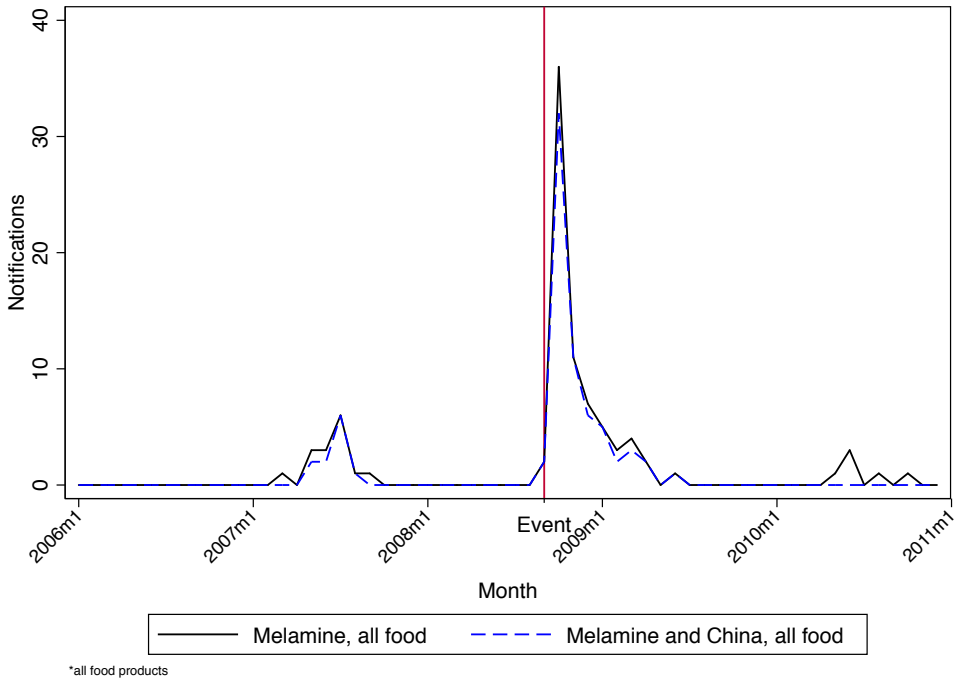
APPENDICES

- Appendix A: Additional Tables and Figures
- Appendix B: Data Appendix and Codebooks
- Appendix C: Alternative Empirical Strategies for the Industry-level Analysis

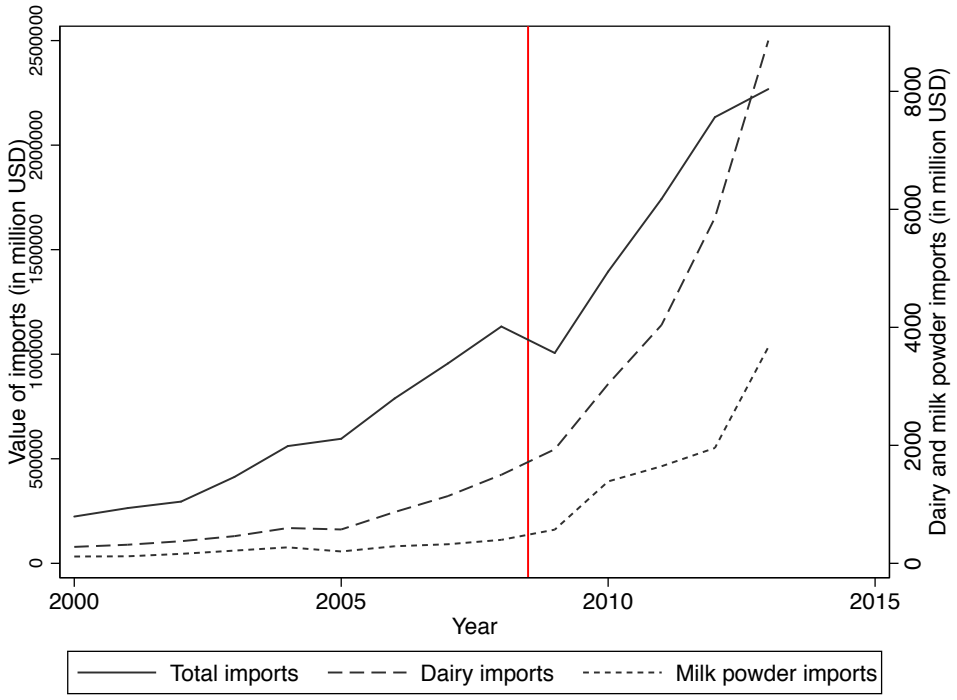
Appendix A: Additional Tables and Figures

Figure A.1: Number of Melamine Notifications (RASFF, 2006-2010)



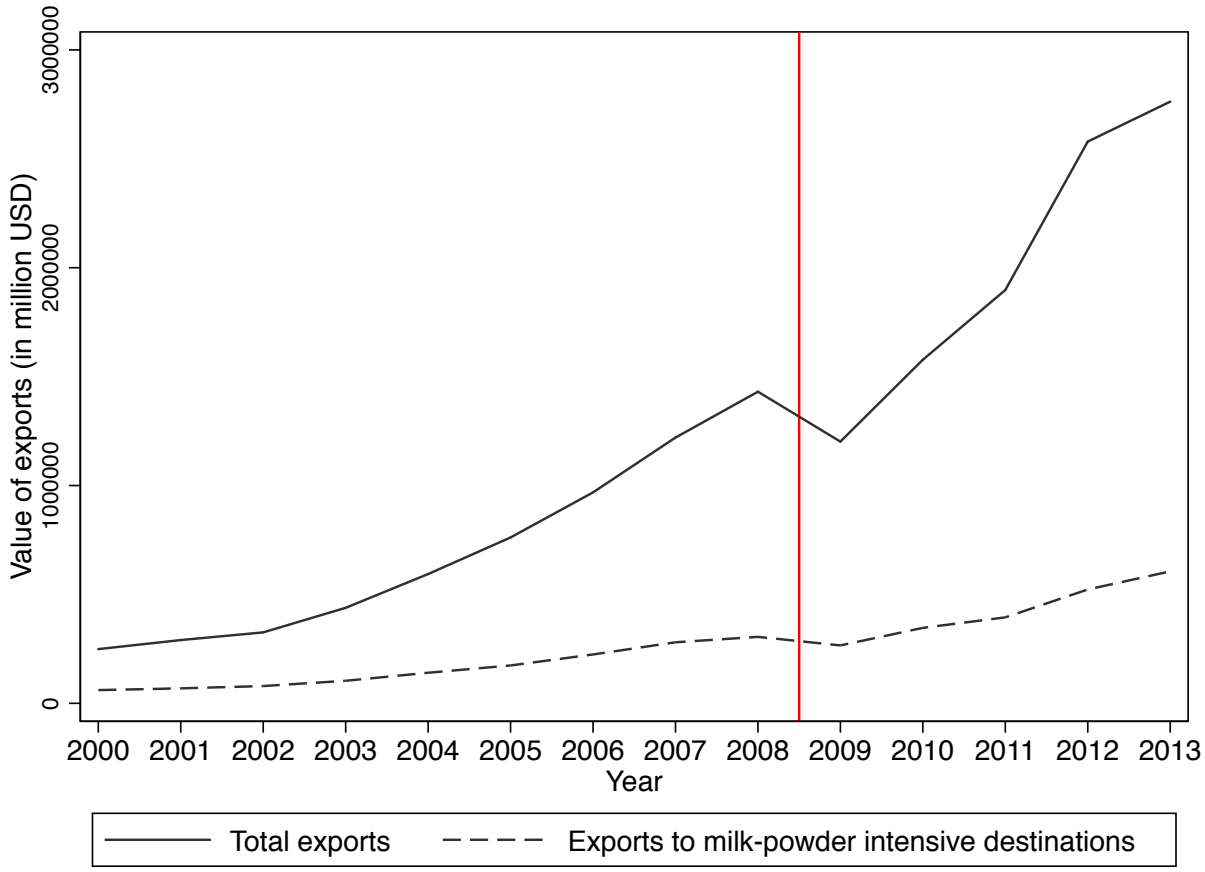
Notes: This figure plots the total number of safety notifications regarding melamine in the Rapid Alert System for Food and Feed (RASFF) for imported food products and that from China. The red line represents the month of the initial outbreak of the scandal: September, 2008. The RASFF is a system for reporting food safety issues in the European Union.

Figure A.2: Chinese Imports over Time



Notes: This figure plots the value of all Chinese imports, imports of dairy products and milk powder from 2000 to 2013.

