel (and only those factors), and it would similarly account for industry characteristics that are not potentially manipulable by a cartel. This model would be used to predict prices during a time period in which there was a suspicion of collusion. If actual prices fall outside the range of prices that would have prevailed under the noncollusive benchmark, with the range determined by a specified high confidence level, then this outcome would constitute a super plus factor.⁴⁶

Kovacic et al. define a "super plus factor" as "actions or conduct that could occur in the presence of a collusive agreement but that are highly unlikely to occur in its absence."⁴⁷

48. In the present matter, the econometric analyses of common impact and damages presented in Sections IV and V constitute such a model. My econometric model uses well-accepted economic methodologies and common evidence to determine that Defendants' conduct caused all or almost all proposed Class members to incur injury-in-fact or antitrust impact. As Kovacic et al. state, this finding constitutes "actions or conduct that could occur in the presence of a collusive agreement but that are highly unlikely to occur in its absence."⁴⁸

ii. Defendants reduced output consistent with cartel conduct

49. Kovacic et al. delineate a plus factor as being present when a "subset of firms restricts production when prices and profits are relatively high or increasing."⁴⁹ As Kovacic et al. explain:

⁴⁶ Kovacic, W., Marshall, R., Marx, L., and White, H., "Plus Factors and Agreement in Antitrust Law," 110 Mich. L. Rev. 393, 420 (2011) (footnote omitted).

⁴⁷ *Id.*, at 428.

⁴⁸ Id.

⁴⁹ *Id.*, at 435.

If we think of an industry-wide demand curve for the product in question, a cartel elevates price and reduces quantity relative to what would be accomplished if the sellers simply act as oligopolists in a repeated game without explicit collusion. A reduction in quantity often does not require even the mention of quantity by cartel members. Commitment to an increase in price along with a commitment to a market share allocation rule is all that a cartel needs to implement a supply restriction—nothing needs to be discussed about supply because the market share allocation accomplishes the supply restriction.⁵⁰

50. As discussed in Section IV.E, my econometric analysis shows that the actual prices of large-sized packaged tuna are more than 10% above the estimated but-for prices during the damages period. This indicates that prices were elevated in the damages period above the levels that they would have been but for a price-fixing agreement and, thus, output was restricted below the level that would have existed but for the agreement.

iii. Defendants' communications and monitoring of one another reflect actions against self-interests but for the existence of an agreement

51. The ease with which a participant in a price-fixing agreement can observe prices, capacities, market shares, and quantities produced and sold influences the ability to maintain the agreement. As noted by Kovacic et al.: "Communication is a central part of the operation of a cartel."⁵¹ Kovacic et al. conclude that communications among rivals constitutes a plus factor, as they discuss:

Overall, information is a valuable commodity. For one seller to know information about a rival is to give that seller a competitive advantage. A competitor has no unilateral interest in disadvantaging itself relative to its rivals.

Suppose one seller knows the customers who purchased from another seller in the past quarter and knows the price and quantity of each transaction with each customer during the past quarter. The receiver will argue that it wants to know these things in a competitive marketplace and that it cannot be expected to ignore such

⁵⁰ *Id.*, at 420.

⁵¹ *Id.*, at 423.

information when it comes to its attention. However, why would the sender convey such information? Sloppiness and incompetence in the management of critical business information are not legitimate reasons. The sender may argue that it did not convey the information, but rather that each buyer gave this information to the receiver. But how would a buyer gain by conveying information to a nonawardee about the terms offered by an awardee? In the absence of direct evidence that such conveyances were made, it is reasonable to assume that the sender transmitted the information to the receiver. But the sender would have no unilateral self-interest in doing so. Thus, the motivation must be explicit collusion, and there must be an expectation of reciprocation.

With regard to firm-specific production information, again there is no reasonable explanation for such a conveyance by a noncollusive seller to another noncollusive seller. Unilateral knowledge of a rival's capacity utilization, inventory levels, or production costs will increase expected returns in any competitive bidding process. The conveyance of firm-specific production and sales information is important for monitoring compliance with many cartel agreements. For example, market share allocations require knowledge of exactly this kind of information, as well as the ability of cartel members to verify such information. Sometimes cartels will use trade associations, export associations, or outside consultants to convey this information among themselves.⁵²

52. Peer-reviewed research in economics mirrors the view of Kovacic et al. that the sharing of information between competitors constitutes strong evidence of a price-fixing conspiracy. For example, as stated by Clarke (1983): "If all industry firms are observed to pool information without paying each other compensation, they must be setting quantities cooperatively on the basis of the homogenized information. Hence information-pooling mechanisms like trade associations can be considered *prima facie* evidence that firms are illegally cooperating to restrict output."⁵³

53. In this regard, Bumble Bee's plea agreement with the DOJ states:

⁵² See, e.g., *id.*, at 423-24.

⁵³ Clarke, R. (1983), "Collusion and the Incentives for Information Sharing," *Bell Journal of Economics*, vol. 14, pp. 383-394, at 392 (footnote omitted).

In furtherance of the conspiracy, the defendant, through its officers and employees, engaged in conversations and discussions and attended meetings with representatives of other major packaged-seafood-producing firms. During these conversations, discussions, and meetings, agreements and mutual understandings were reached to fix, raise, and maintain the prices of packaged seafood sold in the United States. Defendant, through its officers and employees, negotiated prices with customers and issued price announcements for packaged seafood in accordance with the agreements and mutual understandings reached.⁵⁴

54. Similarly, the DOJ's plea agreement with Mr. Hodge of StarKist states:

During the relevant period, the defendant participated in a conspiracy with other persons and entities engaged in the manufacture and sale of packaged seafood, the primary purpose of which was to fix, raise, and maintain the prices of packaged seafood sold in the United States. In furtherance of the conspiracy, the defendant engaged in conversations and discussions and attended meetings with representatives of other major packaged-seafood-producing firms. During these conversations, discussions, and meetings, agreements and mutual understandings were reached to fix, raise, and maintain the prices of packaged seafood sold in the United States.⁵⁵

55. Consistent with these plea agreements, the evidence shows that Defendants communicated and exchanged confidential pricing information via telephone, e-mail, and inperson meetings between senior officials.⁵⁶

56. The economic evidence shows that each of the Defendant firms exchanged types of information regarding prices and production that would not be in their unilateral self-interest to exchange but for the existence of an agreement.

⁵⁴ U.S. v. Bumble Bee Food, LLC, Amended Plea Agreement, at ¶ 4.

⁵⁵ U.S. v. Hodge, Plea Agreement, at ¶ 4.

⁵⁶ See, e.g., COSI-CIV-000001786; BB_Civil_000012728; COSI-CIV-000001445; BB Civil 000005942; COSI-CIV-000001995; and COSI-CIV-000001432.

57. Dr. Haider's report fails to mention that Defendants' and their senior executives' plea agreements with the DOJ describe the exchange of confidential information in furtherance of their conspiracy. Dr. Haider's report also fails to mention that Defendants communicated and exchanged confidential pricing information via telephone, e-mail, and in-person meetings between senior officials.⁵⁷ Her report offers no rebuttal to my conclusions that (1) each of the Defendant firms exchanged types of information regarding prices and production that would not be in their unilateral self-interest to exchange but for the existence of an agreement and (2) these exchanges of confidential information constitute common economic evidence supporting the existence of a conspiracy among Defendants.

iv. Information exchanges occurred at high levels in the structural hierarchy of Defendant firms

58. The economic evidence shows that the information exchanges occurred at high levels in structural hierarchy of Defendant firms, which supports the inference that the information exchanges were used to facilitate collusive price increases.⁵⁸

59. In this regard, the DOJ's plea agreement with Bumble Bee states:

During the relevant period, the defendant, through its officers and employees, including *high-level personnel of the defendant*, participated in a conspiracy among major packaged-seafood-producing firms, the primary purpose of which was to fix, raise, and maintain the prices of packaged seafood sold in the United States.⁵⁹

60. The DOJ's finding is supported by the fact that the three individuals who to date

have pleaded guilty to price fixing held senior positions at their respective firms. As stated in Mr.

⁵⁷ See, e.g., COSI-CIV-000001786; BB_Civil_000012728; COSI-CIV-000001445; BB_Civil_000005942; COSI-CIV-000001995; and COSI-CIV-000001432.

⁵⁸ ABA Section of Antitrust Law (2012), Antitrust Law Developments, 7th ed., p. 14, n. 73.

⁵⁹ U.S. v. Bumble Bee Food, LLC, Amended Plea Agreement, at ¶ 4 (emphasis added).

61. Dr. Haider's report fails to mention that Defendants' exchanges of confidential information occurred at high levels in the structural hierarchy of the firms. Her report offers no rebuttal to my conclusions that these high-level exchanges of confidential information (1) support the inference that the information exchanges were used to facilitate collusive price increases and (2) constitute common economic evidence supporting the existence of a conspiracy among Defendants.

v. Defendants' pattern of simultaneous and nearly identical price increase announcements

62. Another channel for communications among cartel members is publicly announcing price changes. As Carlton and Perloff note: "Public availability of information can greatly simplify cartel enforcement. Publicly announcing price increases and decreases well in advance is one method of making price information available to all interested parties."⁶³ As Kovacic et al. state: "Sellers make price announcements to adjust buyers' expectations in a publicly

⁶⁰ U.S. v. Cameron, Plea Agreement, at \P 4.

⁶¹ U.S. v. Worsham, Plea Agreement, at ¶ 4.

⁶² U.S. v. Stephen L. Hodge, Plea Agreement, at ¶ 4.

⁶³ Carlton, D. and Perloff, J. (2005), *Modern Industrial Organization*, 4th ed., Boston, MA: Pearson Addison Wesley, p. 138.

observable way and, as a consequence, lower buyer resistance to price increases."⁶⁴ Kovacic et al.

explain:

Marshall, Marx, and Raiff characterize collusive price announcements in the vitamins industry as (1) made relatively more frequently than noncollusive price announcements; (2) occurring at somewhat regular intervals; (3) being gradual in the sense of involving relatively modest individual price increases; (4) typically involving "joint announcements," with one firm leading and others matching soon thereafter; and (5) typically having long lead times before the new price becomes effective.

The gradualism of price increases as well as the use of joint announcements and lead times before the effective date of the price increase each directly addresses buyer resistance. The value of gradualism is apparent in *Electrical & Mechanical Carbon & Graphite Products*, where cartel members faced buyer resistance because of the size of the price increase they announced. Joint announcements are valuable because if buyers observe that all the firms in an industry, or at least an important subset of firms in an industry, have announced identical price increases, they will be less likely to expect that aggressive price negotiations with the firms will be worthwhile. Lead times for the effective dates of public price announcements allow the cartel to monitor acceptance of the price increase and retract an announced increase that is heavily resisted by buyers before incurring disruptions in cartel market shares.⁶⁵

63. Defendants made price increase announcements with the same or similar effective dates. For example, Star Kist announced on March 2, 2011 that, effective May 30, it would implement higher prices for several products,⁶⁶ including large-sized packaged tuna products such as "Chunk Light Water 66.5oz" and "Solid White Water 66.5oz."⁶⁷ Then, on March 14, 2011, Bumble Bee announced list price increases for various products, including white meat tuna, light

⁶⁴ Kovacic, et. al, 110 Mich. L. Rev., at 418.

⁶⁵ Id., at 418-19 (footnotes omitted).

⁶⁶ COSI-CIV-000001809.

⁶⁷ COSI-CIV-000001445-1460, at 1460.

meat tuna, and specialty and value added items, with an effective date of May 29.⁶⁸ Similarly, effective June 1, 2011, COSI increased its list prices for various products, including "4800007087 - COS CHK LT WTR IMP 6/66.5" and "4800000262 - COS SLD WH WTR 24/12."⁶⁹

64. Dr. Haider's report fails to mention that Defendants' had a pattern of simultaneous and nearly identical price increase announcements. Her report offers no rebuttal to my conclusions that this pattern of simultaneous and nearly identical price increase announcements constitutes (1) a channel for communications among the alleged cartel members⁷⁰ and (2) common economic evidence supporting the existence of a conspiracy among Defendants.

vi. Defendants concealed their anticompetitive conduct

65. Cartel members have an incentive to conceal their coordinated price increases by intentionally making the price announcements appear different, avoiding direct communication right before price announcements, and providing pretextual explanations.

66. Defendants concealed their anticompetitive conduct in several ways, such as communicating via intermediaries⁷¹ and avoiding electronic transactions.⁷²

67. Dr. Haider's report fails to mention the fact that Defendants' concealed their anticompetitive conduct. Her report offers no rebuttal to my conclusion this concealment

⁶⁸ BB Civil 000155059-073, at 060 and 068.

⁶⁹ COSI-CIV-000059084-105, at 093-094.

⁷⁰ Carlton, D. and Perloff, J. (2005), *Modern Industrial Organization*, 4th ed., Boston, MA: Pearson Addison Wesley, p. 138; *see also* Kovacic, W., Marshall, R., Marx, L., and White, H. (2011), "Plus Factors and Agreement in Antitrust Law," *Michigan Law Review*, vol. 110, pp. 393-436, at 418-419.

⁷¹ See, e.g., COSI-CIV-000102150.

⁷² See, e.g., BB Civil 000154783-787, at 783.

constitutes common economic evidence supporting the existence of a conspiracy among Defendants.

D. Conclusion based on all plus factors

68. I understand that "courts emphasize that these plus factors should not be viewed in a vacuum but rather should be considered in their entirety as the backdrop against which the alleged behavior takes place."⁷³ As discussed by Kovacic et al., when multiple plus factors are present, the determination of whether there exist well-accepted economic methodologies and common evidence from which a fact-finder could determine the existence of an agreement can be made more precisely.⁷⁴

69. After considering all the plus factors jointly and the direct evidence that Defendants have pleaded guilty to fixing the prices of packaged tuna, I conclude that well-accepted economic methodologies and common evidence support the allegation that Defendants conspired to fix prices for packaged tuna within the United States. Given the failure of Dr. Haider's report to address any of the above analyses contained in my Opening Report, it is not surprising that her report fails to mention—much less rebut—my conclusion based on all the plus factors.

70. Finally, I conclude that there exist well-accepted economic methodologies and common evidence from which a fact-finder could determine the existence of an agreement among Defendants to fix prices for packaged tuna within the United States.

IV. CLASSWIDE IMPACT

71. In this section, I analyze whether well-accepted econometric analyses and common evidence can be used to determine whether the anticompetitive effects of Defendants' alleged

⁷³ ABA Section of Antitrust Law, (2012), *Antitrust Law Developments*, 7th ed., p. 11 (footnote omitted).

⁷⁴ See, e.g., Kovacic, et. al, 110 Mich. L. Rev., at 426-434.

agreement caused widespread effects to members of the proposed Class, causing harm to all or virtually all of them. My analysis proceeds in two steps. First, I determine whether common evidence and analyses can be used to determine whether the alleged agreement inflated prices to the Class above competitive levels in general. Second, I determine whether common evidence and analyses can be used to determine whether any such general price inflation would have a widespread effect on Class members, causing all or virtually all of them to pay more for at least one purchase of large-sized packaged tuna than they would have paid without the alleged agreement. I reach affirmative conclusions on both issues.⁷⁵

72. To determine whether Class members in general paid inflated prices as a result of the alleged agreement, the focus of my econometric analysis is whether and, if so, to what extent Defendants' alleged illegal actions caused Plaintiffs to pay higher prices for large-sized packaged tuna products than they would have paid but for the Defendants' alleged illegal actions.⁷⁶ To address this question, I first estimate to what extent, if any, Defendants' alleged illegal actions elevated their prices to Large Distributors ("overcharge estimation"). I then estimate to what extent, if any, the Large Distributors passed Defendants' price increases through to proposed Class members ("pass-through estimation").

73. In the rest of this section, I first describe the datasets used for my econometric analysis. Then I discuss my model specification and results for the overcharge estimation in Sections IV.B through IV.E and for the pass-through estimation in Section IV.F. Finally, in Section

⁷⁵ Dr. Haider does not understand the two-step methodology used in my Opening Report to show classwide impact. She mistakenly refers to the pass-through analysis as "the second step of [my] two-step methodology for showing class-wide impact." (Haider Report, ¶ 74). Instead, the pass-through analysis is part of the first step in determining whether the alleged agreement inflated prices to the Class.

⁷⁶ I reserve the right to further refine my analyses and opinions after reviewing any relevant lateproduced data or documents I receive.
IV.G, I further evaluate whether all or almost all proposed Class members were injured by the alleged conduct.

A. Datasets

74. For my overcharge and pass-through estimations, I rely on datasets produced by Bumble Bee, COSI, StarKist/Del Monte, Costco, Dot Foods, Sam's Club, Sysco, US Foods, and Walmart to calculate (1) sales prices and quantities of large-sized packaged tuna sold by Defendants and (2) sales and purchase prices and quantities of large-sized packaged tuna for each Large Distributor.

75. *Bumble Bee*. The Bumble Bee data consists of two parts. The first part of the data contains information on Bumble Bee's dollar sales and quantities sold by month, customer, and product for the time period from January 2002 through June 2008. The second part of the data contains information on Bumble Bee's dollar sales and quantities sold by transaction, customer, and product for the time period from June 29, 2008 through December 29, 2017.

76. *COSI*. COSI provided sales data for packaged tuna at the transaction level. The data contain information on COSI's dollar sales and quantities sold by transaction, customer, and product for the time period from January 2001 through December 2017.

77. *StarKist/Del Monte*. The StarKist/Del Monte data consists of two parts. Del Monte provided sales data for packaged tuna at the transaction level. The data contain information on Del Monte's dollar sales and quantities sold by transaction, customer, and product for the time period from January 2, 2002 through October 14, 2010. StarKist provided sales data for packaged tuna at the transaction level. The data contain information on StarKist's dollar sales, quantities sold, and discounts by transaction, customer, and product for the time period from March 11, 2010 through December 30, 2017.

34

78. *Costco*. Costco provided its sales and purchase data for packaged tuna. The data contain information on Costco's dollar sales and quantities by month, manufacturer, product, and state for Bumble Bee, COSI, and StarKist products for the time period from January 2002 through January 2018. The data also contain information on Costco's transaction level dollar purchases and quantities for Bumble Bee and COSI products for the time period from January 2007 through April 2017. According to Costco's sales data, Costco did not sell large-sized packaged tuna manufactured by Bumble Bee after March 2010.

79. *Dot Foods*. Dot Foods provided its sales and purchase data for packaged tuna. The data contain information on Dot Foods' transaction level dollar sales and quantities for COSI and StarKist products for the time period from January 2012 through November 2017. The data also contain information on Dot Foods' transaction level dollar purchase and quantities for COSI and StarKist products for the time period from January 2013 through November 2017. According to Dot Foods' transaction data, Dot Foods did not sell large-sized packaged tuna manufactured by Bumble Bee in the period covered by the data.

80. *Sam's Club*. Walmart provided Sam's Club's sales data for packaged tuna for the Illinois Brick Repealer states. The data contain information on Sam's Club's dollar sales and quantities by month, manufacturer, product, and state for Bumble Bee and StarKist products for the time period from January 2002 through September 2017. According to Sam's Club's sales data, Sam's Club did not sell large-sized packaged tuna manufactured by COSI in the period covered by the data.

81. *Sysco*. Sysco provided its sales and purchase data for packaged tuna. The data contain information on Sysco's transaction level sales and purchases for Bumble Bee, COSI, and StarKist products for the time period from January 2012 through December 2016.

35

82. US Foods. US Foods provided both purchase data and sales data at the transaction level for packaged tuna. The sales data contain information on US Foods' transaction level dollar sales and quantities sold for Bumble Bee, COSI, and StarKist products for the time period from December 2007 through December 2017. The purchase data contain information on US Foods' transaction level dollar purchases and quantities for Bumble Bee, COSI, and StarKist products for the time period from January 1998 through December 2017.

83. *Walmart.* Walmart provided its sales data for packaged tuna for the Illinois Brick Repealer states. The data contain information on Walmart's dollar sales and quantities by month, manufacturer, product, and state for Bumble Bee and StarKist products for the time period from January 2002 through September 2017. According to Walmart's sales data, Walmart did not sell large-sized packaged tuna manufactured by COSI in the period covered by the data.

B. Dummy variable regression methodology for overcharge estimation

84. I apply the well-known and widely accepted dummy variable regression methodology ⁷⁷ to estimate overcharges. The fundamental approach of the dummy variable regression methodology relies on comparing "prices in the impact period to available prices before and/or after the alleged period of impact (the 'control period'),"⁷⁸ while controlling for other factors that affect price differences. Thus, the empirical quantification of impact, if any, attributable to the alleged illegal conduct involves a comparison of the following: (1) actual prices

⁷⁷ See, e.g., ABA Section of Antitrust Law (2017), *Proving Antitrust Damages: Legal and Economic Issues*, 3rd ed. Ch. 6, Section F; McCrary, J. and Rubinfeld, D. (2014), "Measuring Benchmark Damages in Antitrust Litigation," *Journal of Econometric Methods*, vol. 3, pp. 63-74; and ABA Section of Antitrust Law (2014), *Econometrics: Legal, Practical, and Technical Issues*, 2nd ed., Ch. 12.

