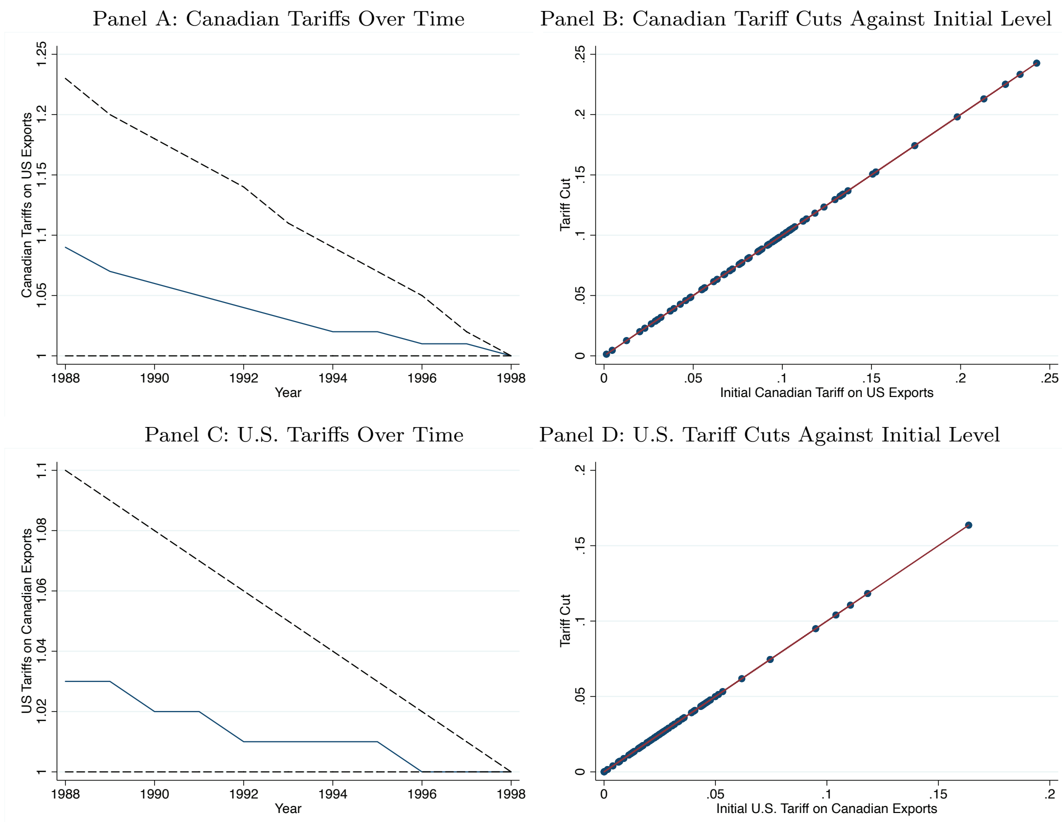
Online Appendices

(Not for publication)

A Additional Results

A.1 CUSFTA Tariff Cuts

Figure A1: CUSFTA Tariff Cuts

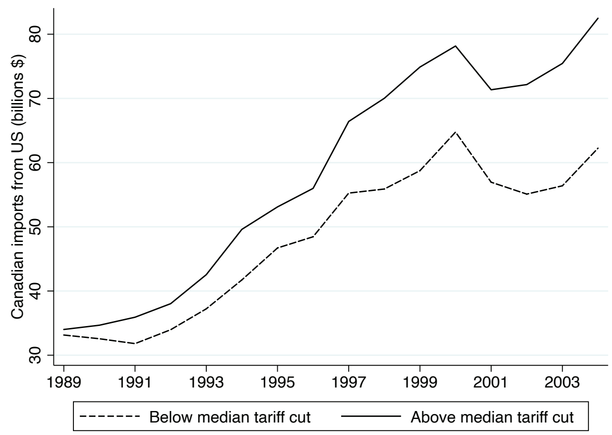


Notes: Panel A plots the unweighted average Canadian NAICS tariff plus one against U.S. exports from 1988 through 1998. Values of 1 represent no tariff. The dotted lines represent 5^{th} and 95^{th} percentiles. Panel B plots the initial 1988 tariff on the horizontal axis and the cut from 1988 to 1998 on the vertical axis. Each dot is an industry and the line is a 45 degree line. Values of zero on the horizontal axis represent no tariff. Panels C and D does the same for U.S. tariffs against Canadian exports.

A.2 Change in Trade Flows by Tariff Change

Figure A2 shows that Canadian imports from the U.S. increased more quickly for 6-digit HS products that faced larger Canadian tariff cuts than for products facing smaller tariff cuts, and that the gap between these two sets of products grew steadily over time. The solid line shows Canadian imports from the U.S. in billions of CAD for products facing above-median Canadian tariff cuts, while the dashed line shows the same measure for products facing below-median tariff cuts. While both series start with quite similar trade values in 1989, at the start of the FTA, they steadily diverge throughout our sample

Figure A2: Change in Trade Flows by Tariff Change



Notes: The y-axis plots the level of Canadian imports from the United States in billions of CAD for the years 1989-2004 (the x-axis). The solid line represents the level of imports in HS 6-digit codes whose 1988 tariff was above the median industry level. The dashed line represents imports in HS 6-digit codes whose 1988 tariff was below the median industry level.

period, with products experiencing larger tariff cuts exhibiting larger increases in trade values. We thank Teresa Fort for suggesting this figure.

A.3 Correlates of High Attachment Status

The majority of our sample is high-attachment: 63,100 high-attachment workers and 20,600 low-attachment workers (both rounded to the nearest 100 to avoid disclosure concerns). Columns (1)-(3) of Table A1 examine the features of high-attachment status, regressing an indicator for high labor force attachment on the full set of worker, firm, and industry controls. We omit the experience and tenure indicators, which are mechanically correlated with the high-attachment indicator. Columns (1) and (2) show that women and younger workers are unconditionally less likely to be high attachment. Column (3) adds the full set of controls. Workers with higher average initial wage income and lower pre-FTA wage income growth are more likely to have high attachment status. Workers at large firms are *less* likely to be high attachment, as are workers at firms with stronger pre-FTA wage growth. Workers in industries with lower average wages and lower average wage growth are more likely to be high attachment.

Table A1: Correlates of High Attachment Status

	(1)	(2)	(3)
Worker Characteristics			
Female_i	-0.189***		0.0627***
	(0.0209)		(0.00599)
Age_i		0.0776***	0.0598***
		(0.00489)	(0.00740)
Age_i^2		-0.000920***	-4.18e-05
		(6.56e-05)	(3.58e-05)
$\text{Age}_i \times \ln(\text{income}_{i,1986-1988})$			-0.00559***
			(0.000823)
$\ln(\text{income}_{i,1986-1988})$			0.636***
			(0.0286)
$\Delta_{1986-1988} \ln(\text{income}_i)$			-0.0753***
			(0.00507)
Firm Characteristics			
$\ln(\text{income}_{f,1986-1988})$			0.0199***
			(0.00356)
$\Delta_{1986-1988} \ln(\text{income}_f)$			-0.0231***
			(0.00552)
$\mathbb{1}(\text{small firm})$			0.0203**
			(0.00806)
$\mathbb{1}(\text{medium firm})$			0.0234***
			(0.00699)
Industry Characteristics			
$\ln(1+\tau_{j,1988}^{\text{CAN}})$			-0.0285
			(0.113)
$\ln(1+\tau_{j,1988}^{\text{US}})$			-0.180
			(0.141)
$\Delta_{1988-1998} \ln(1+\tau_j^{\text{CAN,MFN}})$			0.225*
			(0.122)
$\Delta_{1988-1998} \ln(1+\tau_j^{\text{US,MFN}})$			-0.0104
			(0.162)
$\Delta IPR_j^{\text{CHN}}$			-0.0133
			(0.0257)
Cyclicality_j			-0.000489
			(0.00242)
Share below median $\text{income}_{j,1988}$			-0.0256
			(0.0261)
Mean log $\text{earnings}_{j,1988}$			-0.0525*
			(0.0286)
Log capital-labor $\text{ratio}_{j,1988}$			-0.00626**
			(0.00260)
$\Delta_{1984-1988} \ln\left(\frac{emp_j}{\sum_{j'} emp_{j'}}\right)$			-0.0265
			(0.0249)
$\Delta_{1986-1988}$ Mean log earnings_j			-0.161**
			(0.0652)
Observations	83,700	83,700	83,700
R-squared	0.039	0.048	0.436

Notes: ***: $p < 0.01$, **: $0.01 \leq p < 0.05$, *: $0.05 \leq p < 0.1$. The dependent variable is an indicator for workers with high attachment status. Standard errors clustered at the 2007 NAICS-4 digit level are in parentheses. age_i is the age of individual i in the initial year.