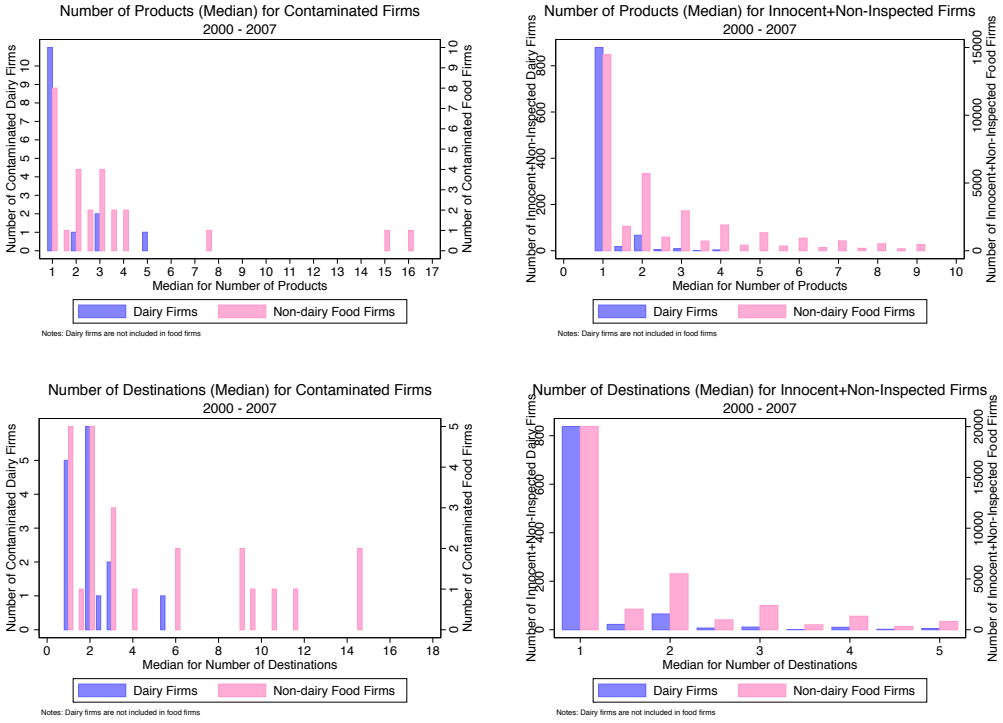
Figure A.3: Chinese Exports over Time



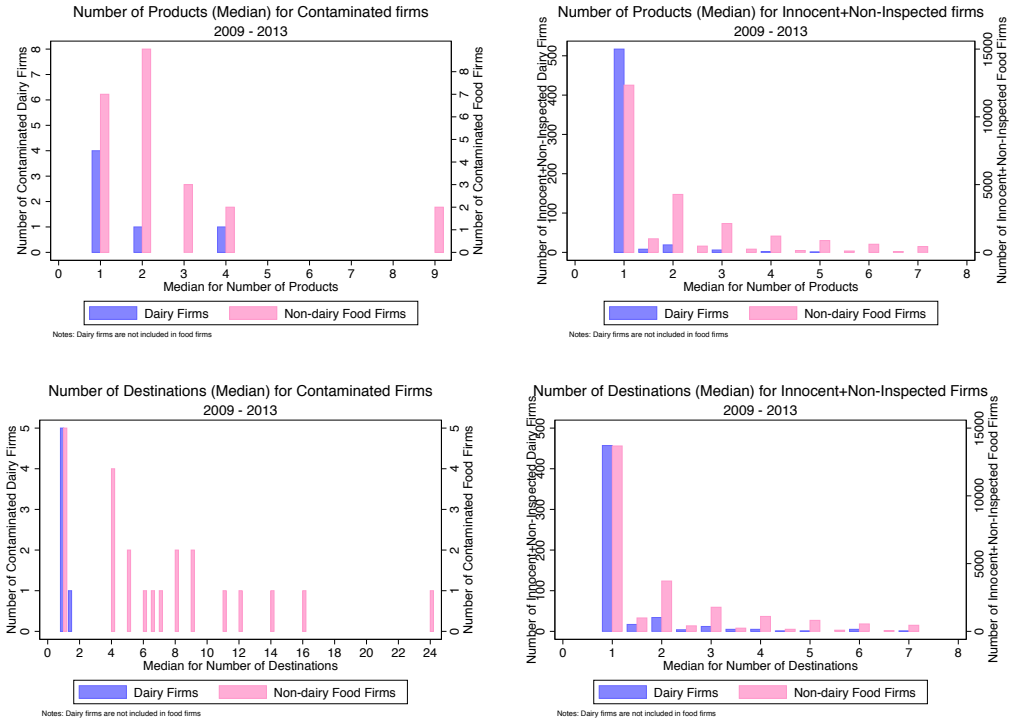
Notes: This figure plots the value of all Chinese exports and value of exports to major milk-power importing destinations (including Taiwan, Hong Kong, Singapore, Thailand, Iraq, Bangladesh, Burma, the Philippines and UAE) from 2000 to 2013.

Figure A.4: Number of Exporting Products and Destinations Across Firms

Panel A. Before the Scandal: 2000-2007

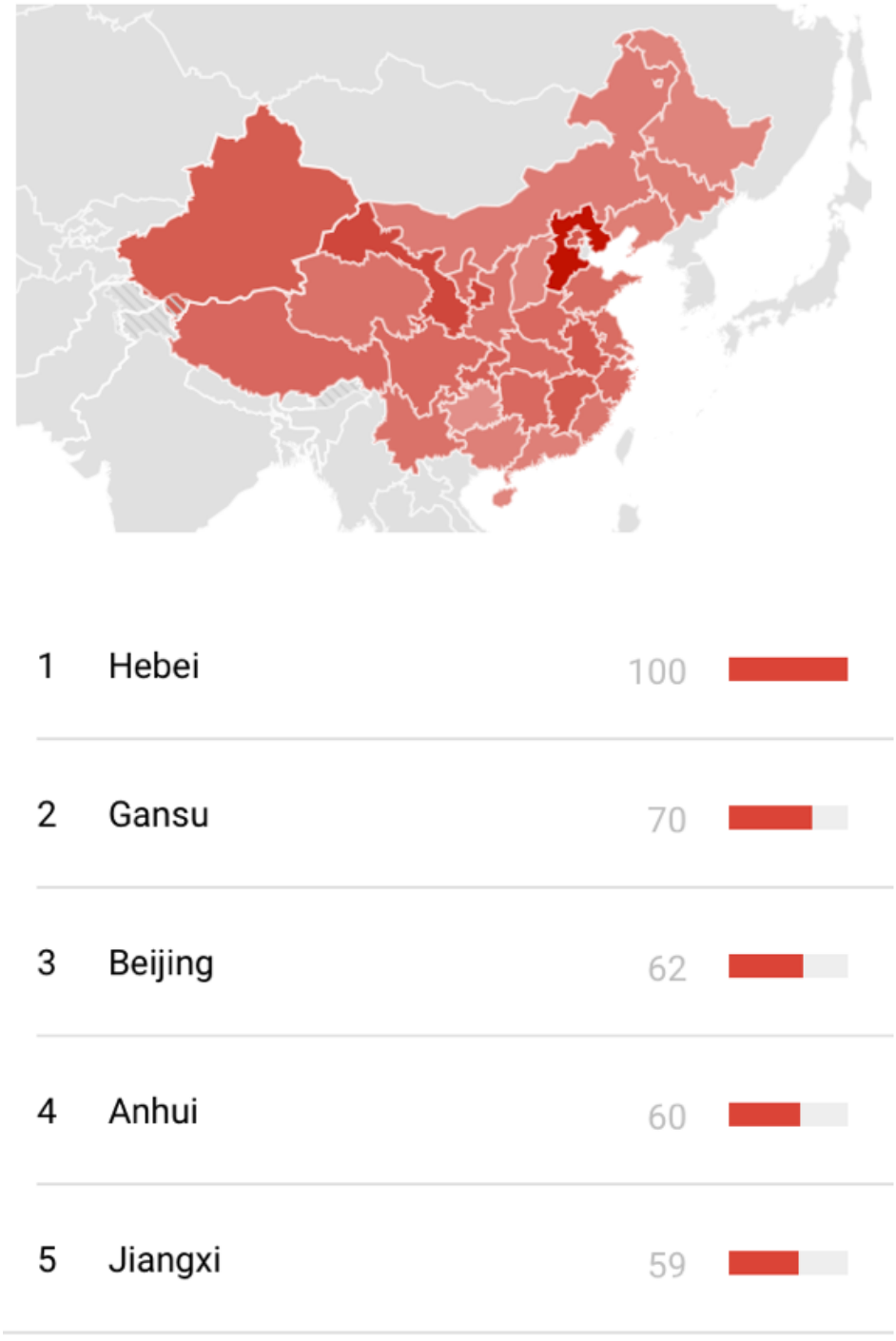


Panel B. After the Scandal: 2009-2013



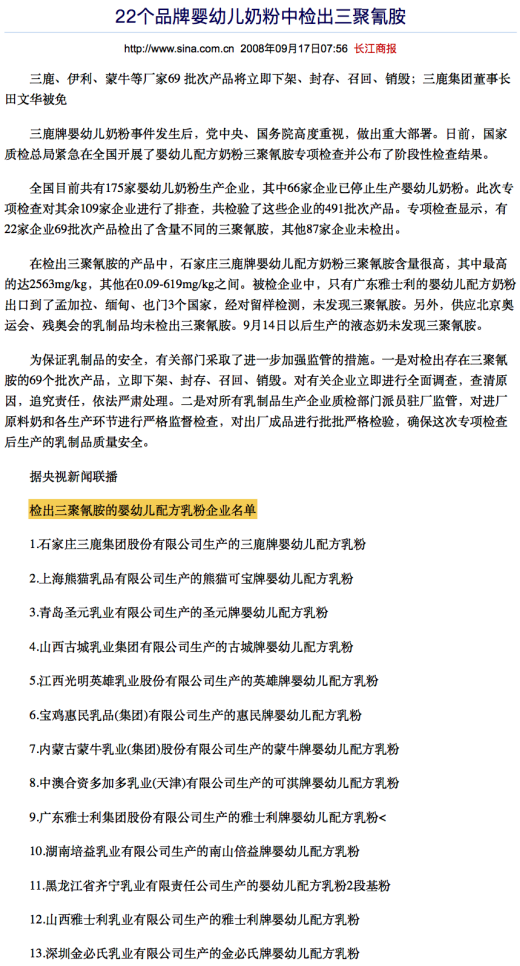
Notes: This figure plots number of firms with different median number of products and number of destinations in the pre-scandal (Panel A) and post-scandal (Panel B) periods. We categorize firms by contaminated firms on the left column and innocent plus non-inspected firms on the right column. Dairy firms are defined as firms which have ever exported dairy products during 2000 to 2013 while non-dairy food firms are defined as firms which have exported food products but have never exported dairy products during 2000 to 2013.