⁷⁸ McCrary, J. and Rubinfeld, D. (2014), "Measuring Benchmark Damages in Antitrust Litigation," *Journal of Econometric Methods*, vol. 3, pp. 63-74, at 63. The control period is also known as the "benchmark period."

during the period affected by the alleged illegal conduct (the "damages period") to (2) estimated but-for prices in the absence of the alleged illegal conduct in that period. Multiple regression analysis is, in my experience, the most common statistical methodology for analyzing common impact⁷⁹ and performing damages analyses.⁸⁰

85. I do not assume that buyers were injured in their purchases of large-sized packaged tuna products during the damages period. Rather, I utilize well-accepted statistical methods to test whether and, if so, by what amount proposed Class members paid higher prices for large-sized packaged tuna products than they would have paid but for Defendants' alleged illegal conduct.

86. The overcharges, if any, caused by Defendants' alleged illegal conduct depend on a comparison of prices between the benchmark and damages periods. Thus, price is specified as the dependent variable in the model. Price, therefore, is the variable on the "left-hand side" of the equation—the variable being related to the explanatory variables. In particular, the dependent variable for the model is the logarithm of price per ounce for large-sized packaged tuna products. The "right-hand side" or explanatory variables are described in Section IV.D.

87. I note that although Dr. Haider disputes a number of the details regarding how I implemented my econometric analysis, her report does not dispute my fundamental conclusion that the well-known and widely accepted dummy variable regression methodology can be used in the present case to determine whether proposed Class members were impacted by Defendants' alleged price-fixing agreement.

⁷⁹ ABA Section of Antitrust Law (2014), *Econometrics: Legal, Practical, and Technical Issues*, 2nd ed., Ch. 13, Section A. 1 ("Demonstrating Common Proof of Injury"), pp. 343-348.

⁸⁰ See, e.g., Rubinfeld, D. (2011), "Reference Guide on Multiple Regression," *Reference Manual on Scientific Evidence*, 3rd ed., pp. 303-357. "[A]ntitrust violations" are listed among types of cases for which "[r]egression analysis has been used most frequently." *Id.*, at 306 (footnote omitted).

88. After showing that common economic analyses and evidence can be used to demonstrate that the alleged conduct inflated prices for large-sized packaged tuna generally, I show they also can be used to show that all or almost all proposed Class members were injured by Defendants' alleged anticompetitive conduct. In particular, I show that common analyses and evidence can be used to demonstrate that all or almost all proposed Class members paid higher prices for large-sized packaged tuna products than they would have paid but for Defendants' alleged illegal actions (*see* Section IV.E).

C. Model specification for Overcharge Regressions

89. *Before-during approach*. I use the well-accepted "before-during" approach, ⁸¹ comparing prices for large-sized packaged tuna (1) before Defendants' allegedly anticompetitive conduct began and (2) during the period in which that allegedly anticompetitive conduct occurred.

90. Specifically, as summarized in Table 3, my model defines the following periods:

- The "benchmark" period. This period is treated as if it were unaffected by any illegal conduct. The estimated overcharge is primarily determined by differences in prices between the "benchmark" and "damages" periods. Based on the analysis in Section III, I define the benchmark period as (1) the start of Defendants' data (January 2001 for COSI and January 2002 for Bumble Bee and StarKist) through June 2008 for StarKist, August 2008 for COSI, and September 2008 for Bumble Bee and (2) January 2011 through May 2011.
- The "contaminated" periods. These periods are treated as if they were affected by some anticompetitive conduct (e.g., Bumble Bee and COSI coordinated with each

⁸¹ McCrary, J. and Rubinfeld, D. (2014), "Measuring Benchmark Damages in Antitrust Litigation," *Journal of Econometric Methods*, vol. 3, pp. 63-74, at 63-64.

other in fixing packaged tuna prices during the contaminated period from mid-2008 to 2010)⁸² or temporary shocks that cause the periods to not constitute clean benchmark periods. Contaminated periods are not treated as part of the damages period. Price observations in the "contaminated" periods do not have a direct effect on the estimated overcharge. Sales in the "contaminated" periods are not included in relevant sales for damages calculation. Specifically, based on the analysis in Section III, I define two "contaminated" periods: July 2008⁸³ through December 2010 and the post-damages period for January 2017 to present.

- The "damages" period. This period is treated as if illegal conduct occurred. Based on the analysis in Section III, I define the damages period as June 2011 through December 2016.
- D. Explanatory variables

i. Damages period indicator

91. To estimate the price effects of Defendants' allegedly anticompetitive conduct, I include an indicator variable for observations of large-sized packaged tuna products that were purchased during the damages period. The estimated coefficient of this indicator variable measures how much prices were elevated in percentage terms, if any, during the damages period, compared to the prices in the but-for world in the absence of the conspiracy.⁸⁴ I also include indicator

⁸² Defendant Tri-Union Seafoods LLC d/b/a Chicken of the Sea International's Second Supplemental Responses and Objections to Plaintiffs Second Set of Interrogatories— Interrogatory No. 1 (October 18, 2018), at 4.

⁸³ Specifically, as discussed in Section III, the contaminated period for StarKist begins in July 2008, for COSI in September 2008, and for Bumble Bee in October 2008.

⁸⁴ The estimate of the coefficient on this indicator variable does not represent the overcharge percentage. Instead, the overcharge percentage is calculated as: exp(estimate - (0.5 * std.

variables for the two contaminated periods to separate these observations from purchases that occurred in the benchmark and damages periods. To allow different overcharges for different Defendants, I interact these period indicator variables with Defendant dummy variables.⁸⁵

ii. Control variables

92. Prices of large-sized packaged tuna products depend on factors that affect the supply and demand of such products. My regression models controls for the following such factors.

93. *Cost variables*. Basic economics demonstrates that cost is an important determinant of price. In addition, evidence shows that Defendants set their prices based in part on costs during the previous quarter.⁸⁶ For example, price guidelines for the first quarter of 2012 would be determined around November 2011. Thus, I create a cost index with a three-month moving average lagged by two months which includes the following cost components:⁸⁷

- raw fish prices for albacore, skipjack, and yellowfin;
- prices for packaging materials (metal foil producer price index ("PPI") and flexible plastic PPI for pouches, steel cans PPI for cans, and corrugated paper PPI for pouches and cans);
- Thailand private sector manufacturer wages;
- diesel prices;

error²)) - 1. *See* Kennedy, P. (1981), "Estimation with Correctly Interpreted Dummy Variables in Semilogarithmic Equations," *American Economic Review*, vol. 71, p. 801.

⁸⁵ I also estimated the model with a common overcharge across Defendants and found similar results.

⁸⁶ See, e.g., Deposition of Darren Parsons (March 22, 2018), at 148:10 – 163:4 and Exhibit 10.

⁸⁷ I interact the cost index with fish types (light versus white tuna) and package types (can versus pouch) to allow the cost index to have different effects on prices for different fish types and package materials. I also collected more detailed information on raw fish prices and Defendants' cost structures and have updated my cost index in this report as compared to my Opening Report.

- city average electricity prices; and
- consumer price index for spices, seasonings, condiments, and sauces.

94. *Demand variables.* One factor that may affect prices of large-sized packaged tuna products is the overall level of economic activity. Other factors are individuals' income and consumption of canned fruits and vegetables. I control for such effects by including the following variables, which also are three-month moving averages lagged by two months:⁸⁸

- unemployment rate;
- disposable income; and
- consumption of canned fruits and vegetables.

95. *Customer, package, product, state, and seasonal fixed effects.* I also include fixed effects for all products and for all combinations of Large Distributors and Defendants observed in the data. Product fixed effects control for any price differences caused by differences in prices associated with any particular product (e.g., a 43 ounce pouch of light chunk tuna in water produced by COSI). Fixed effects for all combinations of Large Distributors and Defendants control for any price differences caused by differences associated with prices paid by any given Large Distributor to any given Defendant. Finally, I also include state and monthly fixed effects to control for any geographic and seasonal variations in prices.

96. I note that with respect to the implementation of the dummy variable regression methodology in my Opening Report, Dr. Haider does not claim in her report that my regression

⁸⁸ I interact all demand variables with dummy variables for light versus white tuna to allow all demand variables to have different effects on light versus white tuna.

analysis excludes any demand or cost factors that should be included.⁸⁹ Neither does Dr. Haider claim in her report that my regression analysis includes any demand or cost factors that should not be included.

E. *Estimated overcharges*

97. I use the well-accepted econometric methodologies and common evidence discussed above to determine whether the anticompetitive effects of Defendants' alleged agreement caused widespread effects to members of the proposed Class, causing harm to all or virtually all of them. As discussed above, my analysis proceeds in two steps. First, I determine whether common evidence and analyses can be used to determine whether the alleged agreement inflated prices to the Class above competitive levels in general. Specifically, I first estimate overcharges by Defendants to the Large Distributors, then I estimate the pass-through rates from Large Distributors to proposed Class members. Second, I determine whether common evidence and analyses can be used to determine whether any such general price inflation would have a widespread effect on Class members, causing all or virtually all of them to pay more for at least one purchase of large-sized packaged tuna than they would have without the agreement. I carry out step one in this section and Section IV.F and step two in Section IV.G.

98. In my regression analysis, I weight the observations by quantities (total ounces). I present the estimated overcharge for each Defendants' large-sized packaged tuna products in Table 3. All estimated overcharges are statistically significant at the 0.001 level. I find COSI, StarKist and Bumble Bee overcharged the Large Distributors by 17.5%, 19.0%, and 16.5%, respectively.

⁸⁹ With respect to one specific factor used in my Opening Report, i.e., the cost index, Dr. Haider argues that a different variable, cost of goods sold ("COGS"), should be used for Bumble Bee and COSI in place of my cost index.

In the next section, I evaluate the percentage of these overcharges that were passed through to Class members.

TABLE 3
OVERCHARGES AND DAMAGES

Defendant	Illinois Brick Revenue (\$)	Overcharge	Pass-Through Rate	Illinois Brick Damages (\$)
COSI	140,242,955	17.5%	95.2%	19,990,632
StarKist/Del Monte	104,617,493	19.0%	92.1%	15,608,085
Bumble Bee	20,970,503	16.5%	102.2%	3,022,001
Three Defendants Total	265,830,951			38,620,717

F. Pass through of prices by Distributors

99. To calculate the amount of Direct Purchaser overcharges passed through to proposed Class members, I employ a multivariate regression analysis ("Pass-Through Regressions"). In the Pass-Through Regressions, the dependent variable is the price paid by proposed Class members for large-sized packaged tuna sold by the Large Distributors (hereinafter "sales price").⁹⁰ The explanatory variable of interest is the price paid by Large Distributors (hereinafter "purchase price").⁹¹ The coefficient on this variable measures the pass-through rate. For example, if the estimated coefficient is 0.99, that shows that 99% of the overcharge was passed through to proposed Class members. To account for the fact that products sold by a distributor in one month, e.g., January, may have been purchased that month or in prior months, e.g., November, December, and January, I use a three-month moving average of the purchase price (i.e., the average of purchase prices for the current month and the prior two months). I note that Dr. Haider does not claim that my specification of the pass-through regressions is incorrect in her report.

100. Pass-through rates are estimated using variations in a Large Distributor's sales and purchase prices in the regressions. To compare price variations, I control for factors that cause variations in sales prices other than purchase prices. Thus, in the Pass-Through Regressions, I include product fixed effects (which capture any price differences across products), state fixed

⁹⁰ Both sales price and purchase price are prices per ounce in logarithms.

⁹¹ I use sales prices to a Large Distributor from Defendants' sales data when the Large Distributor's purchase data is unavailable for analysis. This is the case for Sam's Club and Walmart. For Costco, its purchase data covers a short period and does not cover StarKist products. Thus, I use Defendants' sales data to estimate the pass-through rate for Costco reported in Table 4. Using Costco's purchase data would predict a pass-through rate of 100%.

effects (which capture any price differences across states where the product was sold by the distributor), and customer fixed effects (which capture any price differences across customers).⁹²

101. Finally, as with the Overcharge Regressions, I weight observations by quantities in the Pass-Through Regressions. I only use observations in the 27 named states and the District of Columbia, as set forth in the definition of the *Cartwright Act Class*. I refer to these states as the "Illinois Brick Repealer" states. The results are similar when I use observations from all states. Table 4 presents the estimated pass-through rates for each of the six Large Distributors. The estimated pass-through rates range from 92% to 113%. All the estimated pass-through rates are statistically significant. These estimated pass-through rates can be multiplied by the estimated overcharge percentages (based on Defendants' data) to determine the overcharge percentages for proposed Class members.

Distributor	Pass-through Rate	Standard Error	T-statistic	p-Value	Adjusted R ²
Sysco	92%	0.00	563.60	0.00	0.97
Costco	101%	0.00	322.51	0.00	1.00
Walmart	113%	0.01	77.30	0.00	0.92
Sam's Club	103%	0.01	180.31	0.00	0.98
US Foods	92%	0.00	321.88	0.00	0.94
Dot Foods	94%	0.01	80.06	0.00	0.99

 TABLE 4

 PASS-THROUGH RATES FOR ILLINOIS BRICK REPEALER STATES

⁹² Customer information is only available for Dot Foods, US Foods, and Sysco. Sysco branches are identified in the data. Since branches are more detailed than states, I use branch fixed effects in place of state fixed effects.

102. The fact that several of the estimated pass-through rates exceed 100% is consistent with both economic theory and empirical work. Economic theory demonstrates that in some cases, an increase in cost or, equivalently, an increase in an excise tax can result in pass-through rates greater than 100 percent.⁹³ Additionally, economists have studied this phenomenon and found empirical evidence showing that excise taxes are overshifted in some cases, i.e., more than 100% of the excise tax is pass-through.⁹⁴

- G. Demonstrating common impact
 - *i.* Product-specific regressions and other analyses relying on common evidence

103. The regression models shown in Table 3 capture factors that affect prices utilizing all available transactions, and the models demonstrate that prices of large-sized packaged tuna products were elevated above competitive levels during the damages period. The models' statistical reliability and robustness based on the three Defendants' datasets lead me for several

⁹³ See, e.g., Weyl, E. and Fabinger, M. (2013), "Pass-through as an economic tool: Principles of incidence under imperfect competition," *Journal of Political Economy*, vol. 121, pp. 528-583; *see also* Young, D. and Bielińska-Kwapisz, A. (2002), "Alcohol taxes and beverage prices," *National Tax Journal*, pp. 57-73. ("[R]ecent extensions to the theory [of tax incidence] focusing on the implications of imperfect competition find that . . . the price of a taxed commodity can increase by more than the amount of the tax." *Id.*, at 58.).

⁹⁴ See, e.g., Delipalla, S., and O'Donnell, O. (2001), "Estimating tax incidence, market power and market conduct: The European cigarette industry," *International Journal of Industrial Organization*, vol. 19, pp. 885-908, at 904. ("Overshifting of the specific [or excise] tax is particularly marked – subtracting the 'multiplier effect,' a unit increase in tax is estimated to raise price by more than two."). *See also* Kenkel, D. (2005), "Are alcohol tax hikes fully passed through to prices? Evidence from Alaska," *American Economic Review*, vol. 95, pp. 273-277, at 276. ("This study of the Alaskan tax hike provides evidence that alcohol taxes are more than fully passed through to beverage prices."); Young, D., and Bielińska-Kwapisz, A. (2002), "Alcohol taxes and beverage prices," *National Tax Journal*, pp. 57-73 ("We find that beer, spirits, and (more weakly) wine taxes are over-shifted to retail prices: The estimates indicate that prices rise by significantly more than the rise in excise taxes.") *Id.*, at 70.).

reasons to conclude that all or almost all proposed Class members were injured by the alleged conduct.

104. *First*, for a given overcharge, the percentage of customers who had at least one overcharged transaction during the damage period depends, all else equal, on the extent of price variation among the Large Distributors. Holding this factor constant, the larger the overcharge, the larger will be the percentage of customers who suffered antitrust impact. Similarly, the higher the pass-through rate, the higher will be the overcharge, all else equal. Thus, the combination of (1) economically and statistically significant overcharges and (2) high and statistically significant pass-through rates supports the finding that all or almost all proposed Class members were injured by Defendants' alleged conduct.

105. The estimated overcharges in Table 3 are economically and statistically significant. Assuming the null hypothesis that Defendants' conduct caused no overcharges were correct, the probability of observing the data used in the regression is less than 0.001 for Bumble Bee, COSI, and StarKist. The 95% confidence intervals of the three estimated overcharges are 15.4% to 17.6%, 16.5% to 18.4%, and 17.7% to 20.4% for Bumble Bee, COSI, and StarKist, respectively.

106. Dr. Haider's report fails to mention—much less rebut—this economic analysis.

107. *Second*, in order to analyze the issue of classwide impact empirically, I estimate several modified versions of my overcharge regression model. In these modified versions, I allow overcharges to vary by product, by Large Distributor, by state, and by combinations of individual Defendants and individual Large Distributors.⁹⁵ As shown in Figure 2, the results demonstrate that

⁹⁵ There are a limited number of observations in either the benchmark period or the damages period for certain products, Large Distributors, states, or combinations of Defendants and Large Distributors. Estimates of overcharges for such products, Large Distributors, states, or combinations of Defendants and Large Distributors may be subject to random variabilities in the

Defendants' conduct increased the prices for individual products, Large Distributors, states, and combinations of individual Defendants and individual Large Distributors accounting for 99.6% – 100% of total sales in the damages period. Thus, given the positive pass-through rates discussed in Section IV.F above and in Figure 3 below, the results show that all or almost all proposed Class members were injured by Defendants' conduct.

data. The random variability at this level is one of the reasons that the models described in Section IV.E of this report are the most reliable for calculating proposed Class members' overcharges. The results illustrated in Figure 2 do not show that these customers in fact have no damages or were not impacted by the alleged conspiracy. In all likelihood, all Class members were harmed.

FIGURE 2 PERCENTAGE OF TOTAL DOLLAR SALES BY DEFENDANTS WITH POSITIVE AND STATISTICALLY SIGNIFICANT OVERCHARGES



108. Next, in order to analyze the issue of classwide impact empirically, I estimate several modified versions of my pass-through regression model. I allow pass-through rates to vary by product or by state for each Large Distributor.⁹⁶ As shown in Figure 3, the results demonstrate that the Large Distributors almost always pass-through increases in their purchase prices of large-sized packaged tuna. In particular, whether evaluated by product or by state, the percentages of total dollar sales by the Large Distributors that have positive and statistically significant pass-through rates range from 96.5% to 100%.

⁹⁶ There are a limited number of observations for certain products or states for given Large Distributors. Estimates of pass-through rates for such products or states for given Large Distributors may be subject to random variabilities in the data. The random variability at this level is one of the reasons that the models described in Section IV.F of this report are the most reliable for calculating proposed Class members' pass-through rates. The results illustrated in Figure 3 do not show that these customers in fact have no damages or were not impacted by the alleged conspiracy. In all likelihood, all Class members were harmed.





109. The fact that both overcharges and pass-through rates are positive and statistically significant for 96.5% - 100% of total sales across products and states for sales of large-sized packaged tuna products supports the finding that all or almost all proposed Class members were injured by Defendants' alleged anticompetitive conduct.

110. *Third*, as discussed in Section II.B, Large Distributors purchase packaged tuna produced by Defendants, and Large Distributors in turn sell the products to proposed Class members. The Large Distributors do not alter the packaged tuna products they purchase from Defendants. Nor do the Large Distributors use the packaged tuna products as an input to the production of some other products. When a product is not altered by a downstream distributor, classwide impact can more readily be ascertained.⁹⁷

111. For example, suppose there were an alleged widget cartel that sold widgets for \$0.01 per unit, and suppose downstream buyers used those widgets as an input to produce a final product that sold for \$1,000. In such a case, buyers of the final product likely would face difficulties in accurately determining the effect, if any, of the alleged widget cartel on the prices they paid for the final product.

112. Dr. Haider's report fails to mention—much less rebut—this economic analysis.

113. *Fourth*, the Large Distributors operate in competitive industries. For example, as stated by Costco:

⁹⁷ See, e.g., B.W.I. Custom Kitchen v. Owens-Illinois, Inc., 191 Cal.App.3d 1341, 1352-53 (Ct. App. 1987). ("Where the product in question is ultimately sold to the consumer, and is largely unchanged in form from the price-fixing manufacturer to the indirect purchaser, assessing whether the manufacturer's overcharges were passed on is less difficult. Plaintiff and class members herein bought the price-fixed item itself, empty glass containers, from a middleman. The effects of the price-fixing were not obscured by substantially altering or adding to the item received from the manufacturer. Therefore, a class should be able to show on a generalized basis that its members absorbed at least some portion of the alleged overcharges.").