A.4 Exogeneity of Trade Policy

Table A2: Exogeneity of Trade Policy

Dependent variable:	$\ln(1+\tau^{\text{CAN}}_{j,1988})$		$\ln(1+\tau^{\text{US}}_{j,1988})$	
	(1)	(2)	(3)	(4)
$\ln(1+\tau^{\text{US}}_{j,1988})$		1.010***		
		(0.166)		
$\ln(1+\tau^{\text{CAN}}_{j,1988})$				0.357***
				(0.0585)
$\Delta_{1988-1998}\ln(1+\tau^{\text{CAN,MFN}}_{j})$		0.626***		-0.187**
		(0.101)		(0.0719)
$\Delta_{1988-1998}\ln(1+\tau^{\text{US,MFN}}_{j})$		-0.0447		-0.0324
		(0.202)		(0.120)
$\Delta IPR^{\text{CHN}}_{j}$	0.0133	0.0372*	-0.0119	-0.0207*
	(0.0292)	(0.0200)	(0.0145)	(0.0120)
Separation prob.$_{1985-1988,j}$	-0.281	-0.0496	-0.0946	-0.0340
	(0.202)	(0.139)	(0.100)	(0.0828)
Cyclicality$_j$	0.00741*	-0.00350	0.00748***	0.00589***
	(0.00395)	(0.00298)	(0.00195)	(0.00164)
Share below median income$_{j,1988}$	-0.0668	-0.0202	-0.0237	-0.00559
	(0.0557)	(0.0384)	(0.0276)	(0.0229)
Mean log earnings$_{j,1988}$	-0.104**	-0.0390	-0.0451*	-0.0136
	(0.0468)	(0.0326)	(0.0231)	(0.0195)
Log capital-labor ratio$_{j,1988}$	-0.00388	0.00214	-0.00296	-0.00253
	(0.00522)	(0.00360)	(0.00259)	(0.00212)
$\Delta_{1984-1988}\ln\left(\frac{emp_j}{\sum_{j'} emp_{j'}}\right)$	-0.0482	0.0126	-0.0632***	-0.0456***
	(0.0392)	(0.0287)	(0.0194)	(0.0161)
$\Delta_{1986-1988}$ Mean log earnings$_j$	0.0787	0.0415	-0.0151	-0.0262
	(0.102)	(0.0695)	(0.0503)	(0.0413)
R-squared	0.313	0.699	0.398	0.619

Notes: ***: $p < 0.01$, **: $0.01 \leq p < 0.05$, *: $0.05 \leq p < 0.1$. Standard errors clustered at the 2007 NAICS-4 digit level are in parentheses. All columns estimate versions of equation (3). All variables are as described in the text. Estimation is OLS. 78 industry observations.

A.5 Years Worked Results Tables

Table A3: Years Worked (1989-1993)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Min./Ag./Unk.	(7) Services
Panel A: Low Attachment (n=20,600)							
$-\Delta\ln(1+\tau_j^{\text{CAN}})$	-0.968***	-1.717**	-0.788*	0.495	0.316	-0.0393	0.764
	(0.292)	(0.745)	(0.417)	(0.457)	(0.276)	(0.187)	(0.464)
$-\Delta\ln(1+\tau_j^{\text{US}})$	0.427	1.197	1.804***	-2.069**	0.428	0.0264	-0.960
	(0.505)	(1.189)	(0.672)	(0.883)	(0.517)	(0.302)	(0.876)
R-squared	0.114	0.174	0.034	0.035	0.037	0.021	0.057
Panel B: High Attachment (n=63,100)							
$-\Delta\ln(1+\tau_j^{\text{CAN}})$	1.052***	0.534	-0.472	0.702	0.266	-0.0230	0.0448
	(0.383)	(0.918)	(0.381)	(0.757)	(0.168)	(0.109)	(0.272)
$-\Delta\ln(1+\tau_j^{\text{US}})$	-0.769	2.378	0.718	-1.850	-0.0417	-0.216	-1.759***
	(0.581)	(1.879)	(0.758)	(1.314)	(0.362)	(0.166)	(0.474)
R-squared	0.037	0.111	0.017	0.039	0.019	0.012	0.054

Notes: Dependent variable is the number of years worked (with nonzero earnings) during 1989-1993. Remaining notes identical to Table 2.

Table A4: Years Worked (1989-1998)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Min./Ag./Unk.	(7) Services
Panel A: Low Attachment (n=20,600)							
$-\Delta\ln(1+\tau_j^{\text{CAN}})$	-1.194	-4.088**	-1.567*	1.837	0.868*	-0.0181	1.775*
	(0.717)	(1.560)	(0.939)	(1.108)	(0.458)	(0.408)	(0.954)
$-\Delta\ln(1+\tau_j^{\text{US}})$	-0.676	3.170	3.792**	-5.323***	0.746	0.0745	-3.136*
	(1.352)	(2.221)	(1.634)	(1.947)	(0.995)	(0.681)	(1.837)
R-squared	0.103	0.150	0.044	0.041	0.041	0.025	0.056
Panel B: High Attachment (n=63,100)							
$-\Delta\ln(1+\tau_j^{\text{CAN}})$	2.107***	-0.250	-1.149	2.950	0.640	-0.0846	0.000747
	(0.725)	(2.285)	(0.943)	(1.774)	(0.390)	(0.294)	(0.760)
$-\Delta\ln(1+\tau_j^{\text{US}})$	-1.766*	5.858	1.910	-5.125	-0.0309	-0.481	-3.897***
	(0.907)	(4.556)	(2.493)	(3.155)	(0.830)	(0.423)	(1.314)
R-squared	0.040	0.107	0.032	0.041	0.020	0.019	0.057

Notes: Dependent variable is the number of years worked (with nonzero earnings) during 1989-1998. Remaining notes identical to Table 2.

A.6 Cumulative Normalized Earnings Results Tables

Table A5: Cumulative Normalized Earnings (1989-1993)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Min./Ag./Unk.	(7) Services
Panel A: Low Attachment (n=20,600)							
$-\Delta\ln(1+\tau_j^{\text{CAN}})$	-0.267	-2.101	-1.157*	1.409	0.750**	-0.0419	0.873
	(1.218)	(1.316)	(0.627)	(1.131)	(0.359)	(0.285)	(0.861)
$-\Delta\ln(1+\tau_j^{\text{US}})$	2.786	2.145	1.014	-1.988	0.839	0.405	0.371
	(2.043)	(2.247)	(0.922)	(1.897)	(0.702)	(0.536)	(1.678)
R-squared	0.105	0.064	0.012	0.033	0.022	0.019	0.081
Panel B: High Attachment (n=63,100)							
$-\Delta\ln(1+\tau_j^{\text{CAN}})$	1.014	0.733	-0.319	0.481	0.202	-0.000961	-0.0821
	(0.737)	(1.067)	(0.400)	(0.775)	(0.142)	(0.105)	(0.339)
$-\Delta\ln(1+\tau_j^{\text{US}})$	-0.166	2.846	-0.228	-1.331	0.000503	-0.275*	-1.178**
	(0.889)	(1.779)	(0.748)	(1.156)	(0.296)	(0.153)	(0.466)
R-squared	0.073	0.076	0.014	0.036	0.016	0.009	0.051

Notes: Dependent variable is the sum of a worker's earnings during 1989-1993, divided by the worker's average yearly earnings in 1986-1988 (omitting years with zero earnings), defined in equation (2). The independent variables of interest are the 1988-1998 tariff cuts facing U.S. exports to Canada ($-\Delta\ln(1+\tau_j^{\text{CAN}})$) or facing Canadian exports to the U.S. ($-\Delta\ln(1+\tau_j^{\text{US}})$) in the worker's initial industry. A positive (negative) coefficient means that larger tariff cuts in the worker's initial industry lead to increased (decreased) cumulative earnings. Column (1) examines total earnings from all sources, (2) earnings from the initial firm, (3) from firms other than the initial firm, but in the same initial 4-digit industry, (4) in manufacturing industries (NAICS=3xxx) other than the initial industry, (5) in construction and utilities (NAICS=22xx, 23xx), (6) in mining (NAICS=21xx), agriculture (NAICS=1xxx), or in a firm with unknown industry code, or (7) in services (NAICS≥4xxx). Because earnings in columns (2) through (7) additively decompose total earnings, the coefficients in columns (2) through (7) sum to the overall effect in column (1). All specifications include extensive worker, initial firm, and initial industry controls, described in Section 4. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Table A6: Cumulative Normalized Earnings (1989-1998)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Min./Ag./Unk.	(7) Services
Panel A: Low Attachment (n=20,600)							
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	-2.980	-7.171***	-2.205	3.356	1.482**	0.0873	1.470
	(3.221)	(2.650)	(1.645)	(2.773)	(0.744)	(0.725)	(2.217)
$-\Delta \ln(1+\tau_j^{\text{US}})$	7.535	7.307	0.949	-4.838	2.509	0.735	0.873
	(5.888)	(4.506)	(2.667)	(5.057)	(1.559)	(1.218)	(5.131)
R-squared	0.108	0.059	0.014	0.029	0.022	0.024	0.100
Panel B: High Attachment (n=63,100)							
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	0.663	-1.080	-0.535	2.480	0.455	-0.0158	-0.643
	(2.021)	(2.747)	(1.066)	(1.881)	(0.338)	(0.310)	(0.951)
$-\Delta \ln(1+\tau_j^{\text{US}})$	-0.0593	8.274	-1.312	-4.235	0.0865	-0.616	-2.257*
	(2.469)	(5.216)	(2.773)	(3.083)	(0.710)	(0.455)	(1.294)
R-squared	0.080	0.073	0.024	0.044	0.017	0.015	0.062

Notes: Identical to the preceding table with the exception that the dependent variable is the sum of a worker's earnings during 1989-1998, divided by the worker's average yearly earnings in 1986-1988 (omitting years with zero earnings), defined in equation (2).