Figure A.5: Google Trend Search Across Regions in China



Notes: This figure plots Google trends web search index for the term "Sanlu" across regions (provinces) in China in 2008.

Figure A.6: Typical News Report Examples: Domestic and Foreign



22个品牌婴幼儿奶粉中检出三聚氰胺

http://www.sina.com.cn 2008年09月17日07:56 长江商报

三鹿、伊利、蒙牛等厂家69 批次产品将立即下架、封存、召回、销毁；三鹿集团董事长田文华被免

三鹿牌婴幼儿奶粉事件发生后，党中央、国务院高度重视，做出重大部署。日前，国家质检总局紧急在全国开展了婴幼儿配方奶粉三聚氰胺专项检查并公布了阶段性检查结果。

全国目前共有175家婴幼儿奶粉生产企业，其中66家企业已停止生产婴幼儿奶粉。此次专项检查对其余109家企业进行了排查，共检验了这些企业的491批次产品。专项检查显示，有22家企业69批次产品检出了含量不同的三聚氰胺，其他87家企业未检出。

在检出三聚氰胺的产品中，石家庄三鹿牌婴幼儿配方奶粉三聚氰胺含量很高，其中最高的达2563mg/kg，其他在0.09-619mg/kg之间。被检企业中，只有广东雅士利的婴幼儿配方奶粉出口到了孟加拉、缅甸、也门3个国家，经对留样检测，未发现三聚氰胺。另外，供应北京奥运会、残奥会的乳制品均未检出三聚氰胺。9月14日以后生产的液态奶未发现三聚氰胺。

为保证乳制品的安全，有关部门采取了进一步加强监管的措施。一是对检出存在三聚氰胺的69个批次产品，立即下架、封存、召回、销毁。对有关企业立即进行全面调查，查清原因，追究责任，依法严肃处理。二是对所有乳制品生产企业质检部门派员驻厂监管，对进厂原料奶和各生产环节进行严格监督检查，对出厂成品进行批批严格检验，确保这次专项检查后生产的乳制品质量安全。

据央视新闻联播

检出三聚氰胺的婴幼儿配方乳粉企业名单

1.石家庄三鹿集团股份有限公司生产的三鹿牌婴幼儿配方乳粉

2.上海熊猫乳品有限公司生产的熊猫可宝牌婴幼儿配方乳粉

3.青岛圣元乳业有限公司生产的圣元牌婴幼儿配方乳粉

4.山西古城乳业集团有限公司生产的古城牌婴幼儿配方乳粉

5.江西光明英雄乳业股份有限公司生产的英雄牌婴幼儿配方乳粉

6.宝鸡惠民乳品(集团)有限公司生产的惠民牌婴幼儿配方乳粉

7.内蒙古蒙牛乳业(集团)股份有限公司生产的蒙牛牌婴幼儿配方乳粉

8.中澳合资多加多乳业(天津)有限公司生产的可淇牌婴幼儿配方乳粉

9.广东雅士利集团股份有限公司生产的雅士利牌婴幼儿配方乳粉<

10.湖南培益乳业有限公司生产的南山倍益牌婴幼儿配方乳粉

11.黑龙江省齐宁乳业有限责任公司生产的婴幼儿配方乳粉2段基粉

12.山西雅士利乳业有限公司生产的雅士利牌婴幼儿配方乳粉

13.深圳金必氏乳业有限公司生产的金必氏牌婴幼儿配方乳粉

The New York Times

ASIA PACIFIC

China Says More Milk Products Show Signs of Being Tainted

By EDWARD WONG SEPT. 18, 2008

BEIJING — China's adulterated-milk scandal continued to widen Thursday, as the authorities arrested a dozen people, fired a senior government official and acknowledged that a wider range of milk products showed traces of a chemical used to disguise its poor quality.

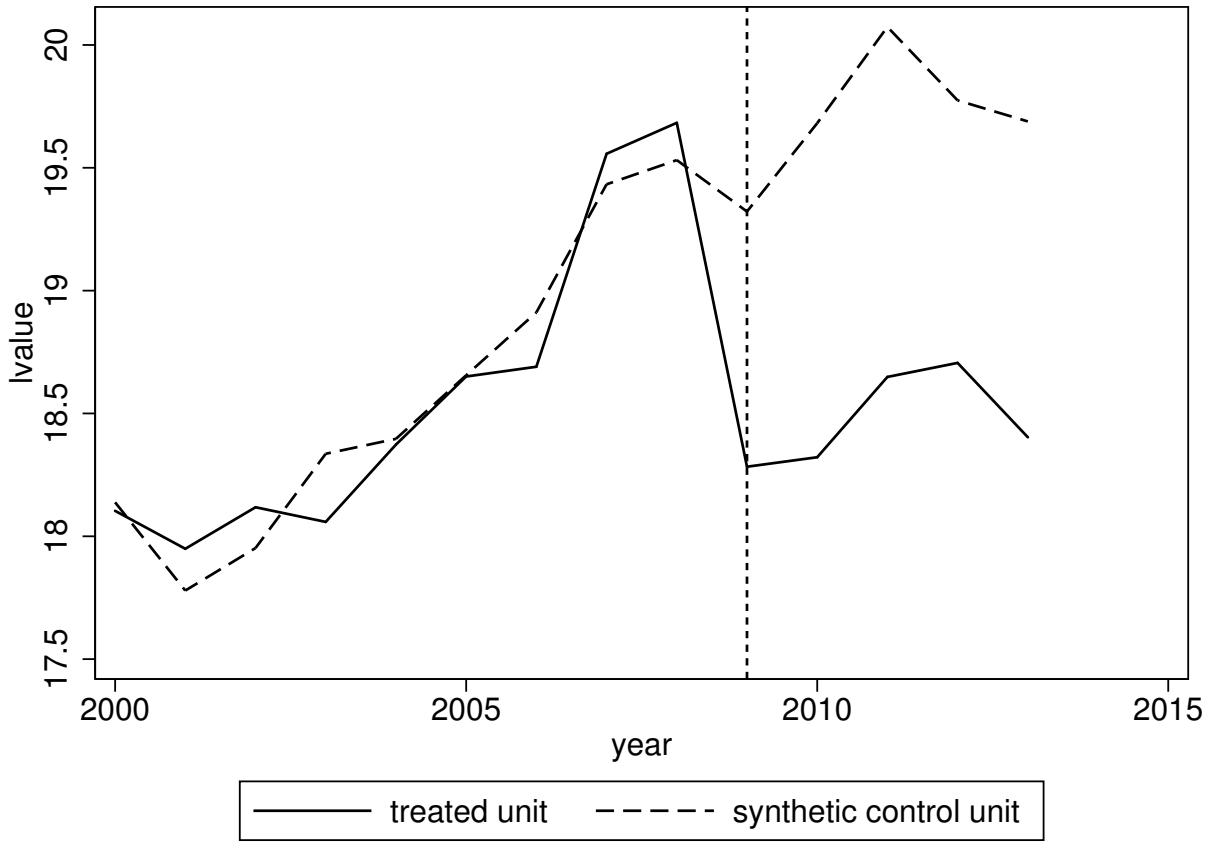
Officials said a fourth infant had died from tainted baby formula, while health regulators in Hong Kong announced a broader recall of mainland Chinese-made milk, yogurt and ice cream contaminated with the chemical melamine.

Tainted milk is the latest in a long string of food and drug safety problems that have caused consumers in China and in the country's major export markets to worry about the quality of some Chinese goods.

Tainted infant formula was at the center of another scandal in 2004 that prompted a crackdown on rogue suppliers. But the new safety problems are much more widespread, involving at least 22 dairy companies and contaminated milk products that have appeared nationwide.