Our industry is highly competitive, based on factors such as price, merchandise quality and selection, location, convenience, distribution strategy, and customer service. We compete on a worldwide basis with global, national, and regional wholesalers and retailers, including supermarkets, supercenters, internet retailers, gasoline stations, hard discounters, department and specialty stores, and operators selling a single category or narrow range of merchandise. Wal-Mart, Target, Kroger, and Amazon.com are among our significant general merchandise retail competitors. We also compete with warehouse club operations (primarily Wal-Mart's, Sam's Club, and BJ's Wholesale Club), and nearly every major U.S. and Mexico metropolitan area has multiple club operations.⁹⁸

114. Similarly, US Foods states:

The U.S. foodservice distribution industry is highly competitive. Our largest competitor has greater financial and other resources than we do. Furthermore, there are a large number of local and regional distributors. These companies often align themselves with other smaller distributors through purchasing cooperatives and marketing groups. The goal is to enhance their geographic reach, private label offerings, overall purchasing power, cost efficiencies, and ability to meet customer distribution requirements. These distributors also rely on local presence as a source of competitive advantage, and they may have lower costs and other competitive advantages due to geographic proximity. Additionally, adjacent competition, such as cash-and-carry operations, commercial wholesale outlets, club stores, and grocery stores, continue to serve the commercial foodservice market. We also experience competition from online direct food wholesalers, such as Amazon.com. We generally do not have exclusive service agreements with our customers, and they may switch to other suppliers that offer lower prices, differentiated products, or customer service that is perceived to be superior. The cost of switching suppliers is very low, as are the barriers to entry into the U.S. foodservice distribution industry. We believe most purchasing decisions in the U.S. foodservice distribution industry are based on the quality and price of the product, plus a distributor's ability to completely and accurately fill orders and provide timely deliveries.

Increased competition has caused the U.S. foodservice distribution industry to change, as distributors seek to lower costs, further increasing pressure on the industry's profit margins. Heightened competition among our suppliers, significant

⁹⁸ Costco Wholesale Corporation 10-K (FYE September 3, 2017), *available at* https://www.sec.gov/Archives/edgar/data/909832/000090983217000014/cost10k90317.htm.

pricing initiatives, or discount programs established by competitors, new entrants, and trends toward vertical integration could create additional competitive pressures that reduce margins and adversely affect our business, financial condition, and results of operations.⁹⁹

115. Sysco has expressed similar conclusions:

We believe there are a large number of companies engaged in the distribution of food and non-food products to the foodservice industry in the United States (U.S.). Our customers may also choose to purchase products directly from wholesale or retail outlets, including club, cash and carry and grocery stores, online retailers, or negotiate prices directly with our suppliers. Online retailers and e-commerce companies are also participants in the foodservice industry. While we compete primarily in the U.S. with local and regional distributors, some organizations compete with us on a multi-region basis. In addition, these local, regional, and multi-regional distributors can create purchasing cooperatives and marketing groups to enhance their competitive abilities by expanding their product mix, improving purchasing power, and extending their geographic capabilities. We believe that the principal competitive factors in the foodservice industry are effective customer contacts, the ability to deliver a wide range of quality products and related services on a timely and dependable basis, and competitive prices. Our customers are accustomed to purchasing from multiple suppliers and channels concurrently. Product needs, service requirements, and price are just a few of the factors they evaluate when deciding where to purchase. Customers can choose from many broadline foodservice distributors, specialty distributors that focus on specific categories such as produce, meat or seafood, other wholesale channels, club stores, cash and carry stores, grocery stores, and numerous online retailers. Since switching costs are very low, customers can make supplier and channel changes very quickly. There are few barriers to market entry. Existing foodservice competitors can extend their shipping distances and add truck routes and warehouses relatively quickly to serve new markets or customers.¹⁰⁰

116. Walmart has similarly stated:

⁹⁹ US Foods Holding Corp. 10-K (FYE December 30, 2017), *available at* https://www.sec.gov/Archives/edgar/data/1665918/000156459018003495/usfd-10k_20171230.htm.

¹⁰⁰ Sysco Corporation 10-K (FYE July 1, 2017), *available at* https://www.sec.gov/Archives/edgar/data/96021/000009602117000120/syy201710-k.htm.

Walmart U.S. competes with both physical retailers operating discount, department, retail, and wholesale grocers, drug, dollar, variety, and specialty stores, supermarkets, hypermarkets, and supercenter-type stores, and digital retailers, as well as catalog businesses. We also compete with others for desirable sites for new or relocated retail units.

Our ability to develop, open, and operate units at the right locations and to deliver a customer-centric omni-channel experience largely determines our competitive position within the retail industry. We employ many programs designed to meet competitive pressures within our industry. These programs include the following:

- [Everyday Low Prices]: our pricing philosophy under which we price items at a low price every day so our customers trust that our prices will not change under frequent promotional activity;
- [Everyday Low Cost]: everyday low cost is our commitment to control expenses so our cost savings can be passed along to our customers;
- Rollbacks: our commitment to pass cost savings on to the customer by lowering prices on selected goods;
- Savings Catcher, Save Even More, and Ad Match: strategies to meet or be below a competitor's advertised price;
- Walmart Pickup: customer places order online and picks it up for free from a store. The merchandise is fulfilled through our distribution facilities;
- Pickup Today: customer places order online and picks it up at a store within four hours for free. The order is fulfilled through existing store inventory;
- Online Grocery: customer places grocery order online and has it delivered to home or picks it up at one of our participating stores or remote locations; and
- Money Back Guarantee: our commitment to ensure the quality and freshness of the fruits and vegetables in our stores by offering our customers a 100 percent money-back guarantee if they are not satisfied.

We offer a broad assortment of merchandise that provides one-stop shopping, instock levels that give our customers confidence that we will have the products they need and operating hours that allow customers to shop at their convenience. In addition, our eCommerce capabilities, including omni-channel transactions that involve both an eCommerce platform and a physical format, are important factors in our competition with other retailers.¹⁰¹

117. Sam's Club (a subsidiary of Walmart) also operates in a competitive industry. As noted above, Costco states in its SEC Form 10-K: "Our industry is highly competitive, based on factors such as price, merchandise quality and selection, location, convenience, distribution strategy, and customer service. . . . We also compete with warehouse club operations (primarily Wal-Mart's, Sam's Club, and BJ's Wholesale Club), and nearly every major U.S. and Mexico metropolitan area has multiple club operations."¹⁰²

118. Finally, Dot Foods states:

Food manufacturers are experts at product development, production and marketing, but their transportation systems are only set up to efficiently sell full truckloads of their products. In the United States, there are more than 15,000 distributors. Many of them are not large enough to regularly order from manufacturers in truckload quantities, or do not want to warehouse large quantities for long periods.

The answer is redistribution. Dot Foods buys full truckloads from 930 manufacturers and consolidates their products in nine distribution centers across the country. Then we resell these products in less-than-truckload (LTL) quantities to distributors on a weekly basis. There is normally no extra cost to the distributor when buying from Dot, and manufacturers compensate us to handle distribution of their costly LTL orders. It's a win-win for everybody along the food supply chain.¹⁰³

119. Basic economic theory demonstrates that the percentage of a given cost increase

passed through by a firm in the form of higher prices depends on the competitiveness of the

¹⁰¹ Walmart Inc. 10-K (FYE January 31, 2018), available at

https://www.sec.gov/Archives/edgar/data/104169/000010416918000028/wmtform10-kx1312018.htm.

¹⁰² Costco Wholesale Corporation 10-K (FYE September 3, 2017), *available at* https://www.sec.gov/Archives/edgar/data/909832/000090983217000014/cost10k90317.htm.

¹⁰³ Dot Foods, "What We Do," available at http://www.dotfoods.com/about-dot/what-we-do/.

industry in which the firm competes.¹⁰⁴ In particular, the more competitive is an industry, the higher is the pass-through rate.¹⁰⁵ Given that the Large Distributors operate in competitive industries, basic economic theory shows that they would pass through a high percentage of any increases in the prices of large-sized packaged tuna products.

120. Dr. Haider's report fails to mention—much less rebut—this economic analysis.

121. *Fifth, and finally*, Costco, Sam's Club, and Walmart generally do not charge individualized prices to different customers for the same product sold at the same time. In other words, Costco, Sam's Club, and Walmart generally charge posted prices and do not engage in price discrimination. For example, Costco states: "We operate membership warehouses based on the concept that offering our members low prices on a limited selection of nationally branded and private-label products in a wide range of merchandise categories will produce high sales volumes and rapid inventory turnover. . . . Our strategy is to provide our members with a broad range of high-quality merchandise at prices we believe are consistently lower than elsewhere."¹⁰⁶ Walmart states: "Leading on price is designed to earn the trust of our customers every day by providing a broad assortment of quality merchandise and services at everyday low prices ('EDLP'). EDLP is our pricing philosophy under which we price items at a low price every day so our customers trust

¹⁰⁴ Ritz, R. (2017), "Oligopolistic Competition and Welfare," *Handbook of Game Theory and Industrial Organization*, L. Corchon and M. Marini (eds.), Edward Elgar; *see also* Reny, P., Wilkie, S., and Williams, M. (2012), "Tax Incidence Under Imperfect Competition: Comment," *International Journal of Industrial Organization*, vol. 30, pp. 399-402.

 105 *Id*.

¹⁰⁶ Costco Wholesale Corporation 10-K (FYE September 3, 2017), *available at* https://www.sec.gov/Archives/edgar/data/909832/000090983217000014/cost10k90317.htm.

that our prices will not change under frequent promotional activity."¹⁰⁷ Finally, Walmart states: "[Everyday Low Prices] is our pricing philosophy under which we price items at a low price every day so our customers trust that our prices will not change under frequent promotional activity."¹⁰⁸

122. Dr. Haider's report fails to mention—much less rebut—this economic analysis.

ii. Class-member-specific regressions

123. For all the reasons discussed above, the regressions shown in Table 3 using all the available data provide the most reliable models of classwide impact. As a further test of whether all or almost all proposed Class members paid higher prices for large-sized, packaged tuna during the alleged damages period than they would have paid but for Defendants' alleged illegal actions, I adapt my Overcharge Regression model to include class-member-level fixed effects and apply it directly to Large Distributors' data to evaluate overcharges for each proposed Class member in the data. Final customers are identified in two Large Distributors' datasets available to me: Sysco and US Foods data. As noted in ¶ 15, among the Large Distributors, the sales share of large-sized packaged tuna produced by Defendants equals approximately 62% for Sysco and US Foods combined.¹⁰⁹

124. I evaluate whether these models, which control for differences among proposed Class members, support my fundamental conclusion that Defendants' alleged illegal conduct had a common impact on all or almost all members of the proposed Class. To accomplish this, I use

¹⁰⁷ Walmart Inc. 10-K (FYE January 31, 2018), available at

https://www.sec.gov/Archives/edgar/data/104169/000010416918000028/wmtform10-kx1312018.htm.

 $^{^{108}}$ *Id*.

¹⁰⁹ Walmart, Sam's Club, and Costco's data do not contain customer information. Dot Foods' sales data starts in January 2012 and, therefore, contains no benchmark period for applying my Overcharge Regressions.

these models to predict but-for prices and compare those prices to the actual prices paid for each transaction of each customer in the data during the damage period.¹¹⁰

125. Using the Sysco data, there are a total of 26,589 unique customer identifiers in the damages period in the data to account for any differences in individual customer characteristics that may affect prices paid by individual customers. After comparing actual and but-for prices for each customer's transactions during the damage period, I find that more than 99.3% of customers had at least one overcharged transaction during the damage period.¹¹¹ These damaged customers account for 99.95% of Sysco's sales of large-sized packaged tuna produced by Defendants in the damages period. Furthermore, proposed class representatives identified in the Sysco data with purchases in the damages period in the Illinois Brick Repealer states had at least one overcharged transaction during the damage period.

126. Using the US Foods data, there are a total of 26,391 unique customer identifiers in the damages period in the data to account for any differences in individual customer characteristics that may affect prices paid by individual customers. After comparing actual and but-for prices for each customer's transactions during the damage period, I find that more than 99.5% of customers

¹¹⁰ Specifically, I first use the regression model to predict the logarithm of the but-for price for each transaction in the damages period. I then compare it with the logarithm of the actual price.

¹¹¹ With respect to the less than 1% of customers who had no transactions with positive overcharges in my analysis, random variability at the customer and transaction level is most likely responsible for that result. The model does not show that these customers in fact have no damages or were not impacted by the alleged conspiracy. In all likelihood, all Class members were harmed. Evidence of this conclusion includes that the apparently unharmed Class members were among the smallest purchasers—the ones least likely to have the market power to avoid paying overcharges and the ones most likely to incorrectly appear not have been harmed because of statistical noise and a small dataset of purchases. In fact, 98% of these customers had ten or fewer transactions. The random variability at this level is one of the reasons that the models described in Section IV.E of this report are the most reliable for calculating Class members' overcharges.

had at least one overcharged transaction during the damage period.¹¹² These damaged customers account for 99.98% of US Foods' sales of large-sized packaged tuna produced by Defendants in the damages period. Furthermore, proposed class representatives identified in the US Foods data with purchases in the damages period in the Illinois Brick Repealer states had at least one overcharged transaction during the damage period.

127. In sum, the customer-level fixed effects regressions for Sysco and US Foods support my conclusion that all or almost all proposed Class members were injured by Defendants' alleged anticompetitive conduct. I estimate the percentage of customers that had at least one overcharged transaction during the damages period by Large Distributor. Since a proposed Class member who had no overcharged transaction during the damages period in a given Large Distributor's data may have at least one overcharged transaction during the damages period in a nother Large Distributors' data, I would expect the percentage of customers that had at least one overcharged transaction during the damages period *across* Large Distributors would be even higher than the results by Large Distributor. In other words, the probability that a proposed Class member falls in the less-than-1%-no-overcharged-transaction category for *every* Large Distributors is likely to be substantially smaller than 1%.

¹¹² With respect to the less than 1% of customers who had no transactions with positive overcharges in my analysis, random variability at the customer and transaction level is most likely responsible for that result. The model does not show that these customers in fact have no damages or were not impacted by the alleged conspiracy. In all likelihood, all Class members were harmed. Evidence of this conclusion includes that the apparently unharmed Class members were among the smallest purchasers—the ones least likely to have the market power to avoid paying overcharges and the ones most likely to incorrectly appear not have been harmed because of statistical noise and a small dataset of purchases. In fact, 99% of these customers had ten or fewer transactions. The random variability at this level is one of the reasons that the models described in Section IV.E of this report are the most reliable for calculating Class members' overcharges.

128. Moreover, the results I found for Sysco and US Foods likely hold for Costco, Dot Foods, Sam's Club, and Walmart for several reasons.

129. *First*, as discussed in ¶¶ 107-109, the fact that both overcharges and pass-through rates are positive and statistically significant for 96.5% - 100% of total sales across products and states for large-sized packaged tuna products supports the finding that all or almost all proposed Class members were injured by Defendants' alleged anticompetitive conduct.

130. Second, as discussed in ¶¶ 104-105, for a given estimated overcharge, the percentage of customers who had at least one overcharged transaction during the damage period depends, all else equal, on the extent of price variation among the Large Distributors. Holding this factor constant, the larger the overcharge, the larger will be the percentage of customers who suffered antitrust impact. Similarly, the higher the pass-through rate, the higher will be the overcharge, all else equal. Thus, the combination of (1) economically and statistically significant overcharges and (2) high and statistically significant pass-through rates supports the finding that all or almost all proposed Class members were injured by Defendants' alleged conduct.

131. Moreover, with respect to the extent of price variation among the Large Distributors, the evidence suggests that Costco, Sam's Club, and Walmart have lower price variations than Sysco and US Foods (see ¶ 120). Sysco and US Foods also have lower pass-through rates than Costco, Dot Foods, Sam's Club, and Walmart (see Table 4). Therefore, the customer-level fixed effects regressions for Sysco and US Foods are likely conservative estimates of the percentages of Costco, Dot Foods, Sam's Club, and Walmart customers who had at least one overcharged transaction during the damage period.

132. *Third*, as discussed in ¶¶ 112-119, Large Distributors operate in competitive industries, and basic economic theory shows that the percentage of a given cost increase passed

62

through by a firm in the form of higher prices depends on the competitiveness of the industry in which the firm competes.¹¹³ In particular, the more competitive is an industry, the higher is the pass-through rate.¹¹⁴ Given that the Large Distributors operate in a competitive industries, basic economic theory shows that they would pass through a high percentage of any increases in the prices of large-sized packaged tuna products.

V. CLASSWIDE DAMAGES

133. Using the estimated overcharges discussed in Section IV.E and estimated passthrough rates in Section IV.F, total damages and damages calculated separately for each Defendant are reported in Table 3.¹¹⁵ Damages equal (a) actual revenues paid by proposed Class members multiplied by (b) the product of the overcharge percentage and pass-through rate divided by (c) (1 + overcharge percentage × pass-through rate).¹¹⁶ I calculate the actual revenues paid by proposed Class members using the Large Distributors' total sales, excluding sales between Large Distributor to avoid double counting.¹¹⁷ Total damages equal \$38,620,717, and damages for COSI, StarKist,

¹¹⁴ *Id*.

¹¹³ Ritz, R. (2017), "Oligopolistic Competition and Welfare," *Handbook of Game Theory and Industrial Organization*, L. Corchon and M. Marini (eds.), Edward Elgar; *see also* Reny, P., Wilkie, S., and Williams, M. (2012), "Tax Incidence Under Imperfect Competition: Comment," *International Journal of Industrial Organization*, vol. 30, pp. 399-402.

¹¹⁵ Dot Foods, Walmart, Sam's Club, and Costco made most of those purchases directly from Defendants. Sysco and US Foods made the majority of their purchases directly from Defendants. Sysco and US Foods also bought a significant portion of their large-sized packaged tuna through Dot Foods. For the portion of Sysco (or US Foods) purchases through Dot Foods, I use the product of Sysco (or US Foods) pass-through rate and Dot Foods pass-through rate as the relevant pass-through rate in calculating the overcharges and damages to proposed Class members.

¹¹⁶ To calculate total damages, I use Large Distributors' actual revenues as weights to average pass-through rates across Large Distributors.

¹¹⁷ I remove all inter-Distributor sales identified in the Large Distributors' data. The damages period covers 67 months (June 2011 through December 2016). Dot Foods' sales data only covers

and Bumble Bee equal \$19,990,632, \$15,608,085, and \$3,022,001, respectively. Based on my common impact and damages analysis, all class representatives have been damaged.

134. Dr. Haider does not claim that the method I used to calculate classwide damages using estimated overcharges and pass-through rates is incorrect. I understand that the Court may rule that Rhode Island Class Members may not be able to recover for purchases made before 2013. The methodologies and models used in my analysis would permit me to calculate impact and aggregate damages after making this adjustment. If so, any resulting adjustments would have *de minimis* effects.

VI. RESPONSES TO THE REPORT OF DR. HAIDER

135. In order to present as thorough a summary as possible in this merits report, I respond in this section to criticisms that Defendants and their expert Dr. Haider have made of my prior impact and damages analyses based on the methodology and models used in this report.

A. Summary of responses to the report of Dr. Haider

136. Dr. Haider's report contains six primary conclusions. Each of them is incorrect.

137. *First*, Dr. Haider uses data from non-Defendant vendors to show that, after controlling for supply and demand factors, her regression shows that those non-Defendant vendors raised their prices in the damages period. She asserts that this result means my finding (i.e., that after controlling for supply and demand factors, Defendants raised their prices in the damages period) must be caused by some non-cartel-related factor(s), which she does not identify.

138. This conclusion in Dr. Haider's report is incorrect. Suppose, *arguendo*, that after controlling for supply and demand factors, non-Defendant vendors did raise their prices in the

⁶⁰ months (January 2012 through December 2016) of the damages period. I multiply Dot Foods' total sales in the damages period by 67/60 to account for the missing seven months of sales.

damages period. This outcome would be entirely consistent with the well-known "umbrella effect,"¹¹⁸ which Dr. Haider fails to recognize. In the context of an alleged cartel, when the price of a product sold by the cartel increases, the price of substitute products not sold by the cartel also will increase as buyers switch to those products. Dr. Haider's analysis merely provides empirical evidence that the umbrella effect exists in the present case.

139. In addition, over \$150 million of the sales by non-Defendant vendors were products manufactured by Defendants. These sales would be subject to the price-fixing conspiracy in this case and would be expected to reflect overcharges.

140. *Second*, Dr. Haider argues that I ignored the supplies of large-sized packaged tuna sold by non-Defendant vendors. She argues that since the six Large Distributors¹¹⁹ and proposed Class members purchased tuna from non-Defendants, competitive pressure from non-Defendants may have made it difficult for Defendants to charge anticompetitive prices to some Class members.

141. This conclusion in Dr. Haider's report is incorrect. Her report fails to acknowledge the elementary economics of prices. Prices convey information to buyers and sellers regarding the relative value of resources. In particular, prices convey information to buyers (such as Sysco, US Foods, and proposed Class members) regarding the relative availability of products from rival

¹¹⁸ See, e.g., Inderst, R., Maier-Rigaud, F., and Schwalbe, U. (2014), "Umbrella Effects," *Journal of Competition Law and Economics*, vol. 10, pp. 739-763, at 740. ("Umbrella effects typically arise when price increases lead to a diversion of demand to substitute products. Because successful cartels typically reduce quantities and increase prices, this diversion leads to a substitution away from the cartels' products toward substitute products produced by cartel outsiders. As we discuss in this article, the increased demand for substitutes typically leads to higher prices for the substitute products.").

¹¹⁹ "Large Distributors" are Costco Wholesale Corporation ("Costco"), Dot Foods, Inc. ("Dot Foods"), Sam's Club, Inc. ("Sam's Club," a subsidiary of Walmart, Inc.), Sysco Corporation ("Sysco"), US Foods Holding Corp. ("US Foods"), and Walmart, Inc. ("Walmart").

sellers. The observed market prices charged by Defendants and the six Large Distributors account for the competitive effects of non-Defendant vendors.¹²⁰

142. Moreover, umbrella effects, which empirically exist in the present case according to Dr. Haider's analysis, imply that non-Defendants' prices increased when Defendants raised their prices. Such price increases by non-Defendant vendors would reduce, all else equal, the competitive effects of their sales on prices charged by Defendants.