Table A7: Cumulative Normalized Earnings (1989-2004)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Min./Ag./Unk.	(7) Services
Panel A: Low Attachment (n=20,600)							
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	-8.990	-15.38***	-4.188	4.167	4.049***	0.317	2.041
	(6.823)	(4.653)	(3.093)	(5.201)	(1.486)	(1.357)	(4.596)
$-\Delta \ln(1+\tau_j^{\text{US}})$	15.54	14.07	2.014	-7.345	3.699	0.783	2.319
	(12.95)	(8.530)	(5.250)	(9.793)	(2.576)	(2.067)	(10.50)
R-squared	0.134	0.048	0.017	0.037	0.026	0.022	0.116
Panel B: High Attachment (n=63,100)							
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	0.362	-2.684	-1.927	5.286	0.790	0.102	-1.205
	(3.394)	(5.367)	(2.056)	(3.430)	(0.714)	(0.686)	(2.092)
$-\Delta \ln(1+\tau_j^{\text{US}})$	0.0234	12.97	-1.002	-9.633*	0.808	-1.129	-1.994
	(4.240)	(9.373)	(5.078)	(5.538)	(1.458)	(0.907)	(3.090)
R-squared	0.113	0.070	0.028	0.051	0.020	0.022	0.073

Notes: Identical to the preceding two tables with the exception that the dependent variable is the sum of a worker's earnings during 1989-2004, divided by the worker's average yearly earnings in 1986-1988 (omitting years with zero earnings), defined in equation (2).

A.7 Manufacturing Workers' Demographics and Education

Table A8 shows average characteristics of manufacturing workers in the 1981 Census of Canada and the 1980 US Census of Population. The two sets of workers have very similar mean age, gender, marital status, and educational attainment. In particular, the share of workers with a high-school degree or less is remarkably similar: 68.0 percent in Canada and 70.8 in the US. This rules out substantial differences in educational attainment facilitating smoother industry transitions in Canada. The most salient difference between the two countries' manufacturing workers is that Canadian manufacturing workers are much more likely to be foreign-born, reflecting Canada's much more immigrant intensive population.

Table A8: Manufacturing Workers' Characteristics (Canada 1981, US 1980)

	Canada (1981)	US (1980)
Age	39.1	39.7
Female	0.264	0.318
Married	0.785	0.736
Foreign born	0.277	0.086
High-school or less	0.680	0.708
Some college	0.238	0.162
College or more	0.082	0.129

Notes: 1981 Census of Canada data from IPUMS International (Ruggles et al., 2024a). 1980 US Census of Population data from IPUMS USA (Ruggles et al., 2024b). Sample includes those age 22-64 who report working in manufacturing industries in the preceding week and not enrolled in school.

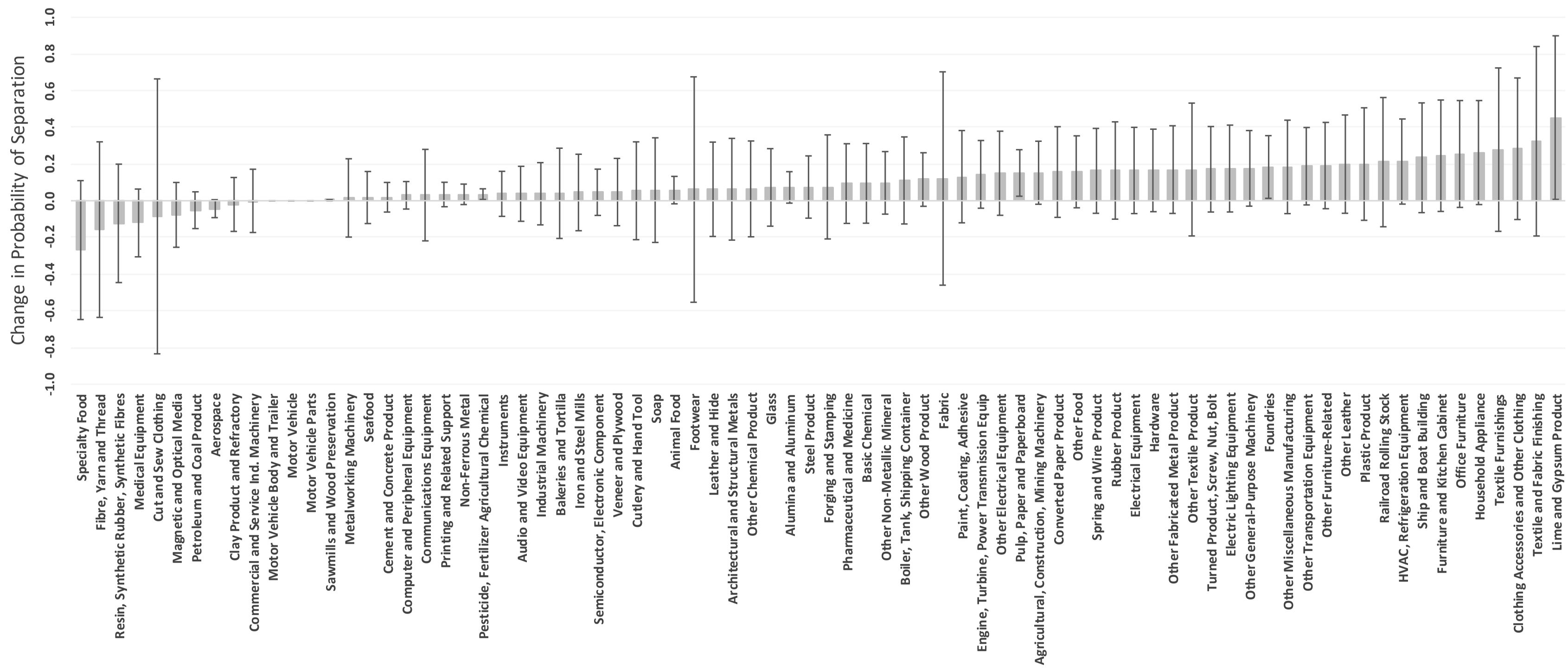
A.8 Net Effects by Industry

In Figures A3-A5, we present the net effects of Canadian and U.S. tariff cuts on the probability of experiencing a work-shortage related separation (layoff), on overall cumulative earnings, and on cumulative earnings from the initial firm, respectively. We present results for low attachment workers initially at large firms because this worker group generally exhibits the largest point estimates. The predicted effects are evaluated at the particular Canadian and U.S. tariff cuts facing each industry and divided by the average outcome for low attachment workers initially at large firms, so the predicted values are expressed as proportional differences from the average outcome. Each figure sorts industries on the x-axis from most negative to most positive net effect.

Figure A3 shows the net effects for permanent work-shortage related separations. In spite of focusing on the worker group with the largest point estimates, the majority of predicted net effects are small, with magnitudes less than 20 percent, and only 4 out of 78 manufacturing industries exhibit effects that are statistically different from zero at the 5 percent level0. The results for cumulative earnings in Figure A4 are similar. Only 3 industries exhibit point estimates with magnitudes above 10 percent, and again only 4 are statistically different from zero. These findings make clear that even though low attachment workers at large firms have nontrivial predicted effects of each individual tariff change, the net effects are relatively small because the effects of Canadian and U.S. tariff cuts generally offset each other.

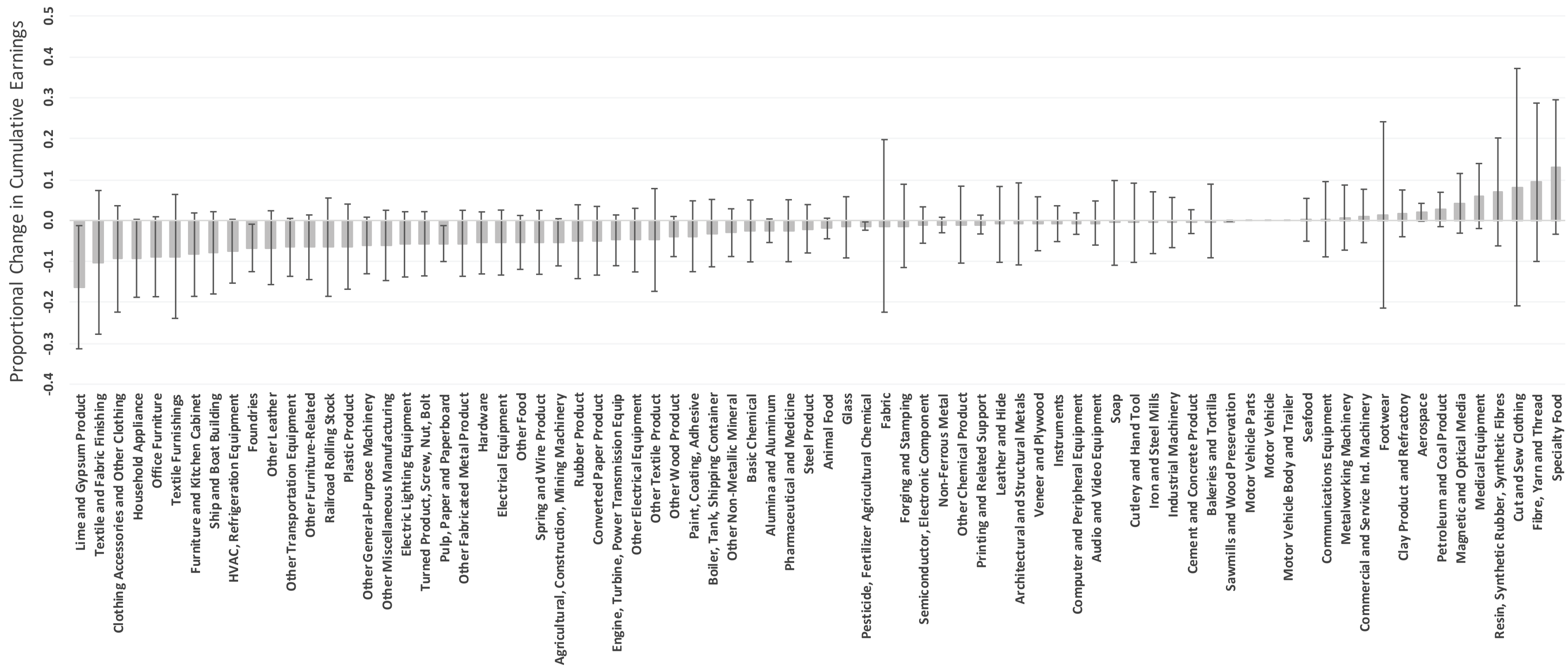
Figure A5 shows the net effects on cumulative earnings from the worker's initial firm. Consistent with the overall estimates shown in the main text, these effects are substantially larger than the overall earnings estimates, reflecting Canadian workers' ability to recover lost earnings at the initial firm by transitioning into other positions. In this case 35 industries exhibit net effects that are distinguishable from zero, all of them with negative point estimates. This is inconsistent with perfectly correlated and offsetting shocks in each sector.