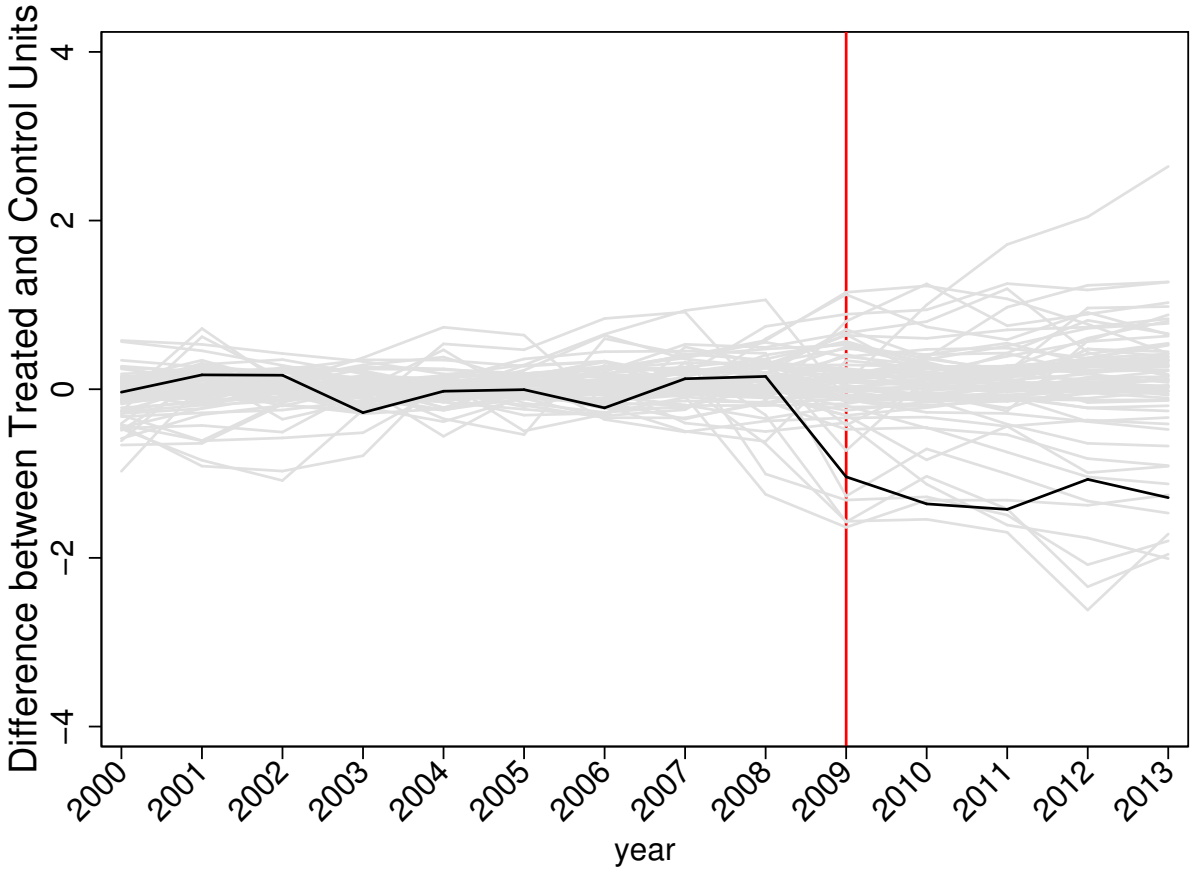
Notes: The figure on the left panel shows a Chinese news report on the results of the first round of inspection. The figure on the right is a typical article in foreign media reporting the same news. Chinese news usually provide a full list of contaminated firms, while foreign news outlets usually do not. The firms mentioned in Chinese news include: Shijiazhuang Sanlu Group, Shanghai Panda Dairy, Qingdao Shengyuan Dairy, Shanxi Gu Cheng Dairy, Jiangxi Guangming Yingxiong Dairy, Baoji Huimin Dairy, Inner Mongolia Mengniu Dairy, Torador Dairy Industry (Tianjin), Guangdong Yashili Group, Hunan Peiyi Dairy, Heilongjiang Qilin Dairy, Shanxi Yashili Dairy, Shenzhen Jinbishi Milk, Scient (Guangzhou) Infant Nutrition, Guangzhou Jinding Dairy Products Factory, Inner Mongolia Yili Industrial Group, Yantai Ausmeadow Nutriment, Qingdao Suncare Nutritional Technology, Xi'an Baiyue Dairy, Yantai Leilei Dairy, Shanghai Baoanli Dairy, Fuding Chenguan Dairy.

Figure A.7: Synthetic Control Analysis: All Dairy Exports



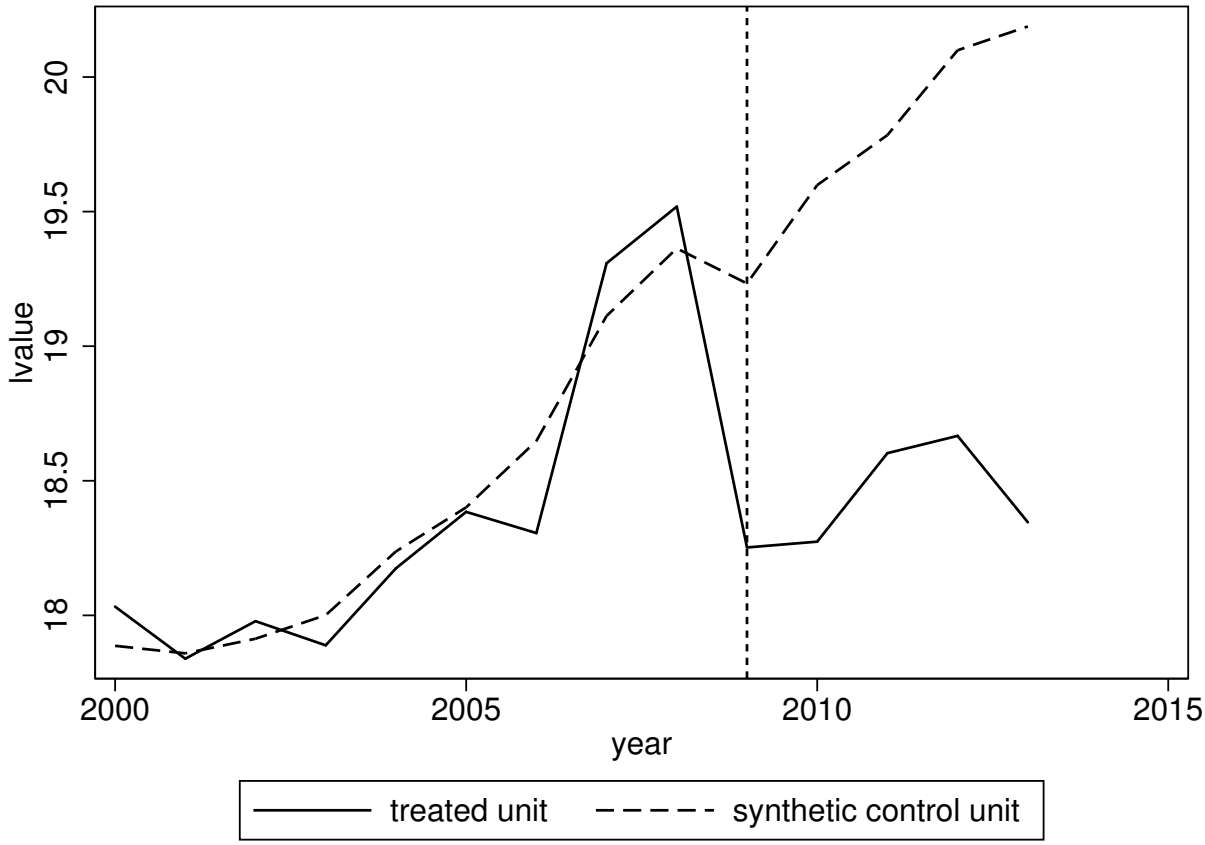
Notes: This figure plots the natural logarithm of the value of exports for the dairy industry (solid line) and the synthetic control unit (dashed line). The vertical dotted line indicates year 2009, the first year after the scandal.

Figure A.8: Synthetic Control Analysis: All Dairy Exports, Placebo



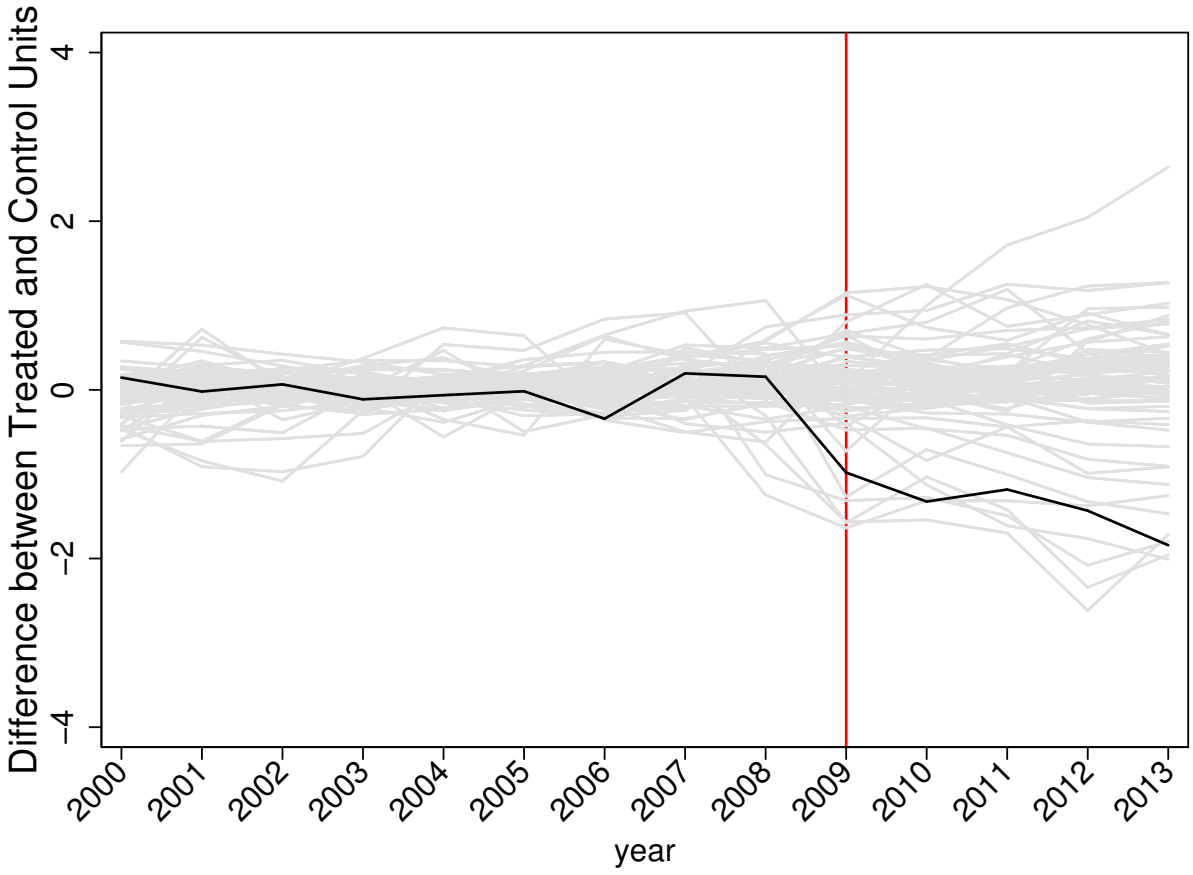
Notes: This figure plots the difference in the log value of exports between each industry and its respective synthetic control unit. The black line indicates the dairy industry. The vertical red line indicates year 2009, the first year after the scandal.