143. In addition, as noted above, over \$150 million of the sales by non-Defendant vendors were products manufactured by Defendants. Thus, all the market share calculations, exhibits, and figures in Section V.C of Dr. Haider's report are fundamentally flawed.

144. *Third*, Dr. Haider argues that my results are dependent on how different time periods (i.e., benchmark, contaminated, and damages periods) are defined, and I did not offer valid economic justifications for those defined time periods.

145. This conclusion in Dr. Haider's report is incorrect. My Opening Report provides detailed citations to economic evidence supporting the definitions of the benchmark, contaminated, and damages periods. Moreover, this evidence has been bolstered by COSI's recent second supplemental responses to Plaintiffs' interrogatories,¹²¹ and StarKist's recent guilty plea.¹²²

¹²⁰ See, e.g., Sexton, R. (2015), Exploring Macroeconomics, 7th ed., Cengage Learning, p. 139.

¹²¹ Defendant Tri-Union Seafoods LLC d/b/a Chicken of the Sea International's Second Supplemental Responses and Objections to Plaintiffs Second Set of Interrogatories— Interrogatory No. 1 (October 18, 2018), at 4.

¹²² U.S. Department of Justice, "StarKist Co. Agrees to Plead Guilty for Price Fixing," (October 18, 2018), *available at* https://www.justice.gov/opa/pr/starkist-co-agrees-plead-guilty-price-fixing.

146. *Fourth*, Dr. Haider claims that in my regression analysis of overcharges, I should have used Defendants' accounting costs, rather than market input prices. She finds that when Defendants' accounting costs are used, overcharges are lower, but still positive and significant.

147. This conclusion in Dr. Haider's report is incorrect. My report uses market prices of inputs. These are the correct input prices to use in a regression model in which Defendants' sales prices are explained by factors that shift market demand and supply. In contrast, a Defendant's accounting costs reflect the dollar values of its inventories and sales, which are themselves influenced by the market price of tuna. Thus, Defendants' accounting costs are "endogenous" and should not be used in the regression analysis. Defendants' accounting costs are not factors that shift market supply.

148. *Fifth*, Dr. Haider claims that the methodology used in my Class-member-specific regressions "assumes the same or uniform overcharge for all CFP purchasers. . . . and that either all purchasers sustained an overcharge or none did—[Dr. Williams'] approach does not allow for the possibility of no overcharge for *some* members of the proposed class."¹²³

149. This conclusion in Dr. Haider's report is incorrect. My approach allows for the "possibility of no overcharge for *some* members of the proposed class"¹²⁴ since my Class-member-specific regressions find that less than 100% of proposed Class members paid at least one overcharge. My results show that 99.3% of Sysco's customers and 99.5% of US Foods' customers were overcharged.¹²⁵ Dr. Haider does not understand my Class-member-specific regressions.

¹²³ Haider Report, ¶ 67 (emphasis in original).

¹²⁴ Haider Report, ¶ 67 (emphasis in original).

¹²⁵ Expert Report of Dr. Michael A. Williams (May 29, 2018) (hereinafter "Williams Opening Report"), ¶¶ 101-102. As noted in my Opening Report, with respect to the less than 1% of customers who had no transactions with positive overcharges in my analysis, random variability at the customer and transaction level is most likely responsible for that result. The model does

150. *Sixth*, Dr. Haider claims that my "pass-through regression models do not actually test whether an alleged overcharge was passed through to CFP purchasers. Instead, [I] test[] the more general proposition that any cost change incurred by the selected intermediaries (regardless of whether it included an alleged overcharge) was, on average, passed through downstream."¹²⁶

151. This conclusion in Dr. Haider's report is incorrect. The Large Distributors, like all firms, set their retail prices to maximize their profits. A given increase in the wholesale price of a given type of large-sized packaged tuna leads to the same change in a Large Distributor's profit-maximizing retail price regardless of the cause of the increase in the wholesale price. I am not aware of any textbook or peer-reviewed article in the field of industrial organization that claims otherwise.

152. Finally, my pass-through regression analysis applies the standard methodology used in the antitrust literature.¹²⁷ I understand that Courts have certified numerous classes based in part on the expert testimony of plaintiffs' damages experts who have presented pass-through regression analyses using the same methodology.¹²⁸

not show that these customers in fact have no damages or were not impacted by the alleged conspiracy. In all likelihood, all Class members were harmed. Evidence of this conclusion includes that the apparently unharmed Class members were among the smallest purchasers—the ones least likely to have the market power to avoid paying overcharges and the ones most likely to incorrectly appear not have been harmed because of statistical noise and a small dataset of purchases. In fact, more than 98% of these customers had ten or fewer transactions. The random variability at this level is one of the reasons that the models described in Section IV.E of my Opening Report are the most reliable for calculating Class members' overcharges.

¹²⁶ Haider Report, ¶ 72.

¹²⁷ See, e.g., ABA Section of Antitrust Law (2017), *Proving Antitrust Damages: Legal and Economic Issues*, 3rd ed., Ch. 6, Section C.2, especially footnote 46.

¹²⁸ See, e.g., In re Qualcomm Antitrust Litig., No. 17-MD-02773-LHK, 2018 WL 4680214, at *18–19 (N.D. Cal. Sept. 27, 2018); In re Cathode Ray Tube (CRT) Antitrust Litig., No. C-07-5944-SC, 2013 WL 5391159, at *4–5, *9 (N.D. Cal. Sept. 24, 2013); In re TFT-LCD (Flat Panel) Antitrust Litig., 267 F.R.D. 583, 602–04 (N.D. Cal. 2010), amended in part, No. M 07-

B. Dr. Haider's analysis of sales by "non-Defendants" to Sysco and US Foods

153. Dr. Haider runs two regressions using Sysco and US Foods' sales of "Non-Defendant" large-sized packaged tuna.¹²⁹ Dr. Haider's two regressions show statistically significant overcharges.¹³⁰ Based solely on these two regressions, Dr. Haider claims that my "overcharge methodology is incapable of distinguishing price effects resulting from the alleged anticompetitive conduct from other price effects that are caused by unrelated supply and demand factors."¹³¹

154. Dr Haider's conclusion is based on her argument that her "approach yields 'overcharges' for non-Defendant tuna where none are expected to exist. . . . No overcharges are expected to exist because there are no allegations from Plaintiffs related to non-Defendant packaged tuna."¹³²

155. This conclusion in Dr. Haider's report is incorrect. As a threshold matter, Dr. Haider claims that certain vendors sold "non-Defendant" packaged tuna to Sysco and US Foods.¹³³ However, Dr. Haider offers no evidence that any of these vendors actually *manufactured* any of the large-sized packaged tuna they sold to Sysco and US Foods.¹³⁴ In fact, Defendant Thai Union

¹³³ Haider Report, ¶ 28 and Figures 3 and 4.

¹³⁴ Dr. Haider's report claims that she simply treated sales of large-sized packaged tuna that I did not use in my regression analysis as "non-Defendant" packaged tuna. (Haider Deposition, 107:14-108:15 and 109:9-110:5.). Dr. Haider's report is incorrect. I excluded Thai Union Group and Dongwon's sales of private label tuna that did not go through COSI or StarKist in my

¹⁸²⁷ SI, 2011 WL 3268649 (N.D. Cal. July 28, 2011); *In re Static Random Access memory (SRAM) Antitrust Litig.*, 264 F.R.D. 603, 613–15 (N.D. Cal. 2009).

¹²⁹ Haider Report, ¶¶ 27-29.

¹³⁰ Haider Report, p. 21, Exhibit 2.

¹³¹ Haider Report, p. 19. Dr. Haider's report fails to name even one such "unrelated" supply or demand factor.

¹³² Haider Report, ¶ 28 (emphasis added).
Group (which owns COSI) manufactured and sold more than \$150 million of large-sized packaged tuna products to these same vendors.¹³⁵ Indeed, the largest such vendor in terms of sales to Sysco and US Foods (Rema Foods, Inc.) sold \$171 million of large-sized packaged tuna to Sysco and US Foods in the period June 2011 through December 2015, and in that period Rema Foods, Inc. purchased \$115 million of large-sized packaged tuna from Thai Union Group—the company that actually manufactured the product. Moreover, Dongwon and other Defendants also may have manufactured and sold large-sized packaged tuna to these "non-Defendant" vendors, but those Defendants did not provide the necessary data to determine if they made such sales.¹³⁶

156. Thus, the data used in Dr. Haider's "non-Defendant" regressions contain an unknown and possibly large amount of large-sized packed tuna manufactured by Defendants. Since Dr. Haider's regressions include products manufactured by Defendants, it is hardly surprising that the regressions have positive and significant overcharges. Defendants would not find it profitable to charge anticompetitive prices on their own branded products, while charging competitive prices for private-label products supplied to other vendors. In sum, Dr. Haider's "non-Defendant" regressions reinforce my results by providing additional evidence that there exist positive and significant overcharges for large-sized packaged tuna manufactured by Defendants.

analysis of sales by Sysco and US Foods because Thai Union Group and Dongwon did not provide sufficient data for overcharge estimation.

¹³⁵ This is a conservative dollar value because Thai Union Group only provided sales data for the period June 2011 through December 2015, but Dr. Haider's Figures 3 and 4 cover the period June 2011 through December 2016.

¹³⁶ Dr. Haider testified in her deposition that the vendor Camerican did not sell any packaged tuna produced by Thai Union Group. (Haider Deposition, 136:24-137:5.). Dr. Haider is incorrect. Thai Union Group billed and shipped over \$11 million of large-sized packaged tuna to Camerican according to the data provided by Thai Union Group.

157. Even assuming, *arguendo*, that Dr. Haider's "non-Defendant" regressions used data for large-sized packaged tuna manufactured only by non-Defendants, her argument would still be incorrect. First, her argument that "[n]o overcharges are expected to exist because there are no allegations from Plaintiffs related to non-Defendant packaged tuna"¹³⁷ has no economic merit. The existence (or lack thereof) of any allegations by Plaintiffs "related to non-Defendant packaged tuna" provides no evidence regarding (1) whether economic theory predicts that non-Defendants would raise their prices following anticompetitive price increases by Defendants or (2) whether non-Defendants actually raised their prices following anticompetitive price increases by Defendants.

158. Second, economic theory does predict that non-Defendants would raise their prices following anticompetitive price increases by Defendants. In fact, this prediction is so well-known that it has a name—the "umbrella effect."¹³⁸ Elementary economics demonstrates that when the price of a product sold by a cartel increases, the price of substitute products also will increase as buyers shift their purchases to substitute products sold by non-cartel member firms. Prices of substitute products do not remain the same simply because they are sold by non-Defendants. This well-known, common-sense outcome is called the "umbrella effect." As summarized by Professors Inderst, Maier-Rigaud, and Schwalbe in a peer-reviewed article published in a well-respected economics journal: "Umbrella effects typically arise when price increases lead to a diversion of demand to substitute products. Because successful cartels typically reduce quantities and increase

¹³⁷ Haider Report, ¶ 28 (emphasis added).

¹³⁸ See, e.g., Inderst, R., Maier-Rigaud, F., and Schwalbe, U. (2014), "Umbrella Effects," *Journal of Competition Law and Economics*, vol. 10, pp. 739-763.

prices, this diversion leads to a substitution away from the cartels' products toward substitute products produced by cartel outsiders."¹³⁹

159. Similarly, as stated by Professors Maier-Rigaud and Schwalbe:

These [non-cartel] firms do not participate in the cartel but profit from so called "umbrella effects." The cartel induced price increase leads to a diversion of demand to non-cartelized firms producing the same good as the cartel and to firms producing substitutes of the cartelized product. The increase in demand causes these firms to raise the prices of their products and to increase their supply. This increase in supply is, however, insufficient to compensate the reduction in supply by the cartel as otherwise the cartel would not be formed. In case of a homogeneous product, the umbrella effect induced by the cartel leads to a price increase in the same amount as the cartel price, i.e., the damage that accrues to customers of non-cartelized firms is the same as for the customers of the cartel as both pay the same price.¹⁴⁰

160. Finally, as summarized by Professors Blair and Durrance:

When a price-fixing cartel is discovered, it is not uncommon to find that some industry members actively colluded while others did not. To the extent that the cartel members raised their prices above preconspiracy levels, direct purchasers from the conspiring suppliers have been overcharged. These victimized customers are routinely granted standing to sue for treble damages under §4 of the Clayton Act. Under predictable circumstances, the customers of the nonconspiring manufacturers will also pay inflated prices as a result of the conspiracy. If they seek to recover antitrust damages, they will be termed "umbrella" plaintiffs because their suppliers set prices under the price umbrella provided by the cartel.

The existence of umbrella victims pervades nearly every §1 case, as nearly all conspiracies are partial conspiracies. Antitrust casebooks are replete with examples including *Indiana Federation of Dentists*, *Maricopa County*, *Professional*

¹³⁹ Inderst, R., Maier-Rigaud, F., and Schwalbe, U. (2014), "Umbrella Effects," *Journal of Competition Law and Economics*, vol. 10, pp. 739-763, at p. 740.

¹⁴⁰ Maier-Rigaud, F. and Schwalbe, U. (forthcoming), "Quantification of Antitrust Damages," in *Competition Damages Actions in the EU*, Edward Elgar Publisher.

Engineers, Trenton Potteries, Socony-Vacuum, and Topco. More contemporary examples include *Digital Animators, High Tech Employees, and MasterCard.*¹⁴¹

161. In sum, the literature shows that "[t]he existence of umbrella victims pervades nearly every §1 case."¹⁴² Dr. Haider's regressions on non-Defendant tuna serves as a test for the existence of umbrella effects in the current case, even though she failed to correctly understand the implications of her regressions. Her findings that prices of products sold by non-Defendant vendors were elevated in the damages period merely confirm that umbrella effects exist in the present case. Dr. Haider's failure to understand basic economic theory in no way undermines any of my econometric findings. I estimated the same regressions with my updated cost index and found that prices of products sold by non-Defendant vendors in the damages period were elevated by 11.1% for Sysco customers and 19.1% for US Foods customers. Finally, neither the theoretical nor empirical literatures on the umbrella effect suggest, much less demonstrate, that the existence of the umbrella effect depends on colluding firms having a specified minimum market share.

C. Dr. Haider incorrectly claims that my report ignores supplies from non-Defendants

162. Dr. Haider claims that my report "ignores the large supply of food service size packaged tuna available from non-Defendants to members of the proposed class."¹⁴³ In particular, Dr. Haider claims that (1) certain vendors sold "non-Defendant" large-sized packaged tuna to Sysco and US Foods and (2) proposed Class members bought different amounts of such "non-

¹⁴¹ Blair, R. and Durrance (2018), "Umbrella Damages: Toward a Coherent Antitrust Policy," *Contemporary Economic Policy*, vol. 36, pp. 241-254 (footnotes omitted).

¹⁴² Blair, R. and Durrance (2018), "Umbrella Damages: Toward a Coherent Antitrust Policy," *Contemporary Economic Policy*, vol. 36, p. 241.

¹⁴³ Haider Report, ¶ 30.

Defendant" large-sized packaged tuna from Sysco and US Foods.¹⁴⁴ Based on these claims, Dr. Haider concludes: "This demonstrates that an individualized inquiry is required to determine whether a proposed CFP purchaser used the threat of alternate supply to obtain lower prices on Defendant packaged tuna such that they could avoid an alleged overcharge."¹⁴⁵

i. Prices convey information to buyers and sellers

163. This conclusion in Dr. Haider's report is incorrect. Her report fails to acknowledge the elementary economics of prices. Prices convey information to buyers and sellers regarding the relative value of resources. In particular, prices convey information to buyers (such as Sysco, US Foods, and proposed Class members) regarding the relative availability of products from rival sellers. As summarized in a well-known textbook:

Market prices communicate important information to both buyers and sellers. They reveal information about the relative availability of products to buyers, and they provide sellers with critical information about the relative value that consumers place on those products. In effect, market prices provide a way for both buyers and sellers to communicate about the relative value of resources. This communication results in a shifting of resources from those uses that are less valued to those that are more valued.¹⁴⁶

164. Thus, prices paid by Sysco and US Foods to Defendants for large-sized packaged tuna "reveal information about the relative availability of [those] products. . . ."¹⁴⁷ In particular, prices paid by Sysco and US Foods to Defendants, which are used in my regression analyses, reveal the relative availability of large-sized packaged tuna from all vendors in the marketplace, including non-Defendants.

¹⁴⁴ *Id*.

¹⁴⁵ *Id*.

 ¹⁴⁶ Sexton, R. (2015), *Exploring Macroeconomics*, 7th ed., Cengage Learning, p. 139.
 ¹⁴⁷ Id.

165. Similarly, prices paid by proposed Class members to Sysco and US Foods for largesized packaged tuna also "reveal information about the relative availability of [those] products. . . ."¹⁴⁸ In particular, prices paid by proposed Class members to Sysco and US Foods, which are used in my regression analyses, reveal the relative availability of large-sized packaged tuna sold by any vendor in the marketplace, including non-Defendants.

166. Therefore, Dr. Haider's claim that my report "ignores the large supply of food service size packaged tuna available from non-Defendants to members of the proposed class"¹⁴⁹ is incorrect. Dr. Haider's report fails to acknowledge elementary economic theory and the role that prices play in conveying information to buyers and sellers. As further explained in another well-known textbook:

Prices are like messengers conveying news. . . . When all is said and done, producers cannot possibly know what millions of different consumers want. . . . Price-coordinated markets enable people to signal to other people how much they want and how much they are willing to offer for it, while other people signal what they are willing to supply in exchange for what compensation.¹⁵⁰

167. In sum, the observed market prices charged by Defendants and the six Large Distributors account for the competitive effects of non-Defendant vendors.

168. Moreover, as discussed in Section VI.B, over \$150 million of the sales by non-Defendant vendors were products manufactured by Defendants. Thus, all the market share calculations, exhibits, and figures in Section V.C of Dr. Haider's report are fundamentally flawed.

169. Finally, Dr. Haider's argument is undermined by her own findings. Umbrella effects, which empirically exist in the present case according to Dr. Haider's analysis, imply that

¹⁴⁸ *Id*.

¹⁴⁹ Haider Report, ¶ 30.

¹⁵⁰ Sowell, T., (2014), Basic Economics. New York: Basic Books, pp.14-16.

non-Defendants' prices increased when Defendants raised their prices. Such price increases by non-Defendant vendors would reduce, all else equal, the competitive effects of their sales on prices charged by Defendants.

D. Time periods used in my regression analysis are well supported by record evidence and relevant economic theory

170. Dr. Haider claims that my results "are dependent upon [my] treatment of different time periods in my overcharge estimation, for which [I] provide[] no valid economic justification."¹⁵¹ Dr. Haider is incorrect. My Opening Report provides detailed economic evidence supporting the definitions of the benchmark, contaminated, and damages periods.¹⁵²

171. As a threshold matter, the definitions of the benchmark, contaminated, and damages periods are not relevant to the question of whether there exists a well-known and widely accepted methodology that can be used to determine whether proposed Class members were impacted by the alleged conspiracy. This follows because the definitions of the benchmark, contaminated, and damages periods can be altered with no change to the well-known and widely accepted dummy variable regression methodology used in my Opening Report.¹⁵³

¹⁵¹ Haider Report, Section V.D.

¹⁵² See, e.g., Williams Opening Report, Section III.A.

¹⁵³ See, e.g., ABA Section of Antitrust Law (2017), *Proving Antitrust Damages: Legal and Economic Issues*, 3rd ed., American Bar Association, Ch. 6, Section F; McCrary, J. and Rubinfeld, D. (2014), "Measuring Benchmark Damages in Antitrust Litigation," *Journal of Econometric Methods*, vol. 3, pp. 63-74; and ABA Section of Antitrust Law (2014), *Econometrics: Legal, Practical, and Technical Issues*, 2nd ed., American Bar Association, Ch. 12.

i. Summary of economic evidence supporting my definitions of the benchmark, contaminated, and damages periods

172. Two false claims by Dr. Haider regarding my definition of the contaminated periods merit discussion before I summarize the economic evidence supporting my definitions of the benchmark, contaminated, and damages periods.

173. First, Dr. Haider claims that I term the period July 2008 through December 2010 as a "downsizing period," and I determined the period to be contaminated soley because of downsizing.¹⁵⁴ Dr. Haider is incorrect. I never defined that contaminated period as a "downsizing period." (Dr. Haider's report uses the phrase "downsizing period" 52 times, which is remarkable given that my Opening Report never uses that phrase.) As explained in more detail below, in addition to anticompetitive actions by Bumble Bee and COSI regarding downsizing of packaged-tuna products, there is also substantial evidence that Bumble Bee and COSI coordinated with each other in fixing packaged tuna prices during the contaminated period from mid-2008 to 2010.¹⁵⁵

174. Second, Dr. Haider also alleges that "[I] claim that [my] downsizing period is contaminated because of the alleged conduct. . . .^{"156} Dr. Haider is incorrect again. I never stated that I define the contaminated periods based on the alleged conduct. As discussed below, my

¹⁵⁴ Dr. Haider claims that I "carve[] out a 'contaminated' period from July 2008 to December 2010 from [my] benchmark based on [my] claim that there was 'cooperation between Bumble Bee and COSI in downsizing can sizes following the lead of StarKist." (Haider Report, ¶ 54.). Dr. Haider's quote from my report is misleading as she carves out only part of my original sentence. The portion of the full sentence Dr. Haider left out clearly states that a period is contaminated if it was affected by "anticompetitive conduct . . . or temporary shocks that cause the periods to not constitute clean benchmark periods." Williams Expert Report, ¶ 71.