Figure A3: Net Effects of Canadian and U.S. Tariff Cuts on the Probability of Separation for Low Attachment Workers Initially at Large Firms (1989-2003)



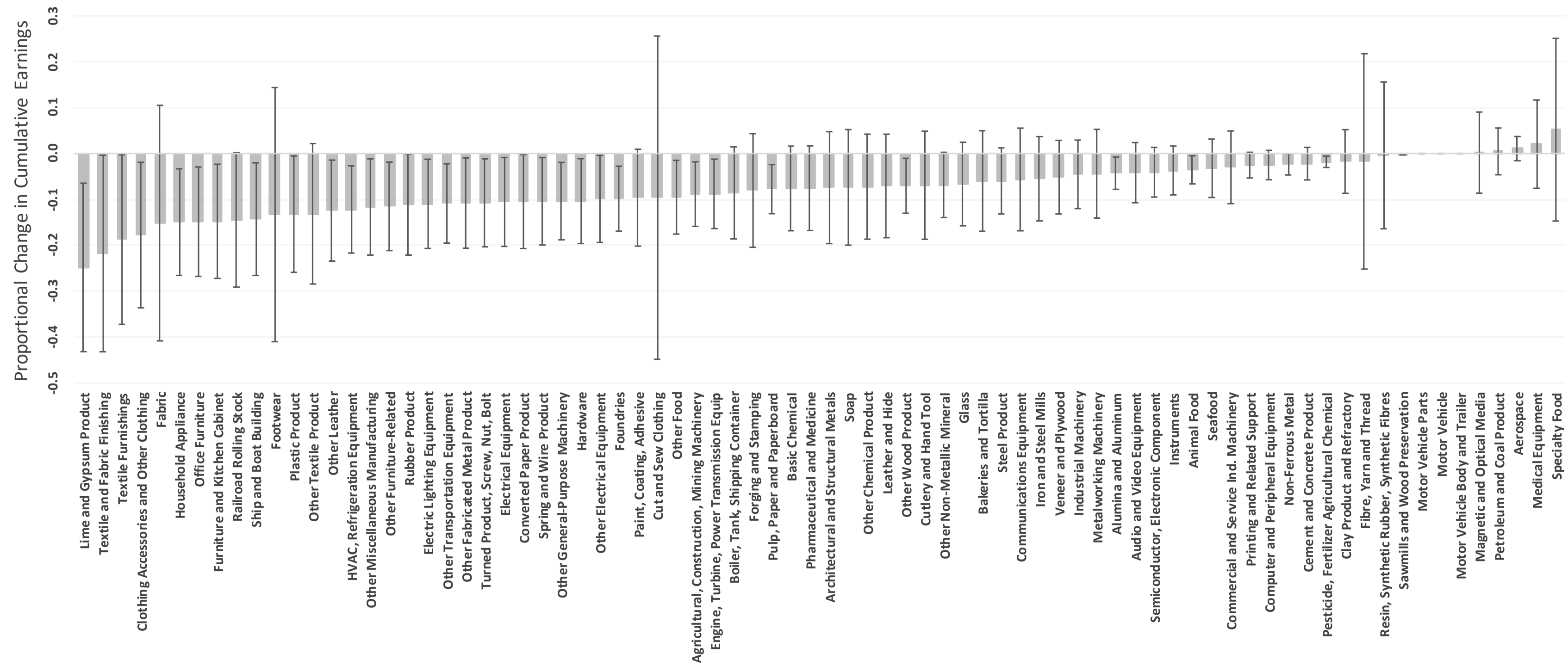
Notes: Each bar represents the predicted net effect of the Canadian and U.S. tariff cuts on the probability of experiencing a work-shortage related separation for low attachment workers initially at large firms in the industry listed on the x-axis. The predicted values are expressed relative to the worker group's unconditional average separation probability: 0.169. Industries sorted from most negative to most positive net effect estimate. Error bars reflect 95 percent confidence intervals. Out of 78 industries, 4 net effect estimates are statistically distinguishable from zero at the 5 percent level.

Figure A4: Net Effects of Canadian and U.S. Tariff Cuts on Cumulative Normalized Earnings for Low Attachment Workers Initially at Large Firms (1989-2004)



Notes: Each bar represents the predicted net effect of the Canadian and U.S. tariff cuts on cumulative normalized earnings for low attachment workers initially at large firms in the industry listed on the x-axis. The predicted values are expressed relative to the worker group's unconditional average cumulative earnings: 20.19. Industries sorted from most negative to most positive net effect estimate. Error bars reflect 95 percent confidence intervals. Out of 78 industries, 4 net effect estimates are statistically distinguishable from zero at the 5 percent level.

Figure A5: Net Effects of Canadian and U.S. Tariff Cuts on Cumulative Normalized Earnings From the Initial Firm for Low Attachment Workers Initially at Large Firms (1989-2004)



Notes: Each bar represents the predicted net effect of the Canadian and U.S. tariff cuts on cumulative normalized earnings from the initial firm for low attachment workers initially at large firms in the industry listed on the x-axis. The predicted values are expressed relative to the worker group's unconditional average cumulative earnings: 20.19. Industries sorted from most negative to most positive net effect estimate. Error bars reflect 95 percent confidence intervals. Out of 78 industries, 35 net effect estimates are statistically distinguishable from zero at the 5 percent level.

A.9 Regional Shocks and Industrial Geography

This Appendix explores what role geography plays in generating the results in this paper. Because the T2-LEAP-LWF data set from Statistics Canada includes only very coarse province-level geographic information, we are unable to observe worker outcomes by Canadian local labor market. This data limitation precludes the implementation of a local-labor-markets analysis along the lines of Topalova (2010), Kovak (2013), or Autor et al. (2013a). However, using data in the public domain, we can construct regional tariff shocks paralleling those used in these local-markets analyses in an effort to understand whether features of Canadian industrial geography may have facilitated Canadian worker adjustment to its CUSFTA tariff concessions. For example, if a large share of the Canadian population lives in cities or otherwise industrially diverse regions, then workers facing unfavorable shocks may be able to find employment in favorably affected industries without having to relocate.

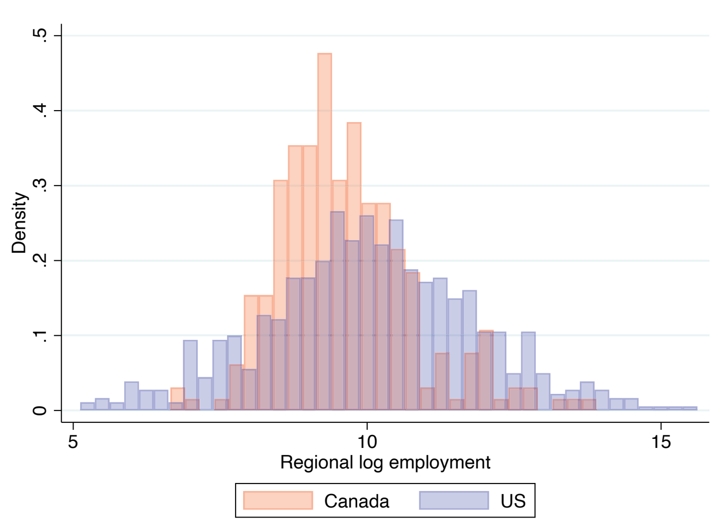
In order to assess if Canadian geography is special in some way, we require a benchmark for comparison. We choose the US as a natural comparison. Our strategy is to calculate actual regional shocks associated with the Canadian CUSFTA tariff cuts using Canadian industrial geography, and then to calculate a hypothetical set of regional shocks using the same industry tariff cuts but US industrial geography. We emphasize that this is not a counterfactual experiment but rather an attempt to examine whether and how Canadian industrial geography might have affected regional shocks.