Figure A.9: Synthetic Control Analysis: Dairy Exports of Innocent and Non-Inspected Firm-Products



Notes: This figure plots the natural logarithm of the value of exports for the dairy industry excluding the contaminated firm-products (solid line) and the synthetic control unit (dashed line). The vertical dotted line indicates year 2009, the first year after the scandal.

Figure A.10: Synthetic Control Analysis: Dairy Exports of Innocent and Non-Inspected Firm-Products, Placebo



Notes: This figure plots the difference in the log value of exports between each industry and its respective synthetic control unit. The black line indicates the dairy industry excluding the contaminated firm-products. The vertical red line indicates year 2009, the first year after the scandal.

Table A.1: Baseline Summary Statistics: Non-Dairy Food Industry

	Contaminated		Innocent		Non-Inspected		Contaminated vs. Non-Inspected	
	Number	Mean	Number	Mean	Number	Mean	Difference	p-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Panel A. Customs Database				
Avg. yearly export revenue	26	2.908	19	.581	37264	.554	2.354	.014
(in million dollars)	.	(4.98)	.	(1.014)	.	(3.685)	(.958)	.
Years of exporting	26	5.231	19	4.316	37264	2.751	2.48	0
	.	(2.438)	.	(2.335)	.	(2.053)	(.469)	.
% exports to OECD countries	26	.682	19	.567	37264	.688	-.005	.929
(conditioning on exporting)	.	(.32)	.	(.402)	.	(.403)	(.062)	.
				Panel B. Manufacturing Census				
Employment	23	920.346	30	402.022	24239	174.298	746.048	.025
	.	(1629.059)	.	(821.764)	.	(435.535)	(332.241)	.
Log (employment)	23	5.943	29	5.31	23849	4.399	1.544	0
	.	(1.254)	.	(1.058)	.	(1.152)	(.256)	.
Sales revenue (in million RMB)	19	268.453	19	242.377	13164	61.137	207.316	.039
	.	(449.599)	.	(542.848)	.	(255.915)	(100.426)	.
Log (sales revenue)	19	4.611	19	3.959	12850	2.913	1.698	0
	.	(1.509)	.	(1.698)	.	(1.453)	(.337)	.

Notes: The sample include only non-dairy food products. Column 1, 3 and 5 show the number of firms fall into each category. Column 7 is the difference between contaminated firms (Column 2) and non-inspected firms (Column 6), obtained through a simple regression of the outcome variable on a contaminated group dummy. Column 8 is the p-value of the difference. Standard deviations are in parentheses for Column 2, 4 and 6. For Column 7, robust standard errors are in parentheses.

Table A.2: Firm-Product Level Analysis: Alternative Fixed Effects

	IHS (Value)	IHS (Quantity)	Log (Price)	Exporting (dummy)
	(1)	(2)	(3)	(4)
CFirm-ProductXPost	1.766	1.806	0.013	0.123
	(1.167)	(1.142)	(0.198)	(0.089)
CFirmXPost	-2.862***	-2.819***	0.240**	-0.218***
	(0.394)	(0.423)	(0.099)	(0.031)
CProductXPost	-0.600**	-0.601**	-0.159	-0.046**
	(0.268)	(0.244)	(0.133)	(0.022)
IFirm-ProductXPost	1.137	1.078	0.004	0.092
	(0.939)	(0.894)	(0.133)	(0.070)
IFirmXPost	-0.857	-0.802	0.275**	-0.084
	(0.792)	(0.726)	(0.129)	(0.063)
Observations	13775	13775	1631	13775
Firm FE	YES	YES	YES	YES
Product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
BaselineSizeXPost	YES	YES	YES	YES

Notes: This table shows the regression results for the effects of the scandal on exports using a different specification from Table 4. The sample contains all dairy exporters in the Chinese Customs Data (2000-2013). We create a balanced panel at firm-product (HS eight-digit) and year level for outcomes in Column 1, 2 and 4. Columns 1 and 2 present results for the inverse hyperbolic sine transformation (IHS) of the outcome variables of interest, namely export value and export quantity. The interaction terms are the products of the post-scandal dummy (2009-2013) with the following five group indicators: (C)ontaminatedFirm-Product, (C)ontaminatedFirm, (C)ontaminatedProduct, (I)nnocentFirm-Product, and (I)nnocentFirm. The omitted category includes innocent and non-inspected products from non-inspected firms. All regressions control for firm, product and province-year fixed effects. Baseline size measures a firm's baseline (2000-2007) total export revenue. Standard errors are two-way clustered at the firm and product-year level. *** implies significance at 0.01 level, ** 0.5, * 0.1.

Table A.3: Balance Check for the Second Round of Inspection

	Inspected		Non-Inspected			
	Number	Mean	Number	Mean	Difference	p-value
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Export Performance						
Total value of milk powder exported in 2007	8	7.599	196	.426	7.173	0
	.	(19.906)	.	(1.779)	(1.478)	.
Total value of milk powder exported to OECD countries in 2007	8	1266564	196	27908.41	1238656	0
	.	(3490378)	.	(272878.8)	(253530.6)	.
Total quantity of milk powder exported in 2007	8	2517455	196	156374.6	2361081	0
	.	(6517859)	.	(651939.2)	(494886)	.
Total quantity of milk powder exported to OECD countries in 2007	8	441887.4	196	11352.41	430535	0
	.	(1209946)	.	(115947.1)	(91042.48)	.
Avg. price of exported milk powder in 2007	6	3.002	62	2.758	.244	.591
	.	(.4)	.	(1.094)	(.452)	.
Avg. price of milk powder exported to OECD countries in 2007	2	2.601	12	2.756	-.155	.862
	.	(.425)	.	(1.188)	(.874)	.
Baseline total export value (2000-2007)	8	26.916	196	77.74	-50.824	.672
	.	(58.727)	.	(337.933)	(119.826)	.
Baseline number of exporting years (2000-2007)	8	3	196	3.434	-.434	.665
	.	(2.976)	.	(2.764)	(1)	.
Exported for more than 1 year prior to 2008 (dummy)	8	.5	196	.658	-.158	.36
	.	(.535)	.	(.476)	(.172)	.
Panel B. Domestic Performance						
Private Enterprise (dummy)	88	.295	827	.397	-.101	.05
	.	.459	.	.489	.052	.
Employment	88	596.17	827	230.013	366.157	.025
	.	1534.713	.	423.03	163.51	.
Log (employment)	88	5.069	827	4.808	.26	.092
	.	1.415	.	1.059	.155	.
Sales revenue (in million RMB)	88	417.638	820	138.347	279.291	.072
	.	1452.486	.	418.417	154.815	.
Log (sales revenue)	88	4.064	820	3.764	.3	.114
	.	1.723	.	1.42	.189	.

Notes: Column 1 and Column 3 show the number of firms fall into each category in the second round inspection. Column 5 is the difference between inspected firms (column 2) and non-inspected firms (column 4), obtained through a simple regression of the outcome variable on an inspected group dummy. Column 6 is the p-value of the difference. Standard deviations are in parentheses for column 2 and 4. For column 5, robust standard errors are in parentheses.

Table A.4: Variation in the Data Across Firms, Products and Years

Firm-Product (HS eight-digit)-Year Counts

	2000-2007				2009-2013			
	Contaminated Products		Innocent+Non-Inspected Products		Contaminated Products		Innocent+Non-Inspected Products	
	Dairy	Non-dairy	Dairy	Non-dairy	Dairy	Non-dairy	Dairy	Non-dairy
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Panel A. All Destinations				
Contaminated firms	77	196	41	269	25	132	12	113
Innocent+Non-Inspected firms	922	17503	1056	481814	353	9516	850	277038
				Panel B. Dropping Destinations with Bans				
Contaminated firms	69	182	34	225	25	123	12	101
Innocent+Non-Inspected firms	758	13757	610	322554	284	7484	529	191602

Notes: This table shows the number of observations falling into different firm-product cells.