¹⁵⁵ Defendant Tri-Union Seafoods LLC d/b/a Chicken of the Sea International's Second Supplemental Responses and Objections to Plaintiffs Second Set of Interrogatories— Interrogatory No. 1 (October 18, 2018), at 4.

¹⁵⁶ Haider Report, ¶ 52.

definition of the contaminated periods is based on my analysis of the packaged tuna industry and my review of Defendants' transaction data, Defendants' relevant internal documents, and relevant public documents.¹⁵⁷

175. I now summarize the economic evidence supporting my definitions of the benchmark, contaminated, and damages periods.

176. January 2001 through June 2008 benchmark period. I use this period as a benchmark period. Dr. Haider's only comment regarding this period is that part of it (i.e., July 2004 through June 2008) was included in Plaintiffs' Third Amended Complaint as part of the class period and, on this basis alone, should be included in the damages period.¹⁵⁸ In contrast, my definition of the period January 2001 through June 2008 as a benchmark period relies on my review of Defendants' relevant internal documents in conjunction with Defendants' transaction data. Although Plaintiffs' Third Amended Complaint presented some evidence that Defendants might have coordinated in their price increase announcements in 2004 and 2006,¹⁵⁹ Defendants' transaction data suggest that such efforts did not cause significant price increases.¹⁶⁰ In fact, when demand and cost factors are appropriately controlled, Dr. Haider's own regression that breaks out the July 2004 through June 2008 period from the benchmark finds that prices in the July 2004 through June 2008 period from the benchmark finds that prices in the July 2004 through June 2008 period for the benchmark finds that prices in the period for

¹⁵⁷ See Williams Opening Report, ¶ 71. ("Specifically, based on the analysis in Section III, I define two "contaminated" periods: July 200872 through December 2010 and the post-damages period for January 2017 to present.")

¹⁵⁸ Haider Report, ¶ 59 and Exhibit 11; see also Figure 24.

¹⁵⁹ Third Amended Complaint, *In re Packaged Seafood Products Antitrust Litigation*, 3-15-md-2670-JLS-MDD, April 17, 2018, ¶¶ 96-119. Plaintiffs' current Complaint does not contain such a discussion. (Fourth Amended Complaint, *In re Packaged Seafood Products Antitrust Litigation*, 3-15-md-2670-JLS-MDD, October 5, 2018)

¹⁶⁰ See, e.g., Figures A1-A20.

all three Defendants.¹⁶¹ Furthermore, if the period July 2004 through June 2008 were truly contaminated, removing the period from the benchmark should lead to higher estimated overcharges. However, that is not what Dr. Haider found.¹⁶²

177. July 2008 through December 2010 contaminated period. Price increase information on StarKist products was shared between COSI and Bumble Bee on June 16, 2008, a month before StarKist's price increase became effective.¹⁶³ Eleven days later, Bumble Bee and COSI both issued their price increase announcements, including increases on large-sized tuna, with September 29, 2008 and October 1, 2008 effective dates, respectively.¹⁶⁴ In mid-2010, Defendants initiated another round of price increase led by StarKist.¹⁶⁵ COSI and Bumble then followed within a few of weeks.¹⁶⁶

178. In mid-2008, Defendants Bumble Bee and COSI coordinated with each other regarding downsizing can sizes following the lead of StarKist. Top executives of Bumble Bee and COSI met with each other and shared private information about StarKist's downsizing decision.¹⁶⁷ StarKist started downsizing the 6 oz. tuna in July 2008 and, knowing StarKist's plan in advance, COSI and Bumble Bee followed in September and October 2008, respectively.¹⁶⁸

¹⁶¹ See workpapers as identified in the Errata to Haider Report, \P 58.

¹⁶² Haider Report, ¶ 58.

¹⁶³ See, e.g., COSI-CIV-000001786; BB_Civil_000031501; SKC000236687.

¹⁶⁴ See, e.g., COSI-CIV-000036558; BB_Civil_000823919; COSI-CIV-000056903.

¹⁶⁵ See, e.g., SKC000839845.

¹⁶⁶ See, e.g., COSI-CIV-000094546; BB_Civil_000577477.

¹⁶⁷ See, e.g., COSI-CIV-000348749; COSI-CIV-000348752.

¹⁶⁸ *See*, *e.g.*, COSI-CIV-000094924; COSI-CIV-000094504; COSI-CIV-000059260; BB_Civil_000004222.

179. COSI's recent second supplemental responses to Plaintiffs' interrogatories confirm the evidence discussed above. In its responses, COSI admitted that Bumble Bee and COSI had agreements (1) "to reduce the size of cans from 6 oz to 5 oz for branded tuna products . . . as early as March 2008;" (2) "on timing of list price increase for branded tuna products . . . as early as June 2008;" and (3) "on timing of net price increase for branded tuna products . . . as early as May 2010."¹⁶⁹

180. Furthermore, Dr. Haider claims that I "provide[] no rationale for why the re-sizing of *smaller* cans—products that are not at issue in this case—is relevant to [my] analysis of food service size packaged tuna." ¹⁷⁰ Dr. Haider is incorrect. Defendants' downsizing strategy and coordinated efforts in raising prices affected both small- and large-sized tuna. As shown in Tables A1-A3, prices of small- and large-sized tuna are highly correlated. The high correlations are also reflected in the way that prices of small- and large-sized tuna move together, as shown in Figures A1-A12. The figures also show the clear price jump in third quarter 2008, when Defendants downsized 6 oz. tuna and coordinated their price increases, including price increases on large-sized tuna.

181. January 2011 through May 2011 benchmark period, and June 2011 start of damages period. The record evidence demonstrates that Defendants engaged in anticompetitive conduct in the period January 2011 through May 2011, but that conduct did not affect prices until June 2011. As discussed in my Opening Report, the start of my damages period in June 2011 is

¹⁶⁹ Defendant Tri-Union Seafoods LLC d/b/a Chicken of the Sea International's Second Supplemental Responses and Objections to Plaintiffs Second Set of Interrogatories— Interrogatory No. 1 (October 18, 2018), at 4.

¹⁷⁰ Haider Report, ¶ 52.

consistent with the facts revealed in Defendants' guilty pleas.¹⁷¹ Moreover, StarKist announced on March 2, 2011 that, effective May 30, it would implement higher prices for several products,¹⁷² including large-sized packaged tuna products such as "Chunk Light Water 66.5oz" and "Solid White Water 66.5oz."¹⁷³ Then, on March 14, 2011, Bumble Bee announced list price increases for various products, including white meat tuna, light meat tuna, and specialty and value added items, with an effective date of May 29.¹⁷⁴ Similarly, effective June 1, 2011, COSI increased its list prices for various products, including large-sized package tuna products."¹⁷⁵

182. Facts revealed in COSI's recent supplemental responses to Plaintiffs' interrogatories are also consistent with the start date of the damages period. In the responses, COSI admitted that all three Defendants, StarKist, Bumble, and COSI had agreements (1) "on timing of list and/or net price increase for branded tuna products . . . as early as February 2011;" (2) "on timing of list price increase for branded tuna products . . . as early as November 2011;" and (3) "not to produce a branded, FAD-Free Product . . . as early as February 2012."¹⁷⁶

183. December 2016 end of damages period, and January 2017 through December 2017 contaminated period. My econometric analysis shows positive and statistically significant overcharges for the period June 2011 through December 2016. Moreover, the post-damages period, January 2017 through December 2017 also shows smaller but significant overcharges. This

¹⁷¹ Williams Opening Report, ¶¶ 16-20 and 47.

¹⁷² COSI-CIV-000001809.

¹⁷³ COSI-CIV-000001445-1460, at 1460.

¹⁷⁴ BB Civil 000155059-073, at 060 and 068.

¹⁷⁵ COSI-CIV-000059084-105, at 093-094.

¹⁷⁶ Defendant Tri-Union Seafoods LLC d/b/a Chicken of the Sea International's Second Supplemental Responses and Objections to Plaintiffs Second Set of Interrogatories— Interrogatory No. 1 (October 18, 2018), at 4.

post-damages period is excluded from the benchmark period because of the well-known outcome that cartel price increases have "lingering effects." A basic result in the field of industrial organization is that, to avoid detection and conviction, conspirators tend to maintain prices above the but-for level for a period of time after a conspiracy ends.¹⁷⁷ If Defendants continue to inflate their prices after the conspiracy ends, then estimating overcharges by comparing prices in the damages period to prices in the post-period would underestimate overcharges and damages.

184. Dr. Haider previously has recognized that post-damages periods may be affected by anticompetitive conduct: "The after period also may be an inappropriate benchmark because the harm from successful exclusionary conduct may continue well after the practice is ended."¹⁷⁸

185. Figures A13-A20 show the monthly average prices for the top eight large-sized tuna products according to total sales in the damages period. These eight products account for 82% of Defendants' total sales of large-sized packaged tuna. The figures are listed in descending order by sales revenue. As shown in the figures, prices in the post period, i.e., January 2017 through December 2017, remained at levels substantially higher than in benchmark periods.

ii. Dr. Haider's definitions of the benchmark, contaminated, and damages periods are inconsistent with record evidence

186. Dr. Haider creates several alternative benchmark, contaminated, and damages periods.¹⁷⁹ She reports generally lower overcharges using her alternative periods. Her results

¹⁷⁷ See, e.g., Harrington, J. (2004), "Post-Cartel Pricing During Litigation," Journal of Industrial Economics, vol. 52, pp. 517-533.

¹⁷⁸ Haider, L., Leonard, G., and Weick, D. (2017), "Damages in Exclusionary Conduct Cases," in *Proving Antitrust Damages: Legal and Economic Issues*, 3rd ed., American Bar Association, pp. 278-279.

¹⁷⁹ Haider Report, Exhibits 9, 10, 11, ¶ 58, footnote 77, figures 8, 9, 23, and 24.

simply show that if either (1) contaminated periods are used as benchmark periods¹⁸⁰ or (2) large portions of the benchmark periods are carved out or treated as damages periods,¹⁸¹ then estimated overcharges will be lower. Dr. Haider's alterations are almost guaranteed to produce lower estimated overcharges. In general, including periods with anticompetitive conduct in a benchmark period mistakenly inflates benchmark period prices, causing overcharges to be underestimated. Similarly, including periods without anticompetitive conduct in a damages period mistakenly deflates the damages period prices, again causing overcharges to be underestimated. Dr. Haider's findings simply confirm that her alternative benchmark, contaminated, and damages periods are misclassified.

187. As discussed above in paragraphs 177-180, there is substantial evidence of anticompetitive conduct between Bumble Bee and COSI in the contaminated period June 2008 through December 2010, including COSI's own admissions in its recent second supplemental responses to Plaintiffs' interrogatories.¹⁸² Thus, Dr. Haider's regressions shown in her Exhibits 9 and 10, and Figures 8, 9, and 23, which are based on treating (different parts of) the contaminated period as a benchmark period, are directly contradicted by record evidence. Even assuming, *arguendo*, that Dr. Haider's regressions were not contradicted by record evidence, all these regressions show positive and statistically significant overcharges for all three Defendants'

¹⁸⁰ Haider Report, Exhibits 9 and 10. As a result of her flawed approach of treating a contaminated period as part of the benchmark period, Dr. Haider underestimates common overcharges. Not surprisingly, this leads her to find that 21% of Class members do not have positive and statistically significant overcharges when the overcharges are allowed to vary by Defendant and by Large Distributor.

¹⁸¹ Haider Report, ¶ 58; p. 40, Exhibit 11; p. 40, footnote 77; and Figure 24.

¹⁸² Defendant Tri-Union Seafoods LLC d/b/a Chicken of the Sea International's Second Supplemental Responses and Objections to Plaintiffs Second Set of Interrogatories— Interrogatory No. 1 (October 18, 2018), at 4.

products. Thus, they all support my conclusion that Defendants' alleged illegal conduct caused proposed Class members to pay anticompetitive overcharges for large-sized packaged tuna.

188. Perhaps recognizing this fact, Dr. Haider further alters her regressions by defining the damages period as July 2004 through May 2017 in her Exhibit 11. Since this period includes much of my benchmark period, her report not surprisingly finds overcharges as low as -18.2% for Bumble Bee and -7.6% for StarKist.¹⁸³ Dr. Haider's results suggest that, even though Defendants have pleaded guilty to price fixing, their conspiracy significantly reduced prices. Consumers—rather than Defendants—supposedly benefited from the conspiracy. This nonsensical result confirms that Dr. Haider's alternative definitions of benchmark and damages periods are not consistent with the economic evidence.

E. Dr. Haider's proposal to use Defendants' accounting costs makes no economic sense

189. Dr. Haider argues in her report that, to control for cost factors affecting market prices, I should use Bumble Bee's and COSI's cost of goods sold ("COGS)" instead of the cost index I constructed. As a threshold matter, which of these two cost variables is used in the regression analysis is not relevant to the question of whether there exists a well-known and widely accepted methodology that can be used to determine whether proposed Class members were impacted by Defendants' alleged price-fixing conspiracy. This follows because the cost variable can be altered with no change to the well-known and widely accepted dummy variable regression methodology used in my Opening Report.¹⁸⁴

¹⁸³ Haider Report, p. 40, Exhibit 11; see also Figure 24.

¹⁸⁴ See, e.g., ABA Section of Antitrust Law (2017), *Proving Antitrust Damages: Legal and Economic Issues*, 3rd ed., American Bar Association, Ch. 6, Section F; McCrary, J. and Rubinfeld, D. (2014), "Measuring Benchmark Damages in Antitrust Litigation," *Journal of Econometric Methods*, vol. 3, pp. 63-74; and ABA Section of Antitrust Law (2014),

190. Dr. Haider's suggestion that Bumble Bee's and COSI's COGS should be used instead of the cost index is incorrect on economic grounds. Bumble Bee's and COSI's COGS reflect their respective out-of-pocket accounting costs.¹⁸⁵ But these accounting costs reflect the dollar values of the firms' inventories and sales, which are themselves influenced by the market price of tuna. Thus, Bumble Bee's and COSI's COGS are "endogenous." An explanatory variable is endogenous if it is correlated with unobserved factors that affect the dependent variable (tuna prices in the present case).¹⁸⁶ It is a well-known fact that including an endogenous variable in a regression causes the estimated values of all the explanatory variables to be biased.¹⁸⁷ For this reason, Bumble Bee's and COSI's COGS should not be used in the regression analysis.

COGS equals: Beginning Inventory + Purchases during the period - Ending Inventory.

The beginning inventory for the year is the inventory left over from the previous year, that is, the merchandise that was not sold in the previous year. Any additional productions or purchases made by a manufacturing or retail company are added to the beginning inventory. At the end of the year, the products that were not sold are subtracted from the sum of beginning inventory and additional purchases. The final number derived from the calculation is the cost of goods sold for the year.

The COGS can easily be manipulated by accountants or managers looking to cook the books. It can be altered by allocating to inventory higher manufacturing overhead costs than was actually incurred; overstating discounts; overstating returns to suppliers; altering the amount of inventory in stock at the end of an accounting period; overvaluing inventory on hand; failing to write-off obsolete inventory; etc. When inventory is artificially inflated, COGS will be underreported which, in turn, will lead to higher than actual gross profit margin, and hence, an inflated net income.

https://www.investopedia.com/terms/c/cogs.asp.

¹⁸⁶ See, e.g., Daugherty, C. (2016), *Introduction to Econometrics*, 5th ed., Oxford University Press. ("Endogenous variables are variables whose values are determined by the interaction of the relationships in the model.") *Id.*, at 344.

¹⁸⁷ See, e.g., Daugherty, C. (2016), *Introduction to Econometrics*, 5th ed., Oxford University Press, Chapter 9.

Econometrics: Legal, Practical, and Technical Issues, 2nd ed., American Bar Association, Ch. 12.

¹⁸⁵ As stated on a well-known website for investors:

191. Rather than using Bumble Bee's and COSI's COGS, my regression analysis uses market input prices. These are the correct input prices to use in a regression model in which Defendants' sales prices are explained by exogenous factors that shift market demand and supply. This is why applied econometricians use exogenous shifts in input costs, like the cost index variable I used, as factors that affect market supply and, therefore, prices.

192. In addition, COSI's COGS data are likely inflated by increased transfer prices COSI paid for packaged tuna purchased from Thai Union Group entities. In the damages period, Thai Union Group entities charged COSI 8.6% higher prices compared to the prices Thai Union Group entities charged private label vendors.¹⁸⁸

193. Furthermore, Dr. Haider finds that using COGS instead of the cost index, estimated overcharges are still positive and significant.¹⁸⁹ Therefore, even assuming, *arguendo*, that COGS should be used to account for the cost factor in the regression model, the conclusion that there exist positive and significant common overcharges still holds.

194. Perhaps recognizing this fact, Dr. Haider further alters her regression by treating a contaminated period as part of the benchmark period. This leads to a negative and significant overcharge for COSI, although the overcharge for Bumble Bee remains positive and significant.¹⁹⁰ As discussed in Section VI.D, Dr. Haider's *ad hoc* alteration of the benchmark period has no support in the record evidence.

¹⁸⁸ Thai Union Group's sales data ends in December 2015. Thus, the comparison is based on the period June 2011 through December 2015.

¹⁸⁹ Haider Report, p. 43, Exhibit 12, Column [b].

¹⁹⁰ Haider Report, p. 43, Exhibit 12, Column [c].

F. Dr. Haider fails to understand my Class-member-specific regressions

195. Neither Dr. Haider nor Defendants understand my Class-member-specific regressions. Dr. Haider claims that my methodology "assumes the same or uniform overcharge for all CFP purchasers. . . . [so] that either all purchasers sustained an overcharge or none did—[Dr. Williams'] approach does not allow for the possibility of no overcharge for *some* members of the proposed class."¹⁹¹

196. Relying on Dr. Haider's analysis, Defendants similarly claim:

[F]ood service customers may negotiate price protections that would limit the extent to which one of the specified large distributors could pass-through an overcharge.... Dr. Williams did not account for this in his model.... Dr. Williams may have observed different prices in the *data* but his *predicted overcharge* does not vary by customer. Quite the opposite, Dr. Williams estimates an average pass-through for each of the selected intermediaries. Dr. Williams' model is thus incapable of assessing common impact on this basis.¹⁹²

197. Both Dr. Haider and Defendants are incorrect. My Class-member-specific regressions clearly allow for the "possibility of no overcharge for *some* members of the proposed class"¹⁹³ since these regressions find that less than 100% of proposed Class members were overcharged. My results show that 99.3% of Sysco's customers and 99.5% of US Foods' customers had at least one transaction for which they were overcharged,¹⁹⁴ thus demonstrating that Dr. Haider

¹⁹¹ Haider Report, ¶ 67 (emphasis in original).

¹⁹² Defendants' Opposition to Commercial Food Preparer Plaintiffs' Motion for Class Certification (October 2, 2018), pp. 18-19 (emphasis in original).

¹⁹³ Haider Report, ¶ 67 (emphasis in original).

¹⁹⁴ Williams Expert Report, ¶¶ 101-102. As noted in my Opening Report, with respect to the less than 1% of customers who had no transactions with positive overcharges in my analysis, random variability at the customer and transaction level is most likely responsible for that result. The model does not show that these customers in fact have no damages or were not impacted by the alleged conspiracy. In all likelihood, all Class members were harmed. Evidence of this conclusion includes that the apparently unharmed Class members were among the smallest

does not understand my Class-member-specific regressions. Similarly, Defendants' claim that the "*predicted overcharge* does not vary by customer"¹⁹⁵ is also false. In fact, the predicted overcharges (which equal actual prices minus predicted but-for prices) vary not only by customer but by individual transaction. Thus, my Class-member-specific regressions for Sysco and US Foods appropriately test whether factors not captured in the regressions (such as "individual, customer-specific negotiation[s]")¹⁹⁶ counteract the common overcharges for any individual Class members and any particular sales transactions. For these reasons, Defendants' claim that my "model is thus incapable of assessing common impact"¹⁹⁷ is false.

198. Dr. Haider's and Defendants' claim regarding an alleged methodological problem in my Class-member-specific regressions is further refuted by the fact that there are judicial opinions that specifically support that methodology. For example, I understand that the court in *Air Cargo Shipping Services* certified the proposed class based in part on the expert testimony of plaintiffs' damages expert who presented regression analyses using the *identical* class-memberspecific methodology. ¹⁹⁸ Similarly, I understand that the court in *Korean Ramen Antitrust*

purchasers—the ones least likely to have the market power to avoid paying overcharges and the ones most likely to incorrectly appear not have been harmed because of statistical noise and a small dataset of purchases. In fact, more than 98% of these customers had ten or fewer transactions. The random variability at this level is one of the reasons that the models described in Section IV.E of my Opening Report are the most reliable for calculating Class members' overcharges.

¹⁹⁵ Defendants' Opposition to Commercial Food Preparer Plaintiffs' Motion for Class Certification (October 2, 2018), p. 18-19 (emphasis in original).