We emphasize three findings. First, using the same set of industrial shocks, fewer Canadian regions than US regions would face large shocks. Second, we find no evidence that this is because Canadian regions are more industrially diversified. Third, we show that randomly generated industry-level shocks do not generate systematically different regional shocks in Canada and the US. Together, these findings provide little evidence in support of observable differences in industrial geography as a main driver of the relatively smooth and speedy reallocation of Canadian workers away from industries facing large increases in import competition. Rather, *this particular set* of tariff changes would have generated more large-shock regions in the US than it did in Canada, but a similar comparison should not be expected for other arbitrary industry shocks.

A.9.1 Local Labor Markets

We define Canadian local labor markets based on the Census Division classification from Statistics Canada. This definition allows us to use a custom tabulation from the 1986

Figure A6: Histograms of 1986 Employment by Canadian Census Division and US Commuting Zone



Notes: The red histogram plots log employment across Canadian Census Divisions from a special tabulation of the 1986 Canadian Census of Population generously provided by Jeff Chan. The blue histogram plots log employment across US Commuting Zones from 1986 County Business Patterns with imputed values from Eckert et al. (2020). The bars are semi-transparent, so the overlap appears purple. The extensive common support between the two distributions implies that neither country's regions are systematically more aggregated than the other's.

Canadian Census of Population reporting the industry distribution of regional employment. Jeff Chan uses these data in Chan (2019), and we thank him for generously providing this tabulation. We follow the literature by defining US local labor markets based on Commuting Zones. It is important that these two levels of geographic aggregation (Census Division vs. Commuting Zone) are comparable across the two countries. Figure A6 confirms this comparability by plotting a histogram of regional log employment in 1986 using employment data for Canadian Census Divisions from Chan (2019) and for US Commuting Zones from the 1986 County Business Patterns (CBP), with imputed values from Eckert et al. (2020).[62] The two distributions have extensive common support, with the US having both smaller and larger locations than those seen in Canada, indicating that neither country's locations are systematically more aggregated than the other's on average.

[62]We aggregate from counties to commuting zones using the concordance provided by David Dorn: `https://www.ddorn.net/data/cw_cty_czone.zip`.

A.9.2 Regional Tariff Reductions

Regional tariff reductions reflect the regional employment-weighted averages of industry-level tariff reductions. Industry i's share of 1986 employment in region r in country $c \in \{\text{CAN},\text{US}\}$ is given by φ_{ri}^{c}. Note that φ_{ri}^{c} is the share of *all* employment in region r, including non-manufacturing and nontradable industries. For each country, we calculate two versions of the regional tariff reduction: one reflecting the average regional tariff reduction within manufacturing (M),

$$s_r^{c,\text{M}} \equiv -\sum_{i \in \text{M}} \frac{\varphi_{ri}^{c}}{\sum_{j \in \text{M}} \varphi_{rj}^{c}} \Delta \ln(1 + \tau_i^{\text{CAN}}) \qquad \forall r \in c \text{ and } c \in \{\text{CAN},\text{US}\}. \tag{6}$$

and one averaging across all industries, with zero tariff reduction outside manufacturing:

$$s_r^{c} \equiv -\sum_{i} \varphi_{ri}^{c} \mathbf{1}(i \in \text{M}) \cdot \Delta \ln(1 + \tau_i^{\text{CAN}}) \qquad \forall r \in c \text{ and } c \in \{\text{CAN},\text{US}\}. \tag{7}$$

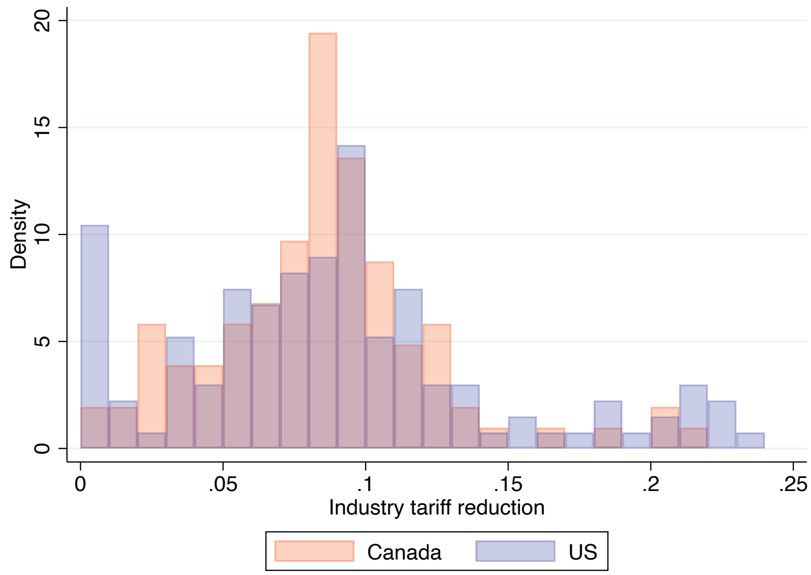
Because our focus is on industrial geography, the regional tariff reductions for both Canada and the US use the *same* vector of tariff reductions. We choose the CUSFTA tariff reductions facing US exports to Canada, i.e. τ^{CAN}. By using the same tariff changes in all of the measures, we isolate the implications of differences the industrial geography across the two countries.

To match the level of industry detail available in the Canadian Census data and the 1986 US CBP regional employment data, we use tariff changes at the 3-digit SIC level.[63] Because the Canadian and US versions of the SIC classification differ somewhat, we are concerned that shocks derived from the same HS-level data might generate different SIC-level shocks. Figure A7 assuages this concern by showing that the cross-industry distribution of tariff reductions is similar across the two versions.

Given comparable industry definitions and levels of geographic aggregation, we calculate the regional tariff reductions in (6) and (7) using the industrial geography of Canada

[63] We begin with CUSFTA tariff reductions provided by Global Affairs Canada at the 8-digit Harmonized System (HS) level. For Canada, then truncate to 6-digit HS codes, map to 5-digit NAICS-1997 codes using the concordance from Pierce and Schott (2012), and then map from 5-digit NAICS to 3-digit 1980 Canadian SIC-E codes using the Statistics Canada crosswalk available here: `https://www.statcan.gc.ca/eng/subjects/standard/concordances/concordance1997-1980`. For the US, we truncate to 6-digit HS codes and then map to 3-digit 1980 US SIC codes using the "H0 to SIC" concordance available here: `https://wits.worldbank.org/product_concordance.html`. Once we have HS codes mapped to SIC industries, we aggregate the tariff levels, weighting HS codes based on 1988 Canadian imports from the US.

Figure A7: Histograms of Tariff Reductions by US and Canadian 3-digit SIC Manufacturing Industries



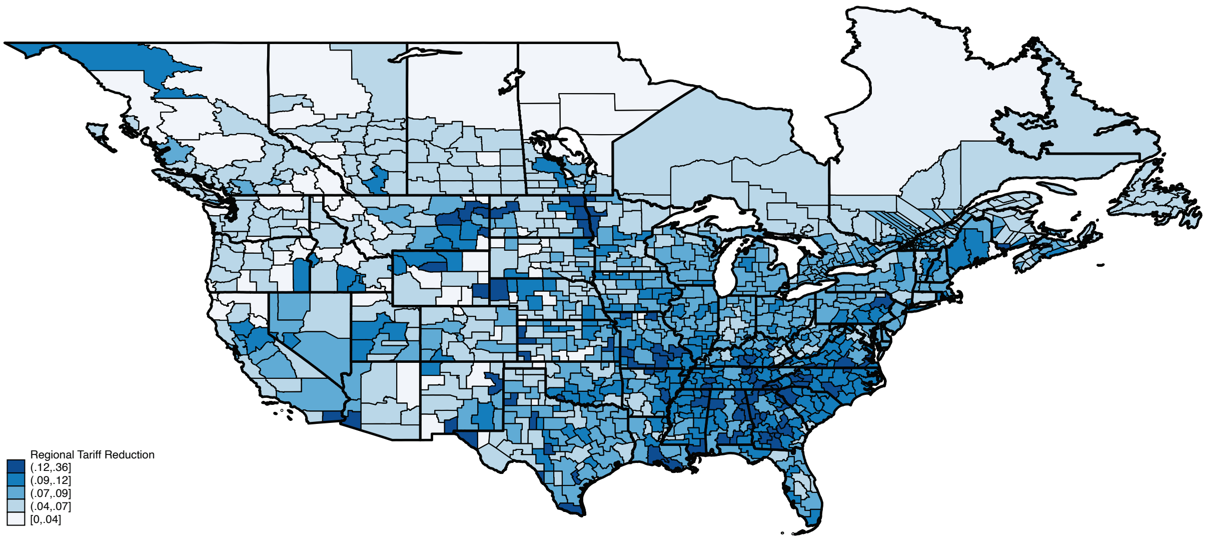
Notes: The red histogram plots tariff reductions ($\Delta \ln(1 + \tau_i^{\text{CAN}})$) across Canadian 3-digit SIC industries, while the blue histogram plots tariff reductions across US 3-digit SIC industries. The bars are semi-transparent, so the overlap appears purple. The similarity between the two distributions implies that the two SIC definitions are comparable.