Table A.5: Robustness Check of Firm-Product Level Analysis: Differential Time Trends

	IHS (Value)	IHS (Quantity)	Log (Price)	Exporting (dummy)
	(1)	(2)	(3)	(4)
CFirm-ProductXPost	-0.542	-0.389	-0.198*	-0.025
	(1.170)	(1.147)	(0.118)	(0.077)
CFirmXPost	-1.795***	-1.778***	0.304***	-0.148***
	(0.453)	(0.467)	(0.063)	(0.032)
CProductXPost	-0.605*	-0.619**	-0.059	-0.046
	(0.348)	(0.311)	(0.096)	(0.028)
IFirm-ProductXPost	1.068	0.970	-0.197**	0.079
	(0.979)	(0.930)	(0.081)	(0.072)
IFirmXPost	-0.916	-0.828	0.227**	-0.077
	(0.782)	(0.721)	(0.092)	(0.064)
Observations	13775	13775	1519	13775
Firm-product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
BaselineSize×Post	YES	YES	YES	YES
HS2digit×Year	YES	YES	YES	YES

Notes: This table shows the regression results for the effects of the scandal on exports using a different specification from Table 4. The sample contains all dairy exporters (excluding intermediaries) in the Chinese Customs Data (2000-2013). We create a balanced panel at firm-product (HS eight-digit) and year level for outcomes in Column 1, 2 and 4. Columns 1 and 2 present results for the inverse hyperbolic sine transformation (IHS) of the outcome variables of interest, namely export value and export quantity. The interaction terms are the products of the post-scandal dummy (2009-2013) with the following five group indicators: (C)ontaminatedFirm-Product, (C)ontaminatedFirm, (C)ontaminatedProduct, (I)nnocentFirm-Product, and (I)nnocentFirm. The omitted category includes innocent and non-inspected products from non-inspected firms. All regressions control for firm-product fixed effects and year fixed effects. Baseline size measures a firm's baseline (2000-2007) total export revenue. In this specification, we further allow in addition for differential time trends across sub-industries by adding interactions between dummies for industries at the HS two-digit level and year dummies. Standard errors are two-way clustered at the firm and product-year level. *** implies significance at 0.01 level, ** 0.5, * 0.1.

Table A.6: Robustness Check of Firm-Product Level Analysis: Growth Spike Prior to the Scandal

	IHS (Value)			IHS (Quantity)			Exporting (dummy)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CFirm-ProductXPost	0.884	-0.017	0.355	1.033	0.068	0.490	0.073	-0.014	0.036
	(1.001)	(0.582)	(0.811)	(0.976)	(0.545)	(0.771)	(0.080)	(0.047)	(0.072)
CFirmXPost	-2.022***	-1.972***	-1.693**	-2.037***	-1.862***	-1.631**	-0.169***	-0.158***	-0.142**
	(0.497)	(0.480)	(0.689)	(0.527)	(0.452)	(0.664)	(0.035)	(0.038)	(0.066)
CProductXPost	-0.754***	-0.799***	-0.848***	-0.738***	-0.742***	-0.792***	-0.063***	-0.077***	-0.082***
	(0.267)	(0.265)	(0.259)	(0.244)	(0.246)	(0.241)	(0.023)	(0.022)	(0.022)
IFirm-ProductXPost	0.945	-0.608	-0.791	0.839	-0.633	-0.825	0.071	-0.049	-0.069
	(1.107)	(0.762)	(0.791)	(1.049)	(0.727)	(0.770)	(0.083)	(0.056)	(0.060)
IFirmXPost	-0.508	-0.561	-0.245	-0.440	-0.464	-0.154	-0.056	-0.046	-0.029
	(0.799)	(0.570)	(0.531)	(0.745)	(0.516)	(0.482)	(0.070)	(0.046)	(0.044)
Observations	12949	9043	8384	12949	9043	8384	12949	9043	8384
Firm-product FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
BaselineSize×Post	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table shows the main results excluding the firms and destinations contributed to over 80% of the growth spike of dairy exports between 2006 and 2007. The sample contains all dairy exporters in the Chinese Customs Data (2000-2013). We create a balanced panel at firm-product (HS eight-digit) and year level for outcomes in all columns. Columns 1 to 6 present results for the inverse hyperbolic sine transformation (IHS) of the outcome variables of interest, namely export value and export quantity. The sample of Column 1, 4 and 7 contains all dairy exporters in the Chinese Customs Data, dropping the above identified firms. Column 2, 5, and 8 drop the identified exporting destinations. Column 3, 6 and 9 drop both the identified firms and destinations. We create a balanced panel at firm-product (HS eight-digit) and year level. The interaction terms are the products of the post-scandal dummy (2009-2013) with the following five group indicators: (C)ontaminatedFirm-Product, (C)ontaminatedFirm, (C)ontaminatedProduct, (I)nnocentFirm-Product, and (I)nnocentFirm. The omitted category includes innocent and non-inspected products from non-inspected firms. All regressions control for firm-product and year fixed effects. Baseline size measures a firm's baseline (2000-2007) total export revenue. Standard errors are two-way clustered at the firm-product and year level. *** implies significance at 0.01 level, ** 0.5, * 0.1.

Table A.7: Robustness Check of Firm-Product Level Analysis: Confounding Demand Shocks

	IHS (Value)	IHS (Quantity)	Log (Price)	Exporting (dummy)
	(1)	(2)	(3)	(4)
CFirm-ProductXPost	-0.560	-0.434	-0.121	-0.025
	(1.284)	(1.256)	(0.097)	(0.083)
CFirmXPost	-0.700	-0.792*	0.203***	-0.048
	(0.440)	(0.458)	(0.059)	(0.030)
CProductXPost	-0.516*	-0.480*	-0.160*	-0.038
	(0.288)	(0.270)	(0.096)	(0.023)
IFirm-ProductXPost	0.606	0.546	-0.182*	0.047
	(0.930)	(0.912)	(0.096)	(0.065)
IFirmXPost	-0.168	-0.157	0.223**	-0.008
	(0.689)	(0.640)	(0.108)	(0.058)
Observations	8838	8838	1226	8838
Firm-product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
BaselineSize×Post	YES	YES	YES	YES
Firm-specific Demand Shock	YES	YES	YES	YES

Notes: This table shows the regression results for the effects of the scandal on exports using a different specification from Table 4. The sample contains all dairy exporters in the Chinese Customs Data (2000-2013). We create a balanced panel at firm-product (HS eight-digit) and year level for outcomes in Column 1, 2 and 4. We do so by using inverse hyperbolic sine transformation (IHS). The interaction terms are the products of the post-scandal dummy (2009-2013) with the following five group indicators: (C)ontaminatedFirm-Product, (C)ontaminatedFirm, (C)ontaminatedProduct, (I)nnocentFirm-Product, and (I)nnocentFirm. The omitted category includes innocent and non-inspected products from non-inspected firms. All regressions control for firm-product fixed effects and province-year fixed effects. Baseline size measures a firm's baseline (2000-2007) total export revenue. In addition, we control for a firm-specific foreign demand shock. We compute the firm-specific demand shock as follows. For each firm, we first compute its baseline value share to each of its destination countries as the average value share of exports to each destination between 2000 and 2007. Next, for each country-year observation in the UN Comtrade data, we compute the country's dairy import value excluding that from China. Finally, for each firm-year-country observation, we multiply the yearly country's dairy import value (excluding that from China) with the firm's baseline value share of that country. We define the firm-specific demand shock as the sum across destination countries for each year. *** implies significance at 0.01 level, ** 0.5, * 0.1.

Table A.8: Robustness Check of Firm-Product Level Analysis: Government Regulations

	IHS (Value)		IHS (Quantity)		Log (Price)		Exporting (dummy)	
	w/o Bans	All	w/o Bans	All	w/o Bans	All	w/o Bans	All
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CFirm-ProductXPost	-0.695	-0.489	-0.515	-0.345	-0.101	-0.122	-0.027	-0.019
	(1.606)	(1.180)	(1.547)	(1.157)	(0.096)	(0.091)	(0.107)	(0.078)
CFirmXPost	-1.519*	-1.838***	-1.535**	-1.811***	0.216***	0.209***	-0.134**	-0.153***
	(0.773)	(0.437)	(0.760)	(0.456)	(0.071)	(0.051)	(0.053)	(0.031)
CProductXPost	-0.904***	-0.773***	-0.878***	-0.757***	-0.204**	-0.157*	-0.070***	-0.064***
	(0.307)	(0.281)	(0.280)	(0.257)	(0.091)	(0.087)	(0.025)	(0.023)
IFirm-ProductXPost	1.540	1.083	1.420	0.981	-0.147	-0.211**	0.108	0.081
	(1.084)	(0.978)	(1.023)	(0.929)	(0.090)	(0.083)	(0.078)	(0.071)
IFirmXPost	-0.751	-0.944	-0.660	-0.847	0.203*	0.219**	-0.062	-0.081
	(0.857)	(0.768)	(0.793)	(0.708)	(0.104)	(0.097)	(0.071)	(0.063)
Observations	9877	13775	9877	13775	1113	1519	9877	13775
Firm-product FE	YES	YES	YES	YES	YES	YES	YES	YES
Province-year FE	YES	YES	YES	YES	YES	YES	YES	YES
BaselineSizeXPost	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table shows the regression results of the scandal on exports for countries without explicit import bans on Chinese dairy products. The sample of Column 1, 3, 5 and 7 contains dairy exporters in the Chinese Customs Data (2000-2013), excluding firm-products exported to countries with bans. Column 2, 4, 6 and 8 report the estimates from Table 4 for comparison. We create a balanced panel at firm-product (HS eight-digit) and year level. Columns 1-4 present results for the inverse hyperbolic sine transformation (IHS) of the outcome variables of interest, namely export value (Columns 1 and 2) and export quantity (Columns 3 and 4). The interaction terms are the products of the post-scandal dummy (2009-2013) with the following five group indicators: (C)ontaminatedFirm-Product, (C)ontaminatedFirm, (C)ontaminatedProduct, (I)nnocentFirm-Product, and (I)nnocentFirm. The omitted category includes innocent and non-inspected products from non-inspected firms. All regressions control for firm-product and year fixed effects. Baseline size measures a firm's baseline (2000-2007) total export revenue. Standard errors are two-way clustered at the firm-product and year level. *** implies significance at 0.01 level, ** 0.5, * 0.1.