¹⁹⁶ Defendants' Opposition to Commercial Food Preparer Plaintiffs' Motion for Class Certification (October 2, 2018), p. 18.

¹⁹⁷ Defendants' Opposition to Commercial Food Preparer Plaintiffs' Motion for Class Certification (October 2, 2018), pp. 18-19 (emphasis in original).

¹⁹⁸ U.S. District Court, Eastern District of New York, *In re: Air Cargo Shipping Services Antitrust Litigation*, MDL No. 1775 (October 15, 2014).

Litigation certified the proposed class based in part on the expert testimony of plaintiffs' damages expert who presented regression analyses using the *identical* class-member-specific methodology.¹⁹⁹ In sum, when class-member-specific regression models are properly specified, they confirm my fundamental conclusion that Defendants' alleged price-fixing conspiracy had a common impact on all or virtually all of the proposed Class.

199. Dr. Haider claims that she "illustrate[s] the methodological error in [my] approach."²⁰⁰ Of course, since the characterization of my approach in her report is fundamentally incorrect, she cannot illustrate such a methodological error. Instead her report speculates that my analysis could show overcharges "in roughly half of the transactions" if there were no overcharges. ²⁰¹ Dr. Haider's report does not contain any empirical analysis to support her speculation. Instead, she conjectures that a hypothetical class-member-specific regression in which the estimated overcharge equals zero "would typically find that about half of sales transactions would include a positive 'overcharge'."²⁰² She offers no evidence in support of her conjecture from this case or any other one.

200. Moreover, Dr. Haider's conjecture is inconsistent with her prior claim that my model assumes "that either all purchasers sustained an overcharge or none did."²⁰³ Her conjecture also fails to recognize that the second step of my analysis—testing the overcharge for each Class member and sales transaction—is appropriate only after finding a statistically significant classwide

¹⁹⁹ U.S. District Court, Northern District of California, *In re: Korean Ramen Antitrust Litigation*, Case No. 13-cv-04115-WHO (January 19, 2017).

²⁰⁰ Haider Report, ¶ 69.

²⁰¹ Id.

 $^{^{202}}$ *Id*.

²⁰³ *Id.*, at ¶ 67.

overcharge, as I do in this case. This mistaken criticism in Dr. Haider's report may result in part from her misunderstanding of the two steps in my analysis: first determining whether any common overcharge exists and then, second, assessing whether factors not captured by model allowed any Class members to avoid paying an overcharge. As discussed above in footnote 75, she mischaracterizes these two steps, which may have caused her confusion.

201. Finally, Dr. Haider claims in her report that I have "no reliable basis . . . to extrapolate [my] results from two food distributors [Sysco and US Foods] to the other four intermediaries [Costco, Dot Foods, Sam's Club, and Walmart] at issue."²⁰⁴ This claim in Dr. Haider's report is incorrect. My Opening Report explained in detail why the results I found for Sysco and US Foods likely hold for Costco, Dot Foods, Sam's Club, and Walmart and, indeed, provide a conservative basis for assessing overall classwide impact.²⁰⁵ Dr. Haider's report does not mention—much less rebut—any of the analyses in my Opening Report on this point.

G. Dr. Haider's criticisms of my pass-through analysis contain numerous errors

i. Dr. Haider incorrectly claims that my pass-through regression models do not test whether an alleged overcharge was passed through to CFP purchasers

202. Dr. Haider claims that my "pass-through regression models do not actually test whether an alleged overcharge was passed through to CFP purchasers. Instead, [I] test[] the more general proposition that any cost change incurred by the selected intermediaries (regardless of whether it included an alleged overcharge) was, on average, passed through downstream."²⁰⁶

 $^{^{204}}$ *Id.*, at ¶ 71.

²⁰⁵ Williams Opening Report, ¶¶ 104-108.

²⁰⁶ Haider Report, ¶ 72.

203. Dr. Haider is incorrect. My pass-through regression analysis applies the standard methodology used in the antitrust literature.²⁰⁷ I understand that Courts have certified numerous classes based in part on the expert testimony of plaintiffs' damages experts who have presented pass-through regression analyses using the identical methodology.²⁰⁸

204. Dr. Haider's conjecture, for which her report offers neither theoretical nor empirical evidence, is that the Large Distributors may pass through different percentages of a given increase in wholesale prices depending on why Defendants raised their wholesale prices. In other words, her unsupported conjecture is that the Large Distributors may pass through a lower percentage of a given increase in wholesale prices if the cause of that increase was a price-fixing conspiracy than if the cause were, say, an increase in electricity prices.

205. Dr. Haider's claim makes no economic sense. The Large Distributors, like all firms, set their retail prices to maximize their profits. A given increase in the wholesale price of a given type of large-sized packaged tuna leads to the same change in a Large Distributor's profitmaximizing retail price regardless of the cause of the increase in the wholesale price. I am not aware of any textbook or peer-reviewed article in the field of industrial organization that claims otherwise.

206. In addition, if the Large Distributors did not pass through the wholesale price increases caused by the conspiracy, then no overcharges should be found for Class members.

²⁰⁷ See, e.g., ABA Section of Antitrust Law (2017), *Proving Antitrust Damages: Legal and Economic Issues*, 3rd ed., Ch. 6, Section C.2, especially footnote 46.

²⁰⁸ See, e.g., In re Qualcomm Antitrust Litig., No. 17-MD-02773-LHK, 2018 WL 4680214, at *18–19 (N.D. Cal. Sept. 27, 2018); In re Cathode Ray Tube (CRT) Antitrust Litig., No. C-07-5944-SC, 2013 WL 5391159, at *4–5, *9 (N.D. Cal. Sept. 24, 2013); In re TFT-LCD (Flat Panel) Antitrust Litig., 267 F.R.D. 583, 602–04 (N.D. Cal. 2010), amended in part, No. M 07-1827 SI, 2011 WL 3268649 (N.D. Cal. July 28, 2011); In re Static Random Access memory (SRAM) Antitrust Litig., 264 F.R.D. 603, 613–15 (N.D. Cal. 2009).

However, my Class-member-specific regressions as performed on Sysco and US Foods' sales data demonstrated that over 99% of Class members who purchased from Sysco and US Foods were injured.²⁰⁹

207. Dr. Haider also notes in her report that the Large Distributors purchased some of Defendants' products from Heinz Food Service, and further claims that I do not "study whether Heinz Food Service sustained an overcharge on Defendant packaged tuna."²¹⁰ As I testified in my deposition, StarKist and Heinz have a contractual relationship that precludes that outcome.²¹¹ As Dr. Mangum stated in his Opening Report: "StarKist and Heinz entered into an exclusive brokerage arrangement for StarKist's foodservice sales. As a result of this arrangement and the nature of the purchase agreements between the two parties, the data produced related to such transactions reflect standard costs and not actual sales."²¹²

ii. Dr. Haider's pass-through analysis shows that the Large Distributors passed Defendants' price increases through to proposed Class members

208. Instead of using all the available data, Dr. Haider chooses to discard years of data and estimate pass-through rates separately for the damages period and the period outside the damages period. As a threshold matter, which time periods are used to estimate pass-through rates is not relevant to the question of whether there exists a well-known and widely accepted methodology that can be used to determine whether the Large Distributors passed Defendants' price increases through to proposed Class members. This follows because the time periods can be

²⁰⁹ Williams Expert Report, ¶¶ 101-102.

²¹⁰ Haider Report, ¶ 80.

²¹¹ Williams Deposition, 180:19-181:13.

²¹² Mangum Opening Report, footnote 134. *See also* SKC000512299; SKC000804850; SKC000534281.

altered with no change to the well-known and widely accepted pass-through regression methodology used in my Opening Report.²¹³

209. By discarding years of data and limiting her analysis to either (1) only data in the damages period or (2) only data outside the damages period, Dr. Haider's pass-through regressions are vulnerable to random shocks or outliers. The ABA's monograph *Econometrics: Legal, Practical, and Technical Issues* explains the consequences of applying regression models to only a subgroup of data: "because the number of observations per grouping declines as transactions are divided into more and more subgroups, coefficients become less precise, which makes a test of coefficient stability or robustness less reliable. [...] [T]he effects of potential outliers on regression estimates increase as the number of observations available to estimate each separate coefficient decreases. As a result, estimated coefficients may make little economic sense even if they have been estimated precisely."²¹⁴

210. Dr. Haider's results reflect the concerns raised in the ABA's monograph. Dr. Haider claims that my "pass-through regression models show substantially lower pass-through from some intermediaries during the proposed class period as compared to outside the class period."²¹⁵ Pass-through rate estimates for the period outside the class period, that Dr. Haider chooses not to report, highlight the issue of odd results caused by her use of limited data. For example, for the period outside the class period, Dr. Haider's model estimates a 208% pass-through rate for Dot Foods sales across Defendants based on 11 months of 2017 data. Using these same 11 months for COSI

²¹³ See, e.g., ABA Section of Antitrust Law (2017), *Proving Antitrust Damages: Legal and Economic Issues*, 3rd ed., Ch. 6, Section C.2, especially footnote 46.

²¹⁴ ABA Section of Antitrust Law (2014), *Econometrics: Legal, Practical, and Technical Issues*, 2nd ed., American Bar Association, Ch. 12, pp. 359-360.

²¹⁵ Haider Report, p. 49.

and StarKist separately, she obtains estimated pass-through rates of 272% for COSI and -2.9% for StarKist.²¹⁶ The large variations and odd estimates produced by Dr. Haider's model are caused by the lack of price variation in such a short period and demonstrate the problem of discarding relevant data and focusing on a short period for no sound economic reason.

211. Dr. Haider also performed two sets of Chow tests to support her choice to disaggregate the regression analysis by (1) running separate overcharge regressions using each Defendants' data only,²¹⁷ and (2) running separate pass-through regressions using either data during the class period or data outside class period only.²¹⁸ As discussed above, her disaggregated method discards relevant information and leads to odd estimates. Even assuming, *arguendo*, that the disaggregated models Dr. Haider suggested should be used, Dr. Haider's disaggregated overcharge and pass-through regressions still show positive and significant overcharges and pass-through rates. In fact, Dr. Haider's disaggregated model leads to higher total damages of \$47 million dollars across Defendants.

212. Dr. Haider argues in her report that my "pass-through regression models show substantially lower pass-through from some intermediaries during the proposed class period as compared to outside the period." Dr. Haider's statement is based on three cherry-picked examples. Table 5 compares the estimated pass-through rates using (1) only data in the class period (Dr. Haider's approach) and (2) all available data (the approached used in my Opening Report) for all combinations of Defendants and Large Distributors. The three examples Dr. Haider used in her

²¹⁶ Haider Report backup materials. Dot Foods' data does not contain any sales of Bumble Bee's large-sized packaged tuna. Results are similar when all states, instead of only Illinois Brick Repealer states, are used in the regressions.

²¹⁷ Haider Report, footnote 84.

²¹⁸ Haider Report, footnote 98.

report have the lowest pass-through rates.²¹⁹ For these three examples, Dr. Haider discards 55% to

71% of the observations by using data only in the class period.

Defendant	Distributor	Haider Pass-through Rates (only data in the class period)	Williams Pass-through Rates (all available data)
StarKist	Walmart	135.9%	112.9%
StarKist	Dot Foods	125.6%	115.4%
COSI	US Foods	104.7%	97.5%
COSI	Costco	99.8%	100.5%
COSI	Dot Foods	93.0%	93.0%
StarKist	US Foods	92.9%	83.5%
Bumble Bee	US Foods	92.0%	86.1%
COSI	Sysco	91.7%	97.1%
StarKist	Sysco	88.8%	84.5%
StarKist	Costco	86.7%	102.4%
Bumble Bee	Sysco	61.3%	85.8%
Bumble Bee	Sam's Club	58.7%	105.8%
StarKist	Sam's Club	48.5%	101.4%

 TABLE 5

 COMPARISON OF ESTIMATED PASS-THROUGH RATES

Notes: The examples reported by Dr. Haider are shown in bold. All estimates are statistically significant at the 99% confidence level. Results are similar when all states, instead of Illinois Brick Repealer states only, are used in the regressions.

213. Finally, as shown in Table 5, even assuming, *arguendo*, that Dr. Haider's use of data only in the class period were valid, she still finds positive and significant pass-through rates for all Large Distributors' sales of all Defendants' products. Class members are impacted as long as part of the overcharges are passed through to them. As Dr. Haider states: "Plaintiffs must demonstrate that the alleged overcharge was passed through, *at least in part*, from these selected

²¹⁹ Haider Report, ¶ 84.

intermediaries to the commercial food preparer (the proposed indirect purchaser class member)."²²⁰

iii. Dr. Haider's claim that my proposed methodology for the assessment of impact is incomplete is directly contradicted by her own report

214. Dr. Haider claims in her report that my "methodology for the assessment of impact is incomplete as [I] do[] not analyze the extent of pass on for any member of the proposed CFP class that resold packaged tuna further downstream."²²¹ As a threshold matter, I understand that Dr. Haider's claim involves legal issues on which I am not offering any opinions. I note that proposed Class members in the present case are defined as those who directly purchased from the six Large Distributors.²²²

215. In any event, Dr. Haider's claim is directly contradicted by her own report which

states:

For a member of the proposed indirect purchaser class to have sustained injury by the alleged conduct, *two conditions need to be satisfied*. First, Plaintiffs must demonstrate that the Defendants imposed an overcharge on the selected intermediaries in this case, i.e., Dot Foods, Sysco, US Foods, Sam's Club, Walmart, or Costco ("selected intermediaries"). Second, Plaintiffs must demonstrate that the alleged overcharge was passed through, at least in part, from these selected intermediaries to the commercial food preparer (the proposed indirect purchaser class member). In other words, Plaintiffs must demonstrate that each of the intermediaries in the distribution chain passed through at least part of an overcharge that it incurred. *Only under these conditions would the proposed indirect purchaser*

²²⁰ Haider Report, ¶ 10 (emphasis added).

²²¹ Haider Report, ¶ 72.

²²² See the Class definition in Williams Opening Report, \P 7. Dr. Haider also recognize this: "Plaintiffs' class definition is restricted to purchasers that bought the products at issue directly from the selected intermediaries." (Haider Report, footnote 10.)

class member have paid any overcharge and thus sustained economic injury as a result of the alleged conduct.²²³

216. Thus, Dr. Haider's own statement of the conditions necessary "[f]or a member of the proposed indirect purchaser class to have sustained injury by the alleged conduct"²²⁴ do not include any discussion of the "extent of pass on for any member of the proposed CFP class that resold packaged tuna further downstream."²²⁵

²²³ Haider Report, ¶ 10 (emphasis added, footnote omitted).

²²⁴ Haider Report, ¶ 10 (emphasis added, footnote omitted).

²²⁵ Haider Report, ¶ 72.

VII. CONCLUSIONS

217. There exist well-accepted economic methodologies and other common evidence from which a fact-finder could determine the existence of an agreement among Defendants to fix prices for large-sized packaged tuna within the United States. I conclude that well-accepted economic methodologies and other common evidence support the allegation that Defendants conspired to fix prices for packaged tuna within the United States.

218. Defendants have pleaded guilty to fixing the prices of packaged tuna. Moreover, common evidence shows that there exist a number of industry characteristics conducive to cartel behavior: (1) high seller concentration, (2) commodity-like product, (3) substantial antitrust barriers to entry, and (4) stable or declining demand. Defendants engaged in a number of actions contrary to their independent self-interests but for the existence of an agreement.

219. Using well-accepted econometric methodologies and common evidence, my analyses demonstrate that the anticompetitive effects of the alleged conspiracy were widespread across members of the proposed Class, causing harm to all or virtually all Class members.

220. Using a well-accepted econometric methodology and common evidence, my analyses reliably quantify classwide damages by comparing the prices actually paid for packaged tuna to the estimated prices of packaged tuna but for the alleged agreement.

February 15, 2019

Michael a. Williams

Michael A. Williams

APPENDIX I: RESUME

MICHAEL A. WILLIAMS

I am a Director at Competition Economics, LLC. I specialize in analyses involving antitrust, industrial organization, and regulation. I have published articles in a number of academic journals, including the *Proceedings of the National Academy of Sciences, American Economic Review, Journal of Industrial Economics, International Journal of Industrial Organization, Journal of Law and Economics, American Law and Economics Review, Journal of Economics and Management Strategy, Review of Industrial Organization, Journal of Institutional and Theoretical Economics, Economics Letters, Journal of Public Economic Theory, Behavioral Science, Antitrust Bulletin, Physica A, Texas Law Review, and Yale Journal on Regulation.*

I have provided written and/or oral testimony before:

- United States District Court, Middle District of Alabama
- United States District Court, Western District of Arkansas
- United States District Court, Central, Northern, and Southern Districts of California
- United States District Court, District of Delaware
- United States District Court, Middle District of Florida
- United States District Court, Northern District of Georgia
- United States District Court, Eastern Division, District of Idaho
- United States District Court, Southern District of Illinois
- United States District Court, District of Kansas
- United States District Court, District of Massachusetts
- United States District Court, District of Minnesota
- United States District Court, District of New Jersey
- United States District Court, Southern District of New York
- United States District Court, Eastern District of Pennsylvania
- United States District Court, Eastern District of Tennessee
- United States District Court, Northern and Southern Districts of Texas

- United States Court of Federal Claims
- State of Connecticut, Superior Court
- State of New Mexico, Second Judicial District
- State of Nevada, Gaming Commission and State Gaming Control Board
- Public utilities commissions: Arkansas, Hawaii, Michigan, Minnesota, Missouri, Nebraska, New Mexico, Texas, and Washington

I have been retained as an economic consultant by the U.S. Department of Justice, Antitrust Division, the U.S. Federal Trade Commission, and the Canadian Competition Bureau.

Previously, I was an economist with the U.S. Department of Justice, Antitrust Division. I hold a B.A. degree in economics from the University of California, Santa Barbara, and I received my M.A. and Ph.D. degrees in economics from the University of Chicago.

TESTIMONY AND EXPERT REPORTS (PAST FOUR YEARS)

UNITED STATES DISTRICT COURT, DISTRICT OF MASSACUHSETTS

Grasshopper House, LLC v. Clean & Sober Media LLC, et al.

Expert reports and deposition testimony (filed under seal), 2018-2019.

UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF CALIFORNIA In Re: Packaged Seafood Products Antitrust Litigation.

Expert reports, deposition testimony (filed under seal), and trial testimony regarding antitrust claims, 2018-2019.

UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF NEW YORK

Alaska Electrical Pension Fund, et al., v. Bank of America, N.A.; et al. Expert reports and deposition testimony regarding antitrust claims (filed under seal), 2017-2018.

UNITED STATES DISTRICT COURT, MIDDLE DISTRICT OF FLORIDA

In Re: Disposable Contact Lens Antitrust Litigation

Expert reports and depositions (filed under seal) and trial testimony regarding class certification and damages, 2017-2018.

UNITED STATES DISTRICT COURT, WESTERN DISTRICT OF ARKANSAS

In Re: Global Tel*Link Corporation Litigation

Expert reports regarding plaintiffs' claims (filed under seal), 2017.

UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF ILLINOIS

Brian Flynn et al. v. FCA US LLC and Harmon International Industries, Inc.

Expert reports and deposition testimony regarding damages (filed under seal), 2017.

UNITED STATES DISTRICT COURT, CENTRAL DISTRICT OF CALIFORNIA Bahamas Surgery Center, LLC, Rep et al. v. Kimberly-Clark Corporation and Halyard Health, Inc. Expert report and trial testimony regarding class certification and damages, 2017.

UNITED STATES DISTRICT COURT, CENTRAL DISTRICT OF CALIFORNIA Hrayr Shahinian, M.D., F.A.C.S., et al. v. Kimberly-Clark Corporation and Halyard Health, Inc. Expert reports regarding class certification and damages, 2016.

UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF NEW YORK In Re Aluminum Warehousing Antitrust Litigation

Expert declaration regarding antitrust claims (filed under seal), 2016.

UNITED STATES DISTRICT COURT, NORTHERN DISTRICT OF CALIFORNIA

BNSF Railway Company and Union Pacific Railroad Company v. California State Board of Equalization, et al.

Expert declaration regarding effects of California Senate Bill 84, 2016.

UNITED STATES DISTRICT COURT, CENTRAL DISTRICT OF CALIFORNIA

Zenith Electronics, LLC, Panasonic Corporation, and U.S. Phillips Corporation v. Sceptre, Inc. Expert reports and deposition regarding antitrust claims (filed under seal), 2015-2016.

UNITED STATES DISTRICT COURT, DISTRICT OF MINNESOTA

The Valspar Corporation and Valspar Sourcing, Inc. v. Millennium Inorganic Chemicals, et al. Expert reports and depositions regarding antitrust claims (filed under seal), 2014-2015.

UNITED STATES DISTRICT COURT, DISTRICT OF IDAHO

In Re Fresh and Process Potatoes Antitrust Litigation

Expert report regarding antitrust claims (filed under seal), 2013-2015.

UNITED STATES DISTRICT COURT, DISTRICT OF MASSACHUSETTS

Kirk Dahl, et al., v. Bain Capital Partners, LLC, et al.

Expert reports and deposition regarding antitrust claims (filed under seal), 2012-2014.

UNITED STATES DISTRICT COURT, EASTERN DISTRICT OF PENNSYLVANIA Caroline Behrend, et al. v. Comcast Corporation

Expert reports, deposition, and trial testimony on class certification and antitrust claims, 2009-2014.