($\varphi_{ri}^{\text{CAN}}$) or the US ($\varphi_{ri}^{\text{US}}$).[64] The resulting shocks appear in Figure A8. The shocks calculated using manufacturing industries only in panel (a) are of higher magnitude than those for all industries in panel (b) because the latter averages in zero tariff changes for non-manufacturing industries. In both cases, it is clear that a number of US regions would have faced larger regional tariff reductions than any of the Canadian regions. Since the tariff reductions are all based upon the vector of Canadian CUSFTA tariff cuts, the differences between Canada and the US are solely due to differences in the industrial geography of employment in each country's regions.

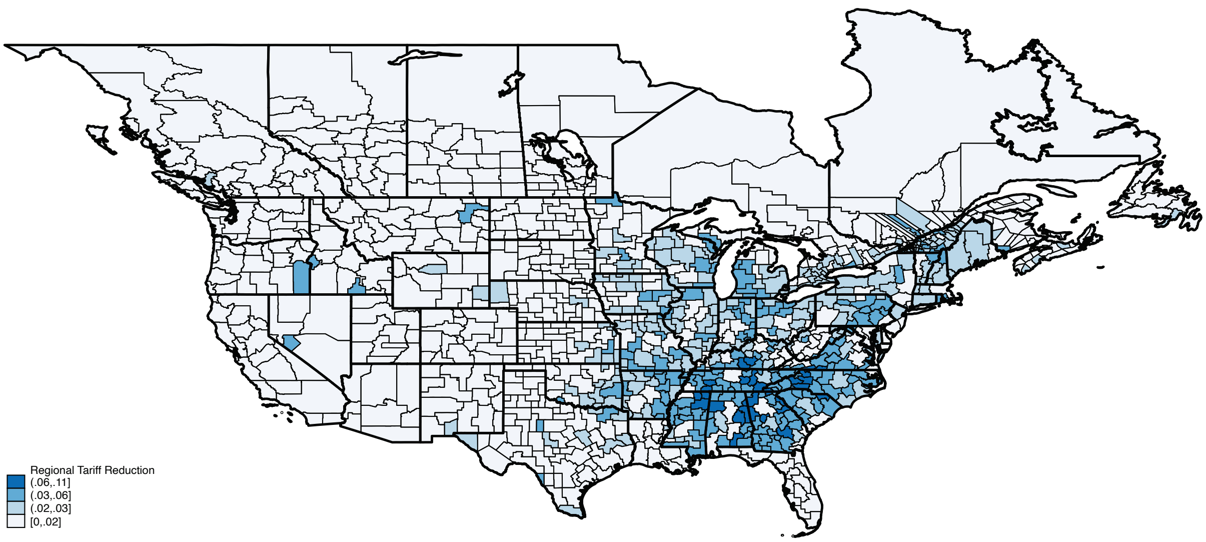
Figure A9 corroborates Figure A8's maps by plotting the distributions of regional tariff reductions across Canadian and US regions, weighted by total employment in each region. Many US regions would have faced substantially larger tariff reductions than the most heavily shocked Canadian regions. For example, for manufacturing-only regional shocks, only 1 percent of the Canadian population lives in regions facing shocks of at least 10

[64] The US County Business Patterns data report the vast majority of county employment at the 3-digit SIC or more detailed level, but a portion of employment is reported at the 2-digit SIC level. We apportion this 2-digit employment to underlying 3-digit industries based on each 3-digit industry's share of national employment within the corresponding 2-digit industry.

Figure A8: Regional Tariff Reductions



(a) Manufacturing Industries Only



(b) All Industries

Notes: Panel (a) shows regional tariff reductions calculated using only manufacturing industries as in equation (6). Panel (b) shows regional tariff reductions calculated using all industries, with those outside manufacturing facing zero tariff reduction, as in equation (7).

percent, while 11.3 percent of the US population lives in regions facing these large shocks. Similarly, for all-industry shocks, only 5 percent of Canada's population lives in regions facing shocks of at least 2.5 percent, while 19.9 percent of the US population lives in regions facing these large shocks.

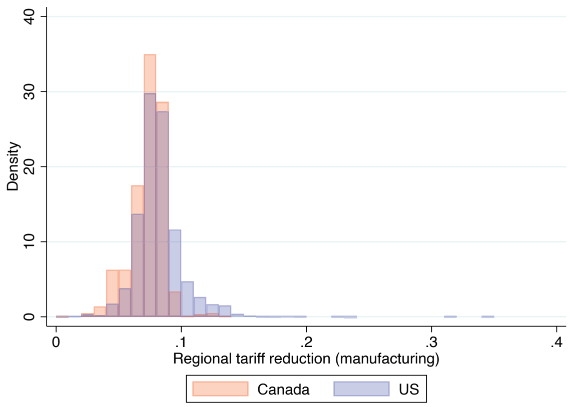
One important point to note when considering the all-industry shocks is that the US CBP data omit a number of industries in agriculture and government, which artificially inflates the US manufacturing share of employment observed in the CBP by omitting some non-manufacturing employment that would fall in the denominator of the manufacturing share. Although we have restricted the sample of Canadian industries in an attempt to cover an identical set of industries, it is possible that we nonetheless overstate the manufacturing share by more in the US than in Canada. If so, the all-industry regional tariff reductions will be systematically overstated in the US relative to Canada. In fact, although national data suggest the manufacturing share of employment is extremely similar in Canada and the US (17.1 in Canada and 17.6 in the US in 1986), our sample finds a manufacturing share of employment of 20.1 percent in Canada and 23.4 in the US.[65] This potential measurement issue will become important in interpreting the all-industry results based on the tariff simulations below. This concern does not apply to the manufacturing-only regional tariff reductions.

A.9.3 Regional Industry Concentration

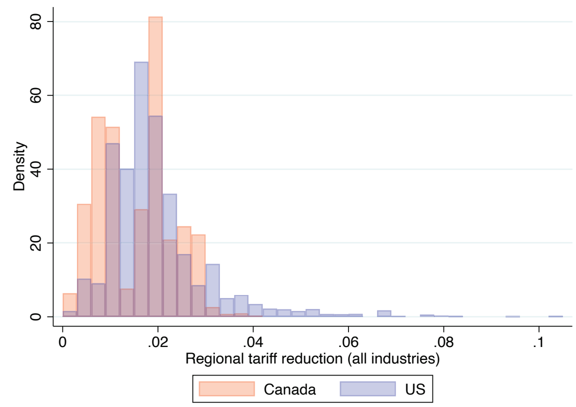
A potential explanation why Canadian regions do not face particularly large tariff reductions is that they are more industrially diverse than their US counterparts. This can be because either a larger share of Canadians lives in industrially diverse cities, or because Canadian locations are more industrially diverse than US locations, conditional on size. We check this possibility directly by calculating the Herfindahl-Hirschman Index (HHI) of industry employment shares in each Canadian and US region. Figure A10 shows the distributions of HHI values across regions within each country, weighting by total regional employment. For both manufacturing industries (panel a) and all industries (panel b), the HHI distributions between Canada and the US are not systematically different. While Canada has more locations with low concentration, it also has higher density than the US in more concentrated locations. This suggests that Canadian regions are not systematically more industrially diverse than US regions and that differences in regional shocks

[65]National statistics based on the BLS International Comparisons of Annual Labor Force Statistics program, as reported by FRED.

Figure A9: Regional Tariff Reductions



(a) Manufacturing Industries Only



(b) All Industries

Notes: Panel (a) shows the within-country distributions of regional tariff reductions calculated using only manufacturing industries as in equation (6). Each distribution is weighted by total regional employment. Panel (b) shows the within-country distributions of regional tariff reductions calculated using all industries, with those outside manufacturing facing zero tariff reduction, as in equation (7).

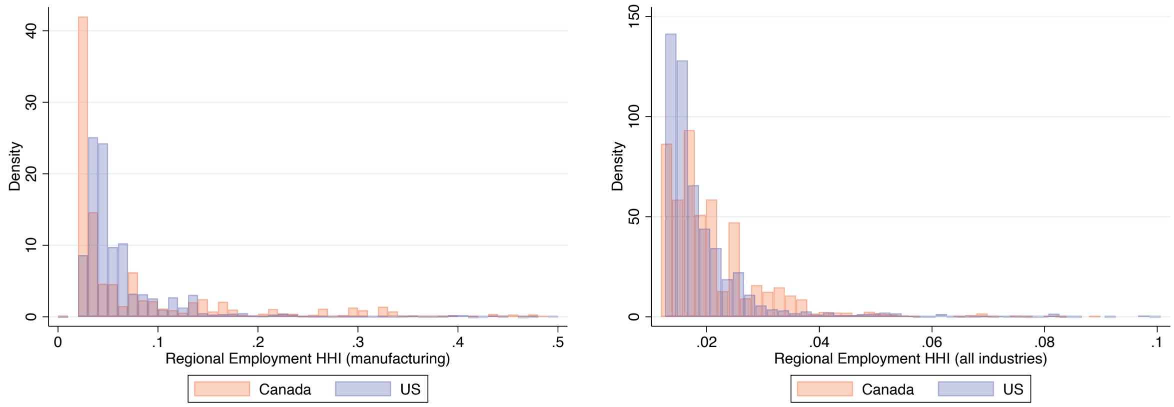
are not coming from systematic differences in regional concentration.