Table A.9: Information Accuracy: Heterogeneous Impact Based On Google Web Search Index

	IHS (Value)			IHS (Quantity)			Exporting		
	High	Low	Rest	High	Low	Rest	High	Low	Rest
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CFirm-ProductXPost	-1.203	-0.306	-0.047	-1.052	-0.246	-0.029	-0.069	-0.013	-0.002
	(1.385)	(0.945)	(0.495)	(1.345)	(0.913)	(0.460)	(0.094)	(0.061)	(0.035)
CFirmXPost	-0.616	-1.455**	-0.890***	-0.691	-1.378**	-0.830***	-0.058	-0.116**	-0.073***
	(0.638)	(0.603)	(0.297)	(0.657)	(0.594)	(0.279)	(0.047)	(0.049)	(0.022)
CProductXPost	-0.168	-0.522***	-0.383***	-0.190	-0.478***	-0.355***	-0.013	-0.045***	-0.032***
	(0.175)	(0.180)	(0.141)	(0.161)	(0.167)	(0.130)	(0.015)	(0.015)	(0.011)
IFirm-ProductXPost	0.511	0.605	0.749	0.483	0.544	0.691	0.034	0.039	0.068
	(0.495)	(0.738)	(0.550)	(0.494)	(0.707)	(0.521)	(0.038)	(0.058)	(0.043)
IFirmXPost	-0.322	-0.306	-0.922	-0.288	-0.271	-0.831	-0.030	-0.025	-0.078
	(0.367)	(0.386)	(0.634)	(0.361)	(0.348)	(0.590)	(0.037)	(0.032)	(0.049)
Observations	13775	13775	13775	13775	13775	13775	13775	13775	13775
Firm-product FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
BaselineSizeXPost	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table shows the regression results for the heterogeneous effects of the scandal on exports across destinations with different information accuracy. The sample contains all dairy exporters in the Chinese Customs Data (2000-2013). We create a balanced panel at firm-product (HS eight-digit) and year level. Columns 1-6 present results for the inverse hyperbolic sine transformation (IHS) of the outcome variables of interest, namely export value and export quantity. We categorize countries by high and low information accuracy about the scandal, using a Google web search intensity ratio. "High" information accuracy destinations display high ratio of searches for the word "Sanlu" relative to searches for "2008 Chinese milk scandal". We also include results for countries without google web search index ("Rest"). The interaction terms are the products of the post-scandal dummy (2009-2013) with the following five group indicators: (C)ontaminatedFirm-Product, (C)ontaminatedFirm, (C)ontaminatedProduct, (I)nnocentFirm-Product, and (I)nnocentFirm. The omitted category includes innocent and non-inspected products from non-inspected firms. All regressions control for firm-product and year fixed effects. Baseline size measures a firm's baseline total export revenue. Standard errors are two-way clustered at the firm and product-year level. *** implies significance at 0.01 level, ** 0.5, * 0.1.

Table A.10: Interactive Fixed Effects Analysis at HS Two-digit Industry

Dep Var: Log (Export Value)	(1)	(2)	(3)	(4)	(5)
	Panel A. All Dairy Exports				
DairyXPost	-1.067***	-1.505***	-1.356***	-0.947***	-1.146***
	(0.067)	(0.064)	(0.078)	(0.090)	(0.297)
FoodXPost				-0.122	
				(0.119)	
Observations	1120	1120	1120	1386	1106
	Panel B. Innocent+Non-Inspected Firm-Products Only				
DairyXPost	-0.872***	-1.296***	-1.304***	-0.748***	-0.699**
	(0.076)	(0.062)	(0.062)	(0.089)	(0.319)
FoodXPost				-0.122	
				(0.119)	
Observations	1120	1120	1120	1386	1106
Dimension of Factor Model	1	2	3	1	1
YearXValue Share to different continents	NO	NO	NO	NO	YES
Whether Dropped Food	YES	YES	YES	NO	YES

Notes: This table shows the regression results for estimating interactive fixed effect models. Panel A contains all exporters, collapsed to the industry-year level. Panel B excludes contaminated firm-products in order to quantify the aggregate spillover effect. We create a balanced panel at industry (HS two-digit) and year level. The dependent variable is log annual export value for each industry. Column 1 to 3 experiment with different dimensions of the factor model. All columns control for year and industry fixed effects. Column 5 add a time-varying control, which is the value share exported to different continents at baseline (2000-2007) interacted with year indicators. Column 1, 2, 3 and 5 exclude non-dairy food industries; Column 4 include all HS two-digit industries. Standard errors clustered at the product (HS two-digit) level. *** implies significance at 0.01 level, ** 0.5, * 0.1.

Table A.11: Industry Weights for Synthetic Control Analysis: All Dairy Exports

HS Two-digit Code	Weight
01	0.200
31	0.282
47	0.365
98	0.123
99	0.030

Notes: The table shows the weights for industries for the synthetic control analysis. HS two-digit codes represent different industries: HS 01 represents live animals. HS 31 represents fertilizers industry. HS 47 represents fibrous cellulosic material and recovered paper or paperboard. HS 98 comprises special classification provisions. HS 99 contains temporary modifications pursuant to a party's national directive or legislation.

Table A.12: Covariate Weights for Synthetic Control Analysis: All Dairy Exports

Covariate	Weight (X1,000)
Log Value	0.4083810
Positive Exports	0.0007236
Value Share to Asia	0.0003530
Value Share to Europe	0.0002267
Value Share to Africa	999.5845556
Value Share to Oceania	0.0000001
Value Share to North America	0.0056985
Value Share to Latin America	0.0000571

Notes: The table shows the weights for covariates for the synthetic control analysis.

Table A.13: Industry Weights for Synthetic Control Analysis: Dairy Exports of Innocent and Non-Inspected Firm-Products

HS Two-digit Code	Weight
23	0.159
31	0.092
47	0.018
60	0.202
93	0.502
99	0.026

Notes: The table shows the weights for industries for the synthetic control analysis. HS two-digit codes represent different industries: HS 23 represents food industries producing residues and wastes thereof or prepared animal fodder. HS 31 represents fertilizers industry. HS 47 represents fibrous cellulosic material and recovered paper or paperboard. HS 60 represents fabrics industry. HS 93 represents arms and ammunition industry. HS 99 represents special import reporting provisions.

Table A.14: Covariate Weights for Synthetic Control Analysis: Dairy Exports of Innocent and Non-Inspected Firm-Products

Covariate	Weight (X1,0000)
Log Value	5126.6235
Positive Exports	56.7377
Value Share to Asia	3.1233
Value Share to Europe	133.4432
Value Share to Africa	4617.8919
Value Share to Oceania	25.3966
Value Share to North America	0.0001
Value Share to Latin America	36.7834

Notes: The table shows the weights for covariates for the synthetic control analysis.

Appendix B: Data Appendix and Codebooks

Table B.1: Destinations that Imposed Import Bans on Chinese Dairy Products

Country	Value Share of dairy	Value share of milk powder	Year lifted
(1)	(2)	(3)	(4)
Taiwan	.114762	.2750115	
EU	.092145	.00002481	2015
US	.045939	.00005967	
Singapore	.027706	.014324	2009
Philippines	.026908	.02178358	
Bangladesh	.0158	.04001879	
South Korea	.014377	.00112776	
Indonesia	.006741	.00065079	
Vietnam	.006241	.01409327	
Malaysia	.006061	.00147138	
India	.002123	.00191011	2017
Ghana	.001603	.00297814	
Ivory Coast	.001298	.00321379	
Gabon	.000357	.00092291	
Tanzania	.000217	.00056134	2010
Columbia	.000135	.00004178	
Kenya	.000058	.00010929	
Chile	.000043	0	
Brunei	.000028	0	
Ivory Coast	0	0	
Kyrghyzstan	0	0	

Notes: This table shows the list of destinations that imposed bans on Chinese dairy/food products due to the scandal. For each destination we report the value share of dairy products exported to the destination prior to the scandal (2000-2007), the value share of milk powder products exported to the destination prior to the scandal (2000-2007) and the year the bans were lifted.

Table B.2: Dairy HS Eight-digit Codebook

HS Eight-digit Code	Product Category	Product Description
04011000	fresh milk products	Milk and cream, not concentrated nor containing added sugar or other sweetening matter, of a fat content, by weight, not exceeding 1%
04012000	fresh milk products	Milk and cream, not concentrated nor containing added sugar or other sweetening matter, of a fat content, by weight, exceeding 1% but not exceeding 6%
04013000	fresh milk products	Milk and cream, not concentrated nor containing added sugar or other sweetening matter, of a fat content, by weight, exceeding 6%
04014000	fresh milk products	Milk and cream, not concentrated nor containing added sugar or other sweetening matter, of a fat content, by weight, exceeding 6% but not exceeding 10%
04015000	fresh milk products	Milk and cream, not concentrated nor containing added sugar or other sweetening matter, of a fat content, by weight, exceeding 10%
04021000	milk powder	Milk and cream in solid forms of $\leq$ 1.5% fat
04022100	milk powder	Milk and cream in solid forms of $>$ 1.5% fat, unsweetened
04022900	milk powder	Milk and cream in solid forms of $>$ 1.5% fat, sweetened
04029100	condensed milk products	Concentrated milk and cream, unsweetened (excl. in solid form)
04029900	condensed milk products	Sweetened milk and cream (excl. in solid form)
04031000	cultured milk products	Yogurt
04039000	cultured milk products	Buttermilk, curdled milk and cream, etc (excl. yogurt)
04041000	whey products	Whey and modified whey
04049000	whey products	Other products consisting of natural milk constituents
04051000	milk fat products	Butter
04052000	milk fat products	Dairy spreads
04059000	milk fat products	Other fats and oils derived from milk
04061000	cheese products	Fresh cheese, incl. whey cheese and curd
04062000	cheese products	Grated or powdered cheese, of all kinds
04063000	cheese products	Processed cheese, not grated or powdered
04064000	cheese products	Blue-veined cheese and other cheese containing veins produced by penicillium requefort
04069000	cheese products	Other cheese
19011000	infant formula	Preparations for infant use, for retail sale
19019000	malted milk products	Other food preparations of malt extract, flour; dairy products(Cocoa content:¡40% of powder, starch or malt extract, or Cocoa contents:¡5% of dairy products)
35011000	milk protein produts	Casein
35022000	milk protein produts	Milk albumin, incl. concentrates of two or more whey proteins

Notes: The HS code for infant formula is 1901100010. However, the HS ten-digit information is not available in Customs data. Hence, we use the eight-digit code 19011000 to indicate infant formula.