PUBLICATIONS

"Market Share Liability: Lessons from *New Hampshire v. Exxon Mobil*," *Journal of Environmental Law and Litigation* (forthcoming) (with Justine S. Hastings).

"Masters of the Universe: Bid Rigging by Private Equity Firms in Multibillion Dollar LBOs," *University of Cincinnati Law Review* (2018), vol. 87, pp. 29-76 (with Christopher M. Burke, Stephanie A. Hackett, David W. Mitchell, Simon J. Wilke, Melanie Stallings Williams, and Wei Zhao).

"Rules of Evidence and Liability in Contract Litigation: The Efficiency of the *General Dynamics* Rule," *Journal of Public Economic Theory* (2017), vol. 19, pp. 1154–1165 (with Vlad Radoias and Simon J. Wilkie).

"The OPEC of Potatoes: Should Collusive Agricultural Production Restrictions Be Immune From Antitrust Law Enforcement?," *Virginia Law & Business Review* (2017), vol. 11, pp. 399-450 (with Melanie Stallings Williams and Wei Zhao).

"Global Evidence on the Distribution of GDP Growth Rates," *Physica A* (2017), vol. 468, pp. 750-758 (with Grace Baek, Yiyang Li, Leslie Y. Park, and Wei Zhao).

"What is a But-For World?," Antitrust (2016), vol. 31, pp. 102-108 (with Justine S. Hastings).

"The Business of American Democracy: *Citizens United*, Independent Spending, and Elections," *Journal of Law and Economics* (2016), vol. 59, pp. 1-43 (with Tilman Klumpp and Hugo M. Mialon) (lead article).

"Global Evidence on the Distribution of Economic Profit Rates," *Physica A* (2016), vol. 458, pp. 356-363 (with Grace Baek, Leslie Y. Park and Wei Zhao).

"Fraud Cycles," *Journal of Institutional and Theoretical Economics* (2016), vol. 172, pp. 544-572 (with R. Preston McAfee and Jiong Gong).

"Counterintuitive Signs in Reduced Form Price Regressions," ABA Economics Committee Newsletter (2016), vol. 16, pp. 7-19 (with Yonghong An and Wei Zhao) (lead article).

"Brief of Economists and Other Social Scientists as Amici Curiae in Support of Respondents," *Tyson Foods, Inc. v. Peg Bouaphakeo, et al.*, U.S. Supreme Court No. 14-1146, September 29, 2015. Cited in Opinion of the Court, 577 U.S. (2016).

"Leveling the Playing Field? The Role of Public Campaign Funding in Elections," *American Law and Economics Review* (2015), vol. 17, pp. 361-408 (with Tilman Klumpp and Hugo M. Mialon) (lead article) (awarded 2015 Distinguished Article Prize).

"Global Evidence on the Distribution of Firm Growth Rates," *Physica A* (2015), vol. 432, pp. 102-107 (with Brijesh P. Pinto and David Park).

"The Deterrent Effect of Cable System Clustering on Overbuilders: An Economic Analysis of *Behrend v. Comcast*," *Economics Bulletin* (2015), vol. 35, pp. 519-527 (with Philip J. Reny).

"Auctions and Bid Rigging," in *Oxford Handbook on International Antitrust Economics* (2015), vol. 2, eds. Roger D. Blair and D. Daniel Sokol, Oxford University Press, Chapter 20, pp. 498-522 (with Ken Hendricks and R. Preston McAfee).

"Evaluating Big Deal Journal Bundles," *Proceedings of the National Academy of Sciences* (2014), vol. 111, no. 26, pp. 9425-9430 (with Theodore C. Bergstrom, Paul N. Courant, and R. Preston McAfee).

Book Review, *Cartels, Competition and Public Procurement. Law and Economics Approaches to Bid Rigging*, by Stefan E. Weishaar, *Journal of Economic Literature* (2014), vol. 52, pp. 548-549 (with Brijesh P. Pinto).

"Oracle's Acquisition of PeopleSoft: U.S. v. Oracle," in The Antitrust Revolution: Economics, Competition, and Policy (2014), eds. John E. Kowka and Lawrence J. White, Oxford University Press, 6th ed. (with R. Preston McAfee and David S. Sibley).

"Predatory Hiring as Exclusionary Conduct: A New Perspective," *Pepperdine Journal of Business, Entrepreneurship, and the Law* (2013), vol. 7, pp. 1-25 (with Richard L. Braun) (lead article).

"Tax Incidence Under Imperfect Competition: Comment," *International Journal of Industrial Organization* (2012), vol. 30, pp. 399-402 (with Philip J. Reny and Simon J. Wilkie) (lead article).

"China's Anti-Monopoly Law: What is the Welfare Standard?," *Review of Industrial Organization* (2012), vol. 41, pp. 31-52 (with Pingping Shan, Guofu Tan, and Simon J. Wilkie).

"Estimating Monopoly Power with Economic Profits," *UC Davis Business Law Journal* (2010), vol. 10, pp. 125-150 (with Kevin Kreitzman, Melanie Stallings Williams, and William M. Havens).

Book Review, *Truth or Economics: On the Definition, Prediction, and Relevance of Economic Efficiency*, by Richard S. Markovits, *Journal of Economic Literature* (2009), vol. 47, pp. 1133-1135.

"Interpreting Concentration Indices in the Secondary Market for Natural Gas Transportation: The Implication of Pipeline Residual Rights," *Energy Economics* (2008), vol. 30, pp. 807-817 (with Michael J. Doane, R. Preston McAfee, and Ashish Nayyar).

"Evaluating the Likely Competitive Effects of Horizontal and Vertical Mergers: A New Approach," *Antitrust Report* (2007) Issue 2, pp. 33-40 (with Ken Hendricks and R. Preston McAfee).

"Report on Petroleum Products Markets in the Northeast," prepared for the Attorneys General of Maine, Massachusetts, New Hampshire, New York, and Vermont (2007) (with Justine S. Hastings and Michael L. Mitton).

"Assigning Market Shares in Technology Markets: Why 1/N is Rarely the Right Answer," *ABA Economics Committee Newsletter* (2006) vol. 6, pp. 11-16 (with Ashish Nayyar).

"Evaluating and Enhancing Competition in the Interstate Natural Gas Transportation Industry," *Natural Resources Journal* (2004) vol. 44, pp. 761-808 (with Michael J. Doane and R. Preston McAfee).

"Pricing Access to a Monopoly Input," *Journal of Public Economic Theory* (2004) vol. 6, pp. 541-555 (with David S. Sibley, Michael J. Doane, and Shu-Yi Tsai).

"What is a Barrier to Entry?," *American Economic Review* (2004) vol. 94, pp. 461-465 (with R. Preston McAfee and Hugo Mialon).

Deregulation of Entry in Long-Distance Telecommunications (2002), Institute of Public Utilities, Michigan State University (with Paul W. MacAvoy).

"The Costs and Benefits of Long-Distance Entry: Regulation and Non-Price Discrimination," *Review of Industrial Organization* (2001) vol. 18, pp., 275-282 (with Dennis L. Weisman).

"Measuring Anticompetitive Effects of Mergers When Buyer Power is Concentrated," *Texas Law Review*, (2001) vol. 79, no. 6, pp. 1621-1639 (with Ken Hendricks, Joshua M. Fried, R. Preston McAfee, and Melanie Stallings Williams).

"Collusive Bidding in the Market for Corporate Control," *Nebraska Law Review*, (2000) vol. 79, no. 1, pp. 48-74 (with Joshua M. Fried, R. Preston McAfee, and Melanie Stallings Williams).

"Having Your Cake—How to Preserve Universal-Service Cross Subsidies While Facilitating Competitive Entry," *Yale Journal on Regulation*, (1999) vol. 16, no. 2, pp. 311-326 (with Michael J. Doane and David S. Sibley).

"Four Decades of Regulatory Reform of the Gas Industry," *Oil & Gas Tax Quarterly*, (1996) vol. 45, no. 31-58 (with Paul W. MacAvoy and Michael J. Doane).

"Software Mergers: An Economic Perspective," American Bar Association, Computer Industry Committee, (1995) vol. 2, no. 3, pp. 7-9.

"Competitive Entry into Regulated Monopoly Services and the Problem of Stranded Costs," *Hume Papers on Public Policy*, (1995) (with Michael J. Doane).

"Collusive Bidding in Hostile Takeovers," *Journal of Economics and Management Strategy*, (1993) vol. 2, no. 4, pp. 449-482, (with R. Preston McAfee, Daniel Vincent, and Melanie Williams Havens).

"The Renaissance of Market Definition," *The Antitrust Bulletin*, (1993) vol. 38, no. 4, pp. 799-857, (with Joseph J. Simons).
"Horizontal Mergers in Spatially Differentiated Noncooperative Markets," *Journal of Industrial Economics*, (1992) vol. 40, no. 4, pp. 349-358, (with R. Preston McAfee and Joseph J. Simons) (lead article).

"Recent Developments in Economic Theory Regarding the Competitive Effects of Horizontal Mergers," *International Merger Law* (1992) (with R. Preston McAfee).

"Horizontal Mergers and Antitrust Policy," *Journal of Industrial Economics*, (1992) vol. 40, no. 2, pp. 181-188 (with R. Preston McAfee).

"New U.S. Merger Enforcement Guidelines: Competitive Effects," *International Merger Law*, (1992) no. 21, pp. 6-9 (with R. Preston McAfee and Joseph J. Simons).

"On What Economic Grounds Should Horizontal Mergers Be Challenged?," *International Merger Law*, (1991) no. 7, pp. 16-18 (with R. Preston McAfee).

"Why Did So Many Savings and Loans Go Bankrupt?," *Economics Letters*, (1991) vol. 36, no. 1, pp. 61-66 (with Harindra de Silva, Michael F. Koehn, and Stanley I. Ornstein).

"Consumer Welfare Loss: The Unawarded Damages in Antitrust Suits," *University of Dayton Law Review*, (1990) vol. 15, no. 3, pp. 457-470 (with Melanie Williams Havens and Michael F. Koehn).

"Concentration, Potential Entry, and Performance in the Airline Industry," *Journal of Industrial Economics*, (1989) vol. 38, no. 2, pp. 119-139 (with Gloria J. Hurdle, Richard L. Johnson, Andrew S. Joskow, and Gregory J. Werden) (lead article).

"The Department of Justice Merger Guidelines: A Critique and a Proposed Improvement," *Pepperdine Law Review*, (1989) vol. 16, no. 4, pp. 1069-1081 (with R. Preston McAfee).

"Can the Concentration-Collusion Hypothesis Be Refuted Empirically?," *Economics Letters*, (1989) vol. 30, no. 3, pp. 253-257 (with Gregory J. Werden).

"The Role of Stock Market Studies in Formulating Antitrust Policy Toward Horizontal Mergers," *Quarterly Journal of Business and Economics*, (1989) vol. 28, no. 4, pp. 3-21 (with Gregory J. Werden).

"The Role of Stock Market Studies in Formulating Antitrust Policy Toward Horizontal Mergers: Reply," *Quarterly Journal of Business and Economics*, (1989) vol. 28, no. 4, pp. 39-42 (with Gregory J. Werden).

"Can Event Studies Detect Anticompetitive Mergers?," *Economics Letters*, (1988) vol. 28, no. 2, pp. 199-203 (with R. Preston McAfee).

"An Empirical Test of Cooperative Game Solution Concepts," *Behavioral Science*, (1988) vol. 33, no. 3, pp. 224-237.

"Output-Inflation Tradeoffs in 34 Countries: Comment," *Journal of Economics and Business*, (1988) vol. 40, no. 1, pp. 97-101 (with Michael G. Baumann).

"Explaining and Predicting Airline Yields With Nonparametric Regression Trees," *Economics Letters*, (1987) vol. 24, no. 1, pp. 99-105 (with Andrew S. Joskow, Richard L. Johnson, and Gloria J. Hurdle).

"Rankings of Economics Departments By Field," *American Economist*, (1987) vol. 31, no. 1, pp. 56-61 (with Michael G. Baumann and Gregory J. Werden).

"International Evidence on Output-Inflation Tradeoffs: A Bootstrap Analysis," *Economics Letters*, (1986) vol. 21, no. 2, pp. 149-153 (with Michael G. Baumann).

"An Economic Application of Bootstrap Statistical Methods: Addyston Pipe Revisited," *American Economist* (1986) vol. 30, no. 2, pp. 52-58.

"Bootstrap Statistical Analysis of Time-Series Regressions," SAS Communications, (1986) vol. 11, no. 3 (with Michael G. Baumann).

"On the Demise of the Telephone Network and Why It Happened," *Public Utilities Fortnightly*, (1986) vol. 118, no. 5, p. 6.

U.S. DEPARTMENT OF JUSTICE REPORTS (CONTRIBUTOR)

Reply Comments of the U.S. Department of Justice Before the Federal Communications Commission, "Policy and Rules Concerning Rates for Dominant Carriers," Docket No. 87-313, December 11, 1987.

Comments of the U.S. Department of Justice Before the Federal Communications Commission, "The Bell Atlantic Telephone Companies' Offer of Comparably Efficient Interconnection to Enhanced Service Providers," Docket No. 85-229, June 15, 1987.

Comments of the U.S. Department of Justice Before the Federal Communications Commission, "Decreased Regulation of Certain Basic Telecommunications Services," Docket No. 86-421, March 6, 1987.

Comments of the U.S. Department of Justice Before the Securities and Exchange Commission, "Self-Regulatory Organizations: Proposed Rule Change by New York Stock Exchange, Inc. Relating to Amendments to the Exchange's Voting Rights Listing Standards for Domestic Companies," File No. SR-NYSE-86-17, December 5, 1986.

Comments of the U.S. Department of Justice Before the Securities and Exchange Commission, "Concept Release on Takeovers and Contests for Corporate Control," File No. 57-18-86, October 17, 1986.

Comments of the U.S. Department of Justice Before the Federal Communications Commission, "Amendment of Section 64.702 of the Commission's Rules and Regulations (Third Computer Inquiry)," Docket No. 85-229 Phase II, August 8, 1986.

Comments of the U.S. Department of Justice Before the Federal Communications Commission, "Separation of Costs of Nonregulated Activities," Docket No. 86-111, July 30, 1986.

Comments of the U.S. Department of Justice Before the United States Postal Service, "Restrictions on Private Carriage of Letters; Proposed Suspension of the Private Express Statutes; International Remailing," July 17, 1986.

Comments of the U.S. Department of Justice Before the Federal Communications Commission, "Separation of Costs of Regulated Telephone Service From Costs of Nonregulated Activities," Docket No. 86-111, June 30, 1986.

Comments of the U.S. Department of Justice Before the United States Postal Service, "International Priority Airmail Service," June 9, 1986.

Comments of the U.S. Department of Justice Before the United States Postal Service, "Restrictions on Private Carriage of Letters; Proposed Clarification and Modification of Definition and of Regulations on Extremely Urgent Letters," December 12, 1985.

Notice of Intervention of the U.S. Department of Justice as a Limited Participator and Opposition to USPS Motion for Waiver, "Destination–BMC Parcel Post Classification and Rate Changes (Experiment)," November 22, 1985.

Comments of the U.S. Department of Justice Before the Federal Communications Commission, "Investigation of Access and Divestiture Related Tariffs," Docket No. 83-1145, April 8, 1985.

U.S. DEPARTMENT OF JUSTICE CASES

MERGER INVESTIGATIONS

General Electric Company's acquisition of RCA.

Westwood One, Inc.'s acquisition of NBC Radio.

Turner Broadcasting System, Inc.'s attempted acquisition of CBS.

Norfolk Southern, Inc.'s acquisition of North American Van Lines.

Cooper Industries, Inc.'s acquisition of Westinghouse Electric, Corp.'s Lighting Fixture Business.

Southwestern Public Service Company's acquisition of New Mexico Electric Service Company.

ITT-Continental Baking Company's acquisition of Bost Bakery, Inc.

<u>HIGHLY CONFIDENTIAL</u>

Williams Companies' acquisition of Northwest Energy, Corp.

Archer-Daniel-Midland's acquisition of Gold Kist's Valdosta, Georgia soybean processing plant. PRICE FIXING

United States of America v. Weeks Marine, Inc.

CONSENT DECREES

United States of America v. Wallpaper Institute

United States of America v. Greyhound, Corp.

United States of America v. Balley Manufacturing, Corp.

APPENDIX II: DOCUMENTS RELIED UPON

Academic Articles/Books

ABA Section of Antitrust Law (2010), Proof of Conspiracy Under Federal Antitrust Laws

ABA Section of Antitrust Law (2012), Antitrust Law Developments, 7th ed.

ABA Section of Antitrust Law (2014), *Econometrics: Legal, Practical, and Technical Issues*, 2nd ed., American Bar Association

ABA Section of Antitrust Law (2017), *Proving Antitrust Damages: Legal and Economic Issues*, 3rd ed., American Bar Association

Belleflame, P. and Peitz, M. (2015), *Industrial Organization: Markets and Strategies*, Cambridge University Press

Blair, R. and Durrance (2018), "Umbrella Damages: Toward a Coherent Antitrust Policy," *Contemporary Economic Policy*, vol. 36, pp. 241-254

Carlton, D. and Perloff, J. (2005), *Modern Industrial Organization*, 4th ed., Boston, MA: Pearson Addison-Wesley

Church, J. and Ware, R. (2000), *Industrial Organization: A Strategic Approach*, Boston, MA: Irwin McGraw-Hill

Clarke, R. (1983), "Collusion and the Incentives for Information Sharing," *Bell Journal of Economics*, vol. 14, pp. 383-394

Daugherty, C. (2016), Introduction to Econometrics, 5th ed., Oxford University Press

Delipalla, S., and O'Donnell, O. (2001), "Estimating tax incidence, market power and market conduct: The European cigarette industry," *International Journal of Industrial Organization*, vol. 19, pp. 885-908

Haider, L., Leonard, G., and Weick, D. (2017), "Damages in Exclusionary Conduct Cases," in *Proving Antitrust Damages: Legal and Economic Issues*, 3rd ed., American Bar Association, pp. 278-279

Harrington, J. (2004), "Post-Cartel Pricing During Litigation," *Journal of Industrial Economics*, vol. 52, pp. 517-533

Inderst, R., Maier-Rigaud, F., and Schwalbe, U. (2014), "Umbrella Effects," *Journal of Competition Law and Economics*, vol. 10, pp. 739-763

Kenkel, D. (2005), "Are alcohol tax hikes fully passed through to prices? Evidence from Alaska," *American Economic Review*, vol. 95, pp. 273-277

Kennedy, P. (1981), "Estimation with Correctly Interpreted Dummy Variables in Semilogarithmic Equations," *American Economic Review*, vol. 71, p. 801

Kovacic, W., Marshall, R., Marx, L., and White, H. (2011), "Plus Factors and Agreement in Antitrust Law," *Michigan Law Review*, vol. 110, pp. 393-436

Maier-Rigaud, F. and Schwalbe, U. (forthcoming), "Quantification of Antitrust Damages," in *Competition Damages Actions in the EU*, Edward Elgar Publisher

McAfee, R. P., Mialon, H., and Williams, M. (2004), "What is a Barrier to Entry?" *American Economic Review*, vol. 94, pp. 461-465

McCrary, J. and Rubinfeld, D. (2014), "Measuring Benchmark Damages in Antitrust Litigation," *Journal of Econometric Methods*, vol. 3, pp. 63-74

Reny, P., Wilkie, S., and Williams, M. (2012), "Tax Incidence Under Imperfect Competition: Comment," *International Journal of Industrial Organization*, vol. 30, pp. 399-402

Ritz, R. (2017), "Oligopolistic Competition and Welfare," *Handbook of Game Theory and Industrial Organization*, L. Corchon and M. Marini (eds.), Edward Elgar

Rubinfeld, D. (2011), "Reference Guide on Multiple Regression," *Reference Manual on Scientific Evidence*, 3rd ed., Federal Judicial Center, pp. 303-357

Sexton, R. (2015), Exploring Macroeconomics, 7th ed., Cengage Learning, p. 139

Sowell, T., (2014), Basic Economics. New York: Basic Books

Weyl, E. and Fabinger, M. (2013), "Pass-through as an economic tool: Principles of incidence under imperfect competition," *Journal of Political Economy*, vol. 121, pp. 528-583

Young, D. and Bielińska-Kwapisz, A. (2002), "Alcohol taxes and beverage prices," *National Tax Journal*, pp. 57-73

Bates Numbered Documents

APU000072610 Bangkok Skipjack Index.xlsx BB_Civil_00000329 BB_Civil_000004222 BB_Civil_000005942 BB_Civil_000012728 BB_Civil_000031501 BB_Civil_000031673 BB_Civil_000092221

- BB_Civil_000092285
- BB_Civil_000092286-300
- BB Civil 000107858
- BB_Civil_000139977
- BB Civil 000154783-787
- BB_Civil_000155059-073
- BB Civil 000212838
- BB_Civil_000577477
- BB_Civil_000586955
- BB_Civil_000800557
- BB_Civil_000802946
- BB_Civil_000823919
- BB_Civil_000858399-402
- BB_Civil_001033371
- BB Civil 001192619
- BB_Civil_001192620
- BB Civil 001192621
- BB_Civil_001192622
- BB_Civil_001192623
- BB_Civil_001192624
- BB_Civil_001192625
- BB_Civil_001192626
- BB_Civil_001192627
- BB_Civil_001192628
- BB_Civil_001192629
- BB_Civil_001192630
- BB_Civil_001192631
- BB_Civil_001192632