A.9.4 Tariff Change Simulations

Given the apparent similarity between industry concentration in Canadian and US regions, we seek to understand whether there are other systematic differences between the industrial geography of Canada and the US that might drive the apparent differences in regional shocks in Figures A8 and A9. To do so, we fit the observed distribution of Canadian CUSFTA tariff changes across manufacturing industries to a 2-parameter Weibull distribution and use this distribution to generate 1000 simulated IID tariff change vectors. We then calculate regional tariff reductions for the US and Canada using each simulated tariff change vector and the real-world industrial geography of each country. For each simulation we calculate i) the share of national population living in regions facing large shocks (10 percent for the manufacturing-only shock and 2.5 percent for the all-industry shock) and ii) the population-weighted inter-quartile range of regional tariff reductions.

Figures A11 and A12 present histograms of these statistics across the 1000 simulations to see whether systematic differences emerge across countries. Figure A11 shows the results for the manufacturing-only shocks, which are influenced only by differences in the composition of manufacturing employment across regions in each country. The distributions are extremely similar across countries for both statistics, implying that the

Figure A10: Regional Industry Concentration of Employment (HHI)



(a) Manufacturing Industries Only (b) All Industries

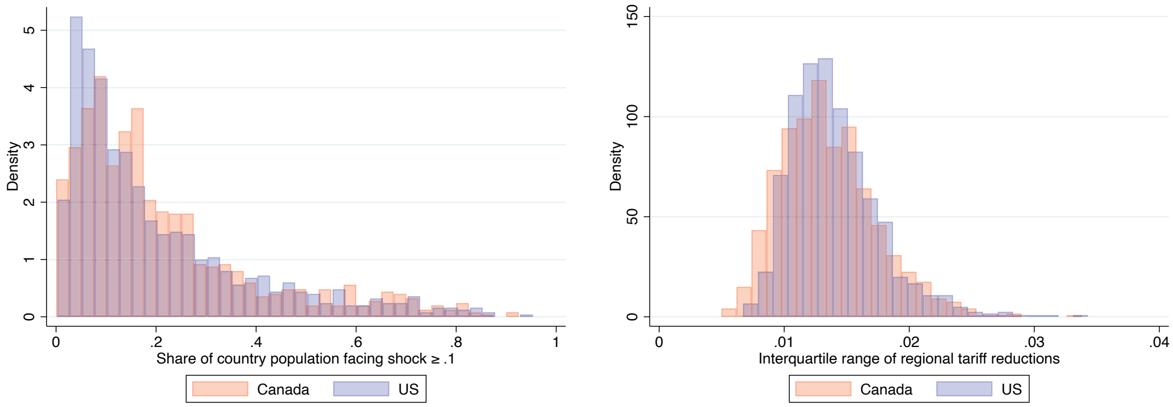
Notes: Both panels show the within-country distributions of the Herfindahl-Hirschman Index (HHI) of industry employment concentration within each country. Panel (a) shows industry concentration of employment within manufacturing, while Panel (b) shows industry concentration across all industries. To enhance readability, panel (a) restricts to HHI values of 0.5 or less and panel (b) restricts to HHI values of 0.1 or less, omitting an extremely small share of employment in both cases.

industrial geographies of manufacturing in Canada and the US yield similar regional tariff reductions across simulated industry tariff reductions.

This conclusion contrasts with the larger tariff reductions facing many US regions in Figure A9 panel (a). While the particular tariff reduction vector employed in Figure A9 (the Canadian CUSFTA tariff cuts) implies large regional tariff reductions in a number of US regions, this feature is specific to that particular vector of tariff changes and not the systematic result of differences in Canadian and US industrial geography.

The results for the simulated all-industry regional tariff reductions in Figure A12 show more substantial differences, but these should be interpreted with care. In particular, the share of the population in regions facing large shocks is substantially larger across simulations in the US than in Canada. In all simulations (as in the actual tariff changes) the tariff reductions outside manufacturing are set to zero, so the difference between the all-industry and manufacturing-only results are driven by differences in the manufacturing share of employment. As mentioned above, although comprehensive national data report very similar manufacturing shares of employment in Canada and the US, the region-by-industry employment data used to construct the regional tariff reductions imply a higher manufacturing share in the US than in Canada. It is therefore likely that the differences between the US and Canada in Panel (a) of Figure A12 are driven by this data artifact. Panel (b) of Figure A12 shows that, if anything, the inter-quartile range in Canada is

Figure A11: Simulation Results - Manufacturing-Only Regional Tariff Reductions



(a) Share of Population in Regions Facing 10 Percent or Larger Tariff Reduction

(b) Population-Weighted Inter-Quartile Range of Regional Tariff Reductions

Notes: Summary statistics from manufacturing-only regional tariff reductions based on 1000 simulated vectors of industry tariff changes. Panel (a) shows the share of the relevant country's population facing regional tariff reductions of 10 percent or more. Panel (b) shows the population-weighted inter-quartile range of regional tariff reductions.

systematically larger than in the US.

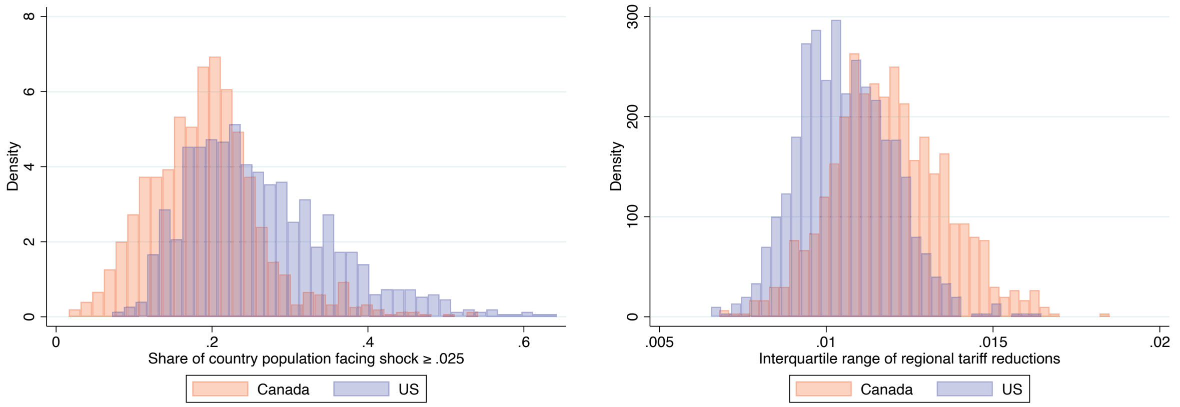
A.9.5 Regional Shocks Summary

Together, these results provide little evidence in support of the hypothesis that Canadian industrial geography accounts for the relatively smooth and speedy reallocation of workers from industries facing more import competition to more favorably affected industries. Canadian workers are not systematically more likely to live in industrially diverse regions than are workers in a natural comparison economy, the US. Nor are Canadian workers systematically less likely to face large shocks or large differences in shocks across regions when facing arbitrary tariff changes.

A.10 Evolution of Tariff-Cut Exposure

Figure IV in Autor et al. (2014) plots regression coefficients and 90% confidence intervals obtained from 32 regressions that relate the 1991-2007 trade exposure of a worker's industry to the 1991-2007 trade exposure of the worker's initial 1991 industry, compared against a similar series setting trade exposure to 0 for all firms except the worker's initial employer. Figures A14a and A14b perform an identical exercise for low- and high-attachment workers. Black diamonds correspond to coefficients from a regression of he tariff cut in

Figure A12: Simulation Results - All-Industry Regional Tariff Reductions



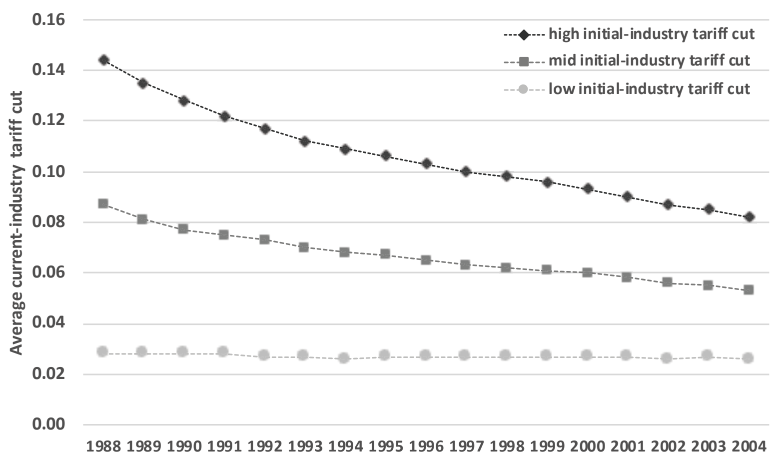
(a) Share of Population in Regions Facing 10 Percent or Larger Tariff Reduction

(b) Population-Weighted Inter-Quartile Range of Regional Tariff Reductions

Notes: Summary statistics from all-industry regional tariff reductions based on 1000 simulated vectors of industry tariff changes. Panel (a) shows the share of the relevant country's population facing regional tariff reductions of 2.5 percent or more. Panel (b) shows the population-weighted inter-quartile range of regional tariff reductions. See text for discussion of the apparent differences across Canada and the US.