Table B.3: Destinations with Google Trends data

Country	Ratio of Google Web Search index	Ratio of Google News Search index
(1)	(2)	(3)
China	High	High
Hong Kong	High	High
Macao	High	High
Japan	High	High
New Zealand	High	High
Netherlands	High	High
Sweden	High	High
South Africa	High	Low
South Korea	High	Low
Pakistan	Low	Low
Malaysia	Low	Low
Switzerland	Low	Low
Burma	Low	Low
India	Low	Low
Austria	Low	Low
UK	Low	Low
France	Low	Low
Indonesia	Low	Low
Belgium	Low	Low
Spain	Low	Low
Canada	Low	Low
Italy	Low	Low
UAE	Low	Low
US	Low	Low
German	Low	Low
Australia	Low	Low
Philippines	Low	Low
Taiwan	Low	Low
Singapore	Low	Low
Thailand	Low	Low
Vetnam	Low	Low

Notes: This table shows the list of destinations for which we have the Google trends indices. Column 2 shows the category for the ratio of Google web search index, Column 3 shows the category for the ratio of Google news search index. For each index, we constructed a relative search intensity ratio for the two keywords, "Sanlu" versus "2008 Chinese milk scandal" during 09/01/2008 and 10/31/2008. We use the search ratio of Hong Kong and Macao as the cutoff for "High" and "Low".

Appendix C: Industry Level Analysis: Alternative Strategies

This section investigates whether the results obtained in the DD framework are robust to relaxing the parallel trends assumption at the industry level. Specifically, C.1 and C.2 allows for unobserved interactions between time-varying factors and industry fixed effects (FE) using interactive fixed effects (IFE). Gobillon and Magnac (2016) discuss how the IFE method generalizes the synthetic control design when the matching variables (i.e. factor loadings and exogenous covariates) of the treated unit do not belong to the convexified support of the matching variables of the control units, which they call the extrapolation case. Given the unique growth path of the Chinese dairy industry prior to the scandal, we might very well find ourselves in the extrapolation case. Nonetheless, the synthetic control analysis reassuringly confirms both our baseline and IFE estimates. Given this battery of robustness checks, we are confident that our DD estimates capture the true effect of the scandal on the export performance of the Chinese dairy industry, and we report these DD estimates as our preferred ones.

C.1 Interactive Fixed Effects

Following Gobillon and Magnac (2016), we use least squares minimization to estimate Equation (3) where δ_t is an $L \times 1$ vector of time factors and γ_j is an $L \times 1$ vector of factor loadings (Bai, 2009). The IFE models assumes that the interaction term $\delta_t^{'} * \gamma_j$ fully describes the unobserved heterogeneity and that the dimension of the time factors and factor loadings, L is known. Our estimates are robust to different values of L.

$$Y_{jt} = \beta_{\text{dairy}} \text{Dairy}_j \times \text{Post}_t + \delta_t^{'} * \gamma_j + \pi X_{jt} + \epsilon_{jt} \tag{3}$$

Our estimates of Equation (3) show that the DD estimates are virtually identical to the equivalent IFE models of dimension one. For example, the baseline specification without controls in Column 1 of Table A.10 Panel A estimates that the scandal decreased the value of Chinese dairy exports by 65.6%. Adding controls for the value share of the industry exported to different continents at baseline interacted with year indicators in Column 5 yields an estimated decrease in the export value of 68.2%, very similar to our preferred estimate in Column 4 of Table 3 which controlled for industry-specific linear trend in the DD setting. Similarly, Column 4 of Table A.10 can be compared to Column 2 of Table 3 to confirm that the scandal did not significantly affect non-dairy food exports.

Finally, Columns 2 and 3 of Table A.10 allow for increasingly multi-dimensional interactions between time factors and industry factor loadings. These models estimate an impact of the scandal on dairy exports that is larger in magnitude than the one we estimate in the classic DD model. Because the dimension of these IFE models is set somewhat arbitrarily or assumed to be known (Gobillon and Magnac, 2016), our preferred estimate remains the more conservative one in Column 4 of Table 3, of a 68% decrease in the value of dairy exports following the scandal.

Panel B of Table A.10 confirm the patterns shown in Panel B of Table 3: the spillover effect of the scandal leads to a decrease in exports of innocent and non-inspected firm-products that is smaller than the total effect of the scandal on the dairy sector. Specifically,

using IFE we estimate spillover effects ranging between a decrease in exports of 50 to 73%.

C.2 Synthetic Control

In the case of a single treated unit, synthetic control methods can successfully construct a vector of weights such that a weighted combination of control units closely matches the time-series of the outcome variable for the treated unit in the pre-period (Abadie and Gardeazabal, 2003; Abadie, Diamond, and Hainmueller, 2010). We estimate the impact of the scandal as the difference between the value of exports in the dairy industry and the synthetic unit before and after the scandal, as given by Equation (4).

$$\hat{\beta} = \sum_{t=2009}^{2013} \left(Y_{1t} - \sum_{i=2}^{N} w_i^*(V^*) Y_{it} \right) - \sum_{t=2000}^{2008} \left(Y_{1t} - \sum_{i=2}^{N} w_i^*(V^*) Y_{it} \right) \tag{4}$$

We denote the dairy industry with index 1, w_i^* are the optimal weights on control units, and V^* minimizes the distance between the predicted pre-treatment outcomes of the treated and synthetic control unit, with predictions based on an arbitrary set of baseline covariates. Specifically, we use an indicator for whether an industry was exporting in a given year and the value share of the industry exported to different continents as the baseline covariates to predict outcomes.

The solid line in Figure A.7 plots the natural logarithm of value of exports for the Chinese dairy industry over our sample period. As discussed in Section 2, we observe that Chinese dairy exports grow substantially prior to the scandal. The dashed line plots the natural logarithm of the value of exports for the synthetic control unit, created using industry and covariate weights specified in Tables A.11 and A.12 respectively.[19] Reassuringly, the synthetic control unit mimics the growth of the dairy sector quite closely prior to 2009, the first year after the scandal. Starting in 2009, while the synthetic control unit continues to grow through 2011, the dairy industry experiences a drop in exports that persists through 2010, stabilizing around value levels observed in 2004-2006. Averaging the difference between the logarithm of the value of exports of the dairy industry and the synthetic control unit before and after the scandal, as described in Equation (4), we obtain an estimated impact of the scandal of -71%, in line with our DD estimate.

Abadie, Diamond, and Hainmueller (2010) prove that the bias of the synthetic control estimator can be bounded by a function that goes to zero as the number of pretreatment periods increases. Intuitively, a longer baseline allows for a more precise calibration of the weights, which improves the match between the treated and control outcomes. As our sample only provides eight years of pre-scandal data, we might worry that the estimated impact of the scandal is confounded by residual unobserved differences between the dairy industry and the synthetic control unit. To assuage this concern, we perform inference by permuting the treatment to each unit in our donor pool of control industries, following Abadie, Diamond, and Hainmueller (2010). Figure A.8 plots the difference in the logarithm of the value of

[19] These tables show that the weights selected by the data-driven algorithm in the synthetic control methodology appear to be somewhat disconnected from economic theory, leaving doubts as to the interpretation of the results.

exports between each industry and its synthetic control unit over time. We can contrast all the placebo differences (in grey) with the difference for the dairy industry (in black), and we can observe that the dairy industry synthetic control provides a good match in the pre-scandal period, i.e. the pre-scandal difference lies comfortably within the placebo band. Moreover, there are only five other industries that display a larger treatment effect in the post-scandal period. Given that we have 76 placebo differences, the p-value on our estimate, i.e. likelihood that of erroneously rejecting the hypothesis of a null effect of the scandal on the dairy industry, is 6/76, or 0.08.[20]

Analogous to the analysis in Panel B of Table 3, Figure A.9 shows the spillover effect of the scandal on the sample of innocent and non-inspected dairy firm-products. Differently from the DD and IFE estimates, however, the synthetic control methodology estimates an indirect effect of -74%, with a point estimate that is larger than the total effect of -71%.[21] Nonetheless, Figure A.10 shows that there are four industries with a larger placebo difference than the dairy industry, implying a p-value on our estimate of 5/76, or 0.06. Therefore we cannot reject the hypothesis that the indirect effect of the scandal on innocent and non-inspected firm-products is as large as the total effect on the entire dairy industry.

[20]The algorithm for the construction of the synthetic control unit for industries with HS codes 28, 32, and 99 fails to converge.

[21]Industry and covariate weights used to select the synthetic control unit plotted in Figure A.9 are shown in Tables A.13 and A.14 respectively.