BB_Civil_001192633

BB_Civil_001192634

BB_Civil_001192635

BB_Civil_001192636

BB_Civil_001192637

BB_Civil_001192638

BB_Civil_001192639

BB_Civil_001192640

BB_Civil_001192641

BB_Civil_001192642

BB_Civil_001192643

BB_Civil_001192644

BB_Civil_001192645

BB_Civil_001192646

BB_Civil_001192647

BB_Civil_001192648

BB_Civil_001192649

BB_Civil_001192650

BB_Civil_001192651

BB_Civil_001192652

BB_Civil_001192653

BB_Civil_001192654

BB_Civil_001192655

BB_Civil_001192656

BB_Civil_001192657

BB_Civil_001192658

BB_Civil_001192659

BB_Civil_001192660

BB_Civil_001192661

BB_Civil_001192662

BB_Civil_001192663

BB_Civil_001192664

BB_Civil_001192665

BB_Civil_001192666

BB_Civil_001192667

BB_Civil_001192668

BB_Civil_001192669

BB_Civil_001192670

BB_Civil_001192671

BB_Civil_001192672

BB_Civil_001192673

BB_Civil_001192674

BB_Civil_001192675

BB_Civil_001192676

BB_Civil_001192677

BB_Civil_001192678

BB_Civil_001192679

BB_Civil_001192680

BB_Civil_001192681 BB_Civil_001192682

BB_Civil_001192683

BB_Civil_001192684

BB_Civil_001192685

BB_Civil_001192686

BB_Civil_001192687

BB_Civil_001192688

BB_Civil_001192689

BB_Civil_001192690

BB_Civil_001192691 BB_Civil_001192692

BB Civil 001192693

BB Civil 001192694

BB Civil 001192695

BB_Civil_001192696

BB_Civil_001192697

BB_Civil_001192698

BB_Civil_001192699

BB_Civil_001192700

BB_Civil_001192701

BB_Civil_001192702

BB_Civil_001192703

BB_Civil_001192704 BB_Civil_001192705

BB_Civil_001192706

BB_Civil_001192707

BB_Civil_001192708

BB_Civil_001192709

BB_Civil_001192710

BB_Civil_001192711

BB_Civil_001192712 BB_Civil_001192713

BB_Civil_001192714

BB_Civil_001192715

BB_Civil_001192716

- BB_Civil_001192717
- BB_Civil_001192718
- BB Civil 001192719
- BB_Civil_001192720
- BB Civil 001223765
- BB_Civil_001223766
- BB_Civil_001223767
- BB_Civil_001223768
- BB_Civil_001223769
- BB_Civil_001223770
- BB_Civil_001223771
- BB_Civil_001223772
- BB_Civil_001223773
- BB_Civil_001223774
- BB_Civil_001223775
- BB_Civil_001223776
- BB_Civil_001223777
- BB_Civil_001223778
- BB_Civil_001223779
- BB_Civil_001223780
- BB_Civil_001223781
- BB_Civil_001223782
- BB_Civil_001223783
- BB_Civil_001288642
- BB's Data Dictionary #1.xlsx
- C06.Act.P&L.xlsm
- C07.Act.P&L.xlsm
- C08.Act.P&L.xlsm

C09.Act.P&L.YTDDecvsBudget_AuditII.xlsm

C10.9+3.Monthly Reference P&L (no links).xlsm

CFP-A1D-000001-209

CFP-CHS-000001-290

CFP-SB-0000001-234

CFP-SIM-000001-12

COSI-CIV- 000000593

COSI-CIV- 000000598

COSI-CIV-000000593.xlsx

COSI-CIV-000001432

COSI-CIV-000001445-1460

COSI-CIV-000001786

COSI-CIV-000001809

COSI-CIV-000001995

COSI-CIV-000036558

COSI-CIV-000056903

COSI-CIV-000059084-105

COSI-CIV-000059260

COSI-CIV-000094504

COSI-CIV-000094546

COSI-CIV-000094924

COSI-CIV-000094950

COSI-CIV-000102150

COSI-CIV-000348749

COSI-CIV-000348752

COSI-CIV-000355203

COSI-CIV-000424111

COSI-CIV-000424409

- COSI-CIV-000424410
- COSI-CIV-000424411
- COSI-CIV-000424412
- COSI-CIV-000424413
- COSI-CIV-000424414
- COSI-CIV-000424415
- COSI-CIV-000424416
- COSI-CIV-000424417
- COSI-CIV-000428136
- COSI-CIV-000428137
- COSI-CIV-000428138
- COSI-CIV-000428139
- COSI-CIV-000428140
- COSI-CIV-000428141
- COSI-CIV-000428142
- COSI-CIV-000428143
- COSI-CIV-000428144
- COSI-CIV-000428145
- COSI-CIV-000428146
- COSI-CIV-000428147
- COSI-CIV-000428148
- COSI-CIV-000428149
- COSI-CIV-000428150
- COSI-CIV-000428151
- COSI-CIV-000428152
- COSI-CIV-000428153
- COSI-CIV-000428154
- COSI-CIV-000428155

- COSI-CIV-000428156
- COSI-CIV-000428157
- COSI-CIV-000428158
- COSI-CIV-000428159
- COSI-CIV-000428160
- COSI-CIV-000428161
- COSI-CIV-000428162
- COSI-CIV-000428163
- COSI-CIV-000428164
- CUUR0000SEFT04
- DM0000117
- DM0000118
- DM0000119
- DM0000120
- DM0000121
- DM0000122
- DM0000123
- DM0000124
- DM0000125
- DM0000126
- DM0000127
- DM0000128
- DM0000131
- EC_RL_014.xls
- EC_RL_014_S2.xls
- EMD_EPD2D_PTE.xls
- HIGHLY CONFIDENTIAL SYSCO-2018Subp0000001
- HIGHLY CONFIDENTIAL SYSCO-2018Subp0000002

HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000003 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000004 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000005 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000006 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000007 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000008 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000009 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000010 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000011 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000012 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000013 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000014 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000015 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000016 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000017 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000018 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000019 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000020 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000021 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000022 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000023 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000024 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000025 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000026 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000027 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000028 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000029 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000030 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000031 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000032 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000033 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000034 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000035 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000036 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000037 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000038 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000039 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000040 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000041 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000042 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000043 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000044 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000045 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000046 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000047 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000048 HIGHLY CONFIDENTIAL - SYSCO-2018Subp0000049 HIGHLY CONFIDENTIAL - USF-2018Subp0000001 HIGHLY CONFIDENTIAL - USF-2018Subp0000002 HIGHLY CONFIDENTIAL - USF-2018Subp0000003 HIGHLY CONFIDENTIAL - USF-2018Subp0000004 HIGHLY CONFIDENTIAL - USF-2018Subp0000005 HIGHLY CONFIDENTIAL - USF-2018Subp0000006 HIGHLY CONFIDENTIAL - USF-2018Subp0000007 HIGHLY CONFIDENTIAL - USF-2018Subp0000008 HIGHLY CONFIDENTIAL - USF-2018Subp0000010

HIGHLY CONFIDENTIAL - USF-2018Subp0000011

HIGHLY CONFIDENTIAL - USF-2018Subp0000012

HIGHLY CONFIDENTIAL - USF-2018Subp0000013

HIGHLY CONFIDENTIAL - USF-2018Subp0000014

HIGHLY CONFIDENTIAL Costco - BumbleBee_Sales

HIGHLY CONFIDENTIAL Costco - ChickenSea_Sales

HIGHLY CONFIDENTIAL Costco - MiscVendors_Sales

HIGHLY CONFIDENTIAL_COSTCO PRODUCTION_HCETCO8 File

OANDA FX rates_data.csv

PCU3261123261121

PCU3324313324311

Private Label SKUs.xlsx

SKC_TD00000001

SKC_TD00000002

SKC TD00000003

SKC_TD00000004

SKC_TD00000005

SKC_TD00000006

SKC_TD00000007

SKC_TD00000008

SKC TD00000009

SKC TD00000010

SKC_TD00000011

SKC_TD00000012

SKC_TD00000013

SKC_TD00000014

SKC_TD00000015

SKC_TD00000016

SKC TD00000017

SKC TD00000018

SKC_TD00000019

SKC_TD00000020

SKC_TD00000021

SKC_TD00000023

SKC_TD00000033

SKC_TD00000034

SKC_TD00000035

SKC_TD00000036

SKC_TD00000037

SKC000236687

SKC000512299

SKC000534281

SKC000608602

SKC000626559

SKC000703281

SKC000804850

SKC000839845

SKC001235899

StarKist009166

Sysco state

Tuna Results

Tuna_20071230_20081227_EIW_SalesCorpHist

Tuna_20081228_20100102_EIW_SalesCorpHist2009

Tuna_20100103_20110101_EIW_SalesCorpHist2010

Tuna_20110102_20111231_EIW_ADW_SalesCorp

Tuna_20120101_20121229_EIW_ADW_SalesCorp

Tuna_20121230_20131228_EIW_SalesCorp Tuna_20131229_20141227_EIW_SalesCorp Tuna_20141228_20160102_EIW_SalesCorp Tuna_20160103_20161231_EIW_SalesCorp Tuna_20170101_20171231_EIW_SalesCorp WM-EPP-0000004_HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY WPU091405 WPU10890811

Depositions and Exhibits

Deposition of Abraham Salem (September 21, 2018) Deposition of Andras Mecs (March 7, 2018) Deposition of Andrew Choe (March 6, 2018) Deposition of Cary Gann (March 8, 2018) Deposition of Christopher Hughes (March 15, 2018) Deposition of Daniel Hofmeister (March 15, 2018) Deposition of Darren Parsons (March 22, 2018) Deposition of David L. Burt (May 11, 2018) Deposition of Donald M. Gallagher (April 19, 2018) Deposition of James Badet (February 9, 2018) Deposition of James Willich (April 4, 2018) Deposition of Jennifer Hayes (February 9, 2018) Deposition of Jin Ho Lim (March 20, 2018) Deposition of Joseph Tuza (May 10, 2018) Deposition of Kevin McClain (March 2, 2018) Deposition of Laila Haider (October 26, 2018) Deposition of Marty Belleville (March 29, 2018) Deposition of Michael Alan Williams (September 18, 2018)

Deposition of Michelle Suggs (March 27, 2018)

Deposition of Robert Worsham (May 8, 2018)

Deposition of Victor Phan (February 9, 2018)

Expert Reports

Expert Rebuttal Report of Michael A. Williams, Ph.D. (November 13, 2018)
Expert Reply Report of David Sunding (November 20, 2018)
Expert Reply Report of Russell W. Mangum III (November 27, 2018)
Expert Report of David Sunding (May 29, 2018)
Expert Report of Dr. John H. Johnson, IV (October 16, 2018)
Expert Report of Dr. Laila Haider (October 2, 2018)
Expert Report of Dr. Laila Haider End Payer Plaintiff Action (October 2, 2018)
Expert Report of Michael A. Williams, Ph.D. (May 29, 2018)
Expert Report of Russell W. Mangum III (May 29, 2018)

Pleadings, Submissions, Complaints, and Orders

B.W.I. Custom Kitchen v. Owens-Illinois, Inc., 191 Cal.App.3d 1341 (Ct. App. 1987)

Defendant Tri-Union Seafoods LLC d/b/a Chicken of the Sea International's Second Supplemental Responses and Objections to Plaintiffs Second Set of Interrogatories— Interrogatory No. 1 (October 18, 2018)

Defendants' Opposition to Commercial Food Preparer Plaintiffs' Motion for Class Certification (October 2, 2018)

In re Cathode Ray Tube (CRT) Antitrust Litig., No. C-07-5944-SC, 2013 WL 5391159, at *4–5, *9 (N.D. Cal. Sept. 24, 2013)

In re Elec. Books Antitrust Litig., 859 F. Supp. 2d 671 (S.D.N.Y. 2012)

In re Packaged Seafood Products Antitrust Litigation, 3-15-md-2670-JLS-MDD, April 17, 2018

In re Packaged Seafood Products Antitrust Litigation, 3-15-md-2670-JLS-MDD, October 5, 2018

In re Qualcomm Antitrust Litig., No. 17-MD-02773-LHK, 2018 WL 4680214, at *18–19 (N.D. Cal. Sept. 27, 2018)

In re Static Random Access memory (SRAM) Antitrust Litig., 264 F.R.D. 603, 613–15 (N.D. Cal. 2009)

In re TFT-LCD (Flat Panel) Antitrust Litig., 267 F.R.D. 583, 602–04 (N.D. Cal. 2010), amended in part, No. M 07-1827 SI, 2011 WL 3268649 (N.D. Cal. July 28, 2011)

Monsanto Co. v. Spray-Rite Service Corp., 465 U.S. 752, 761 (1984)

U.S. District Court, Eastern District of New York, *In re: Air Cargo Shipping Services Antitrust Litigation*, MDL No. 1775 (October 15, 2014)

U.S. District Court, Northern District of California, *In re: Korean Ramen Antitrust Litigation*, Case No. 13-cv-04115-WHO (January 19, 2017)

U.S. v. Bumble Bee Food, LLC, Case No. CR 17-00249 EMC (N.D. Cal. August 2, 2017), Amended Plea Agreement

U.S. v. Cameron, No. 16-CR-501-EMC (N.D. Cal. January 25, 2017), Plea Agreement

U.S. v. Hodge, Case No. 17 CR 297 EMC (N.D. Cal. June 28, 2017), Plea Agreement

U.S. v. Worsham, No. 16-CR-535-EMC (N.D. Cal. March 15, 2017), Plea Agreement

Other

"Disposable Personal Income," *FRED*, *available at* https://fred.stlouisfed.org/series/DPI?utm_source=series_page&utm_medium=related_content& utm_term=other_formats&utm_campaign=other_format

"Labor Force Statistics from the Current Population Survey," *BLS*, *available at* https://data.bls.gov/timeseries/LNS14000000

"Tri Marine Officially Opens State-of-the-Art Tuna Processing Facility in American Samoa," *TriMarine* (2014), *available at* http://www.trimarinegroup.com/news/press/STP_Inauguration_012415.html

"US State and Canada Province Codes," UPS, *available at* https://www.ups.com/worldshiphelp/WS16/ENU/AppHelp/Codes/State Province Codes.htm/

Bank, E., "What Is a Commodity-Based Industry?" *Chron, available at* http://smallbusiness.chron.com/commoditybased-industry-75464.html

Campling, L. et al., "Market and Industry Dynamics in the Global Tuna Supply Chain," *Pacific Islands Forum Fisheries Agency* (2011), *available at* https://www.ffa.int/system/files/Global%20Tuna%20Market%20%26%20Industry%20Dynamics _Part%201b.pdf

Chicken of the Sea, "Know your seafood," *available at* https://chickenofthesea.com/company/know-your-seafood/tuna

Costco Wholesale Corporation 10-K (FYE September 3, 2017), *available at* https://www.sec.gov/Archives/edgar/data/909832/000090983217000014/cost10k90317.htm

Dot Foods, "What We Do," available at http://www.dotfoods.com/about-dot/what-we-do/

Explanation of COGS, available at https://www.investopedia.com/terms/c/cogs.asp

Newsome, J. (2013), "An Analysis of North Carolina's Seafood Industry: National and State Perspectives," *NC Growing Together, available at* https://www.cefs.ncsu.edu/ncgt/analysis-of-nc-seafood-industry-national-and-state-perspective.pdf

Peterson, L. (2017), "DOJ's Packaged Seafood Probe Yields Conditional Leniency Applicant," *Antitrust Alert, available at* https://www.antitrustalert.com/2017/09/articles/cartel-enforcement/the-latest-dojs-packaged-seafood-probe-yields-conditional-leniency-applicant/

Sysco Corporation 10-K (FYE July 1, 2017), *available at* https://www.sec.gov/Archives/edgar/data/96021/000009602117000120/syy201710-k.htm

U.S. Department of Agriculture (updated 2017), "Meat, poultry, fish, eggs and nuts," *available at* https://www.ers.usda.gov/data-products/food-availability-per-capita-data-system/

U.S. Department of Justice (2017), "Bumble Bee Agrees to Plead Guilty to Price Fixing," *available at* https://www.justice.gov/opa/pr/bumble-bee-agrees-plead-guilty-price-fixing

U.S. Department of Justice (2017), "Frequently Asked Questions About the Antitrust Division's Leniency Program and Model Leniency Letters," *available at* https://www.justice.gov/atr/page/file/926521/download

U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines* (August 19, 2010)

U.S. Department of Justice, "Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For," *available at* http://www.justice.gov/atr/public/guidelines/211578.htm

U.S. Department of Justice, "StarKist Co. Agrees to Plead Guilty for Price Fixing," (October 18, 2018), *available at* https://www.justice.gov/opa/pr/starkist-co-agrees-plead-guilty-price-fixing

U.S. Department of Justice, Antitrust Division (May 16, 2018), "Bumble Bee CEO Indicted for Price Fixing: Fourth Individual Charged in Ongoing Investigation," *available at* https://www.justice.gov/opa/pr/bumble-bee-ceo-indicted-price-fixing

U.S. International Trade Commission, Tariff Databases, Yearly Tariff Data 1997-2018, *available at* https://www.usitc.gov/tariff_affairs/tariff_databases.htm

United States Department of Labor, "VII. Economic Factors for Consideration that May Weigh Against Minimum Wage Increases," *available at* https://www.dol.gov/whd/as/sec7.htm

US Foods Holding Corp. 10-K (FYE December 30, 2017), *available at* https://www.sec.gov/Archives/edgar/data/1665918/000156459018003495/usfd-10k_20171230.htm

Walmart Inc. 10-K (FYE January 31, 2018), *available at* https://www.sec.gov/Archives/edgar/data/104169/000010416918000028/wmtform10kx1312018.htm

APPENDIX III: SUPPLEMENTAL TABLES AND FIGURES

JAN. 2002 - DEC 2016							
Product Type	Light Pouch - 43oz	White Pouch - 43oz	Light Cans - 66.5oz	White Cans - 66.5oz			
Light Cans - Halves	0.96	0.86	0.97	0.95			
White Cans - Halves	0.91	0.86	0.93	0.93			
Light Cans - 12oz	0.95	0.89	0.96	0.94			
White Cans - 12oz	0.92	0.93	0.94	0.96			
Light Pouch - 2.5/3oz	0.87	0.89	0.88	0.90			
White Pouch - 2.5/3oz	0.80	0.80	0.82	0.83			

TABLE A1 COST PRICE CORDET ATTONIC DV DRODUCT

Source: Mangum Opening Report, MCD12.1b.

Product Type	Light Pouch - 43oz	White Pouch - 43oz	Light Cans - 66.5oz	White Cans - 66.5oz
Light Cans - Halves	0.97	0.98	0.96	0.88
White Cans - Halves	0.95	0.95	0.92	0.86
Light Cans - 12oz	0.94	0.97	0.92	0.89
White Cans - 12oz	0.93	0.95	0.90	0.85
Light Pouch - 2.5/3oz	0.98	0.98	0.94	0.87
White Pouch - 2.5/3oz	0.99	1.00	0.94	0.89

TABLE A2 StarKist Price Correlations by Product Jan. 2002 - Dec 2016

Source: Mangum Opening Report, MCD12.1c.

Product Type	Light Pouch - 43oz	White Pouch - 43oz	Light Cans - 66.5oz	White Cans - 66.5oz
Light Cans - Halves	0.94	0.87	0.96	0.88
White Cans - Halves	0.89	0.91	0.89	0.95
Light Cans - 12oz	0.93	0.89	0.94	0.96
White Cans - 12oz	0.91	0.89	0.89	0.97
Light Pouch - 2.5/3oz	0.90	0.82	0.91	0.87
White Pouch - 2.5/3oz	0.83	0.87	0.85	0.92

TABLE A3BUMBLE BEE PRICE CORRELATIONS BY PRODUCTJAN. 2002 - DEC 2016

Source: Mangum Opening Report, MCD12.1a.





in the damages period.



FIGURE A3

in the damages period.



in the damages period.



in the damages period.



in the taimages period.



in the damages period.



in the damages period.



in the damages period.



in the damages period.


FIGURE A11 BUMBLE BEE MONTHLY AVERAGE PRICE PER OUNCE

in the damages period.



FIGURE A12

Notes: Bumble Bee White Pouch accounts for 1% of the total sales of the top-selling products across Defendants in the damages period.



Notes: This product accounts for 27.4% of the total sales across Defendants in the damages period.



Notes: This product accounts for 11.2% of the total sales across Defendants in the damages period.



FIGURE A15 MONTHLY AVERAGE PRICE FOR COSI PRODUCT 4800000589

Notes: This product accounts for 10.9% of the total sales across Defendants in the damages period.



Notes: This product accounts for 8.9% of the total sales across Defendants in the damages period.



Notes: This product accounts for 6.7% of the total sales across Defendants in the damages period.



Notes: This product accounts for 6.7% of the total sales across Defendants in the damages period.



FIGURE A19 Monthly Average Price for COSI Product 4800000790

Notes: This product accounts for 6.2% of the total sales across Defendants in the damages period.



Notes: This product accounts for 3.6% of the total sales across Defendants in the damages period.