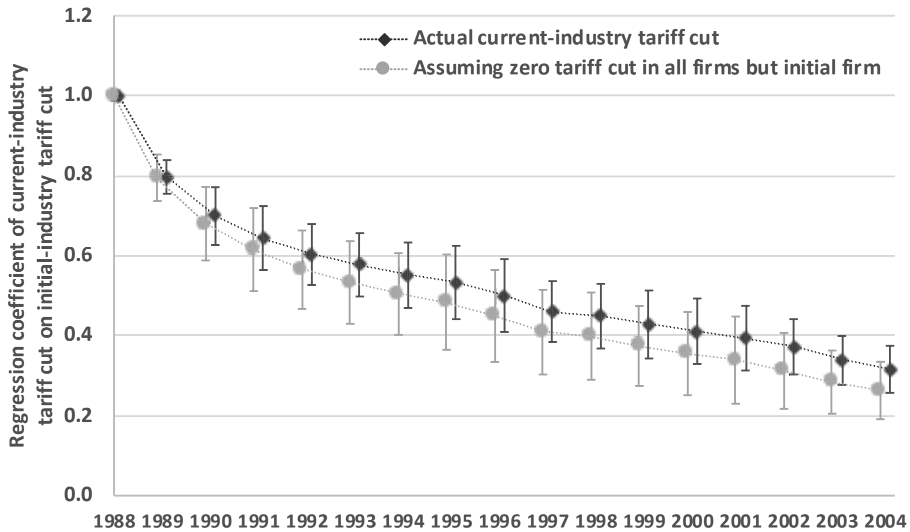
worker $i's$ initial industry of employment j $(\Delta \ln(1 + \tau^{\text{CAN}}_{j(i)}))$ on the tariff cut in the industry in which the worker is employed in year t $(\Delta \ln(1 + \tau^{\text{CAN}}_{j(i)t}))$. Confidence intervals are at the 95 percent level. Non-employed individuals in a given year are omitted from the regression in that year, and we assign zero tariff cut to non-tradable industries. Following Autor et al. (2014). The gray circles reflect an otherwise similar exercise in which we assign $\Delta \ln(1 + \tau^{\text{CAN}}_{j(i)t}) = 0$ for employment at all firms other than the worker's initial firm when running this regression. The similarity of the black and gray diamonds indicate that Canadian workers quickly moved into industries facing dramatically less import competition as a result of Canadian tariff cuts.

Figure A13: Evolution of Canadian Tariff-Cut Exposure: High Attachment Workers

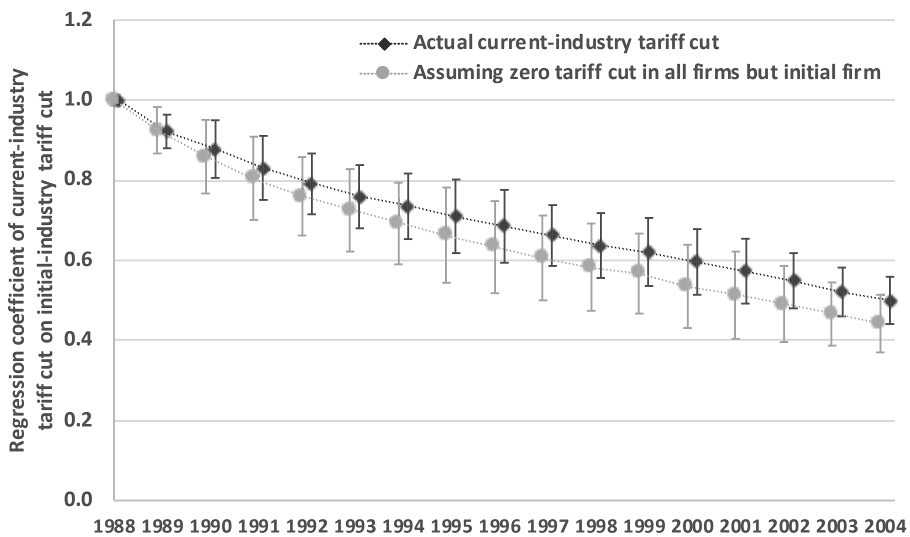


Notes: We divide manufacturing industries into terciles based on the size of the industry's Canadian tariff cut and assign workers to each tercile based on their initial industry of employment. For each initial-tariff-cut tercile, we plot the average Canadian tariff cut faced by workers in their current industry of employment during the year listed on the x-axis. Non-employed individuals in a given year are omitted from that year's average, and we assign zero tariff cut to non-tradable industries. Declining profiles imply that, on average, workers transition into industries that faced smaller Canadian tariff cuts than their initial industry.

Figure A14: Persistence of Tariff-Cut Exposure



(a) Low Attachment Workers



(b) High Attachment Workers

Notes: These figures replicate Figure IV of Autor et al. (2014). Black diamonds represents regression coefficients from regressing each worker's current industry's tariff cut in the relevant year on their initial-industry's tariff cut. Error bars are the associated 95 percent confidence intervals. Non-employed individuals in a given year are omitted from the regression in that year, and we assign zero tariff cut to non-tradable industries. The gray circles reflect an otherwise similar exercise in which all firms other than the worker's initial firm are assigned zero tariff cut. The similarity of the black and gray series indicate that Canadian workers quickly moved into industries facing less import competition as a result of Canadian tariff cuts.

A.11 Connected Industry Tariff Cut Analysis Estimates

In Section 5.6, we study the effects of tariff cuts in workers' outside-option industries using the regression specification in equation (5). In Table A9 we present the regression estimates, which we use to calculate the effects of inter-quartile range tariff cuts in Table 3 in the main text.

Table A9: Years Worked (1989-2004) - Direct and Outside-Option Tariff Cuts - Regression Estimates

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Other
Panel A: Low-Attachment (n=20,600)				
$-\Delta\ln(1+\tau_j^{\text{CAN}})$	-1.342	-8.921***	1.297	6.282***
	(1.375)	(2.352)	(1.501)	(1.628)
$-\Delta\ln(1+\tau_j^{\text{US}})$	-2.068	11.05***	-8.635***	-4.483
	(2.250)	(3.559)	(2.161)	(2.709)
$-\Delta\ln(1+\tau_{-j}^{\text{CAN}})$	-1.334	16.22	-15.76**	-1.796
	(5.849)	(10.14)	(7.482)	(7.263)
$-\Delta\ln(1+\tau_{-j}^{\text{US}})$	6.241	-23.01	19.47*	9.782
	(8.922)	(16.38)	(10.65)	(11.85)
R-squared	0.096	0.147	0.050	0.070
Panel B: High-Attachment (n=63,100)				
$-\Delta\ln(1+\tau_j^{\text{CAN}})$	3.316**	-0.549	2.967	0.898
	(1.304)	(3.782)	(2.877)	(1.555)
$-\Delta\ln(1+\tau_j^{\text{US}})$	-5.146**	6.664	-7.733	-4.077
	(2.090)	(6.095)	(4.973)	(2.568)
$-\Delta\ln(1+\tau_{-j}^{\text{CAN}})$	2.471	26.48*	-25.76***	1.757
	(5.994)	(14.71)	(9.194)	(8.667)
$-\Delta\ln(1+\tau_{-j}^{\text{US}})$	0.298	-41.54**	34.47**	7.371
	(8.853)	(20.35)	(15.69)	(13.59)
R-squared	0.058	0.113	0.045	0.069

Notes: The table reports regression estimates from the specification in equation (5). These estimates are used to create the inter-quartile range effects reported in Table 3 in the main text. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

A.12 Mass Layoffs

In Table A10, we examine whether the CUSFTA tariff cuts altered the probability of a mass layoff at affected firms. Following Jacobson et al. (1993) we create a sample of manufacturing firms that employed at least fifty workers in 1988 and employed workers in our sample in each year between 1984 and 1988 (inclusive). A firm has a mass layoff if its employment fell below 70 percent of its pre-FTA (1984-88) peak in any year between 1989 and 2004. The results are similar using definitions based on firm exit or year-to-year employment declines. Unlike Head and Ries (1999) and Trefler (2004), we observe firms and not plants so that there may have still been mass layoff events at the plant level that were too small to register at the firm level.

We run a firm-level regression of the mass-layoff indicator on Canadian and U.S. tariff changes, their interactions with the initial firm size, and the full sets of firm and industry level controls described in Section 4. Column (1) of Table A10 shows that larger Canadian tariff cuts did not significantly increase the probability of a mass layoff, nor did larger U.S. tariff cuts reduce that probability. In fact, the point estimates for the U.S. have the opposite sign of what one would expect. All of the estimated tariff effects are statistically indistinguishable from zero and have small magnitudes. For example, firms whose Canadian tariff cuts differed by the industry-level interquartile range of 0.045 have predicted mass layoff probabilities that differ by 2.7 percentage points. This point estimate is very imprecisely estimated and is small in comparison to the mean mass-layoff probability of 72 percent. This baseline probability is large due to our long sample period and because we measure mass layoffs as having occurred at the firm level in any year over 1989-2004. The share of *workers* initially employed in manufacturing experiencing a mass layoff during 1989-1994 was much smaller, at 37 percent, and much closer to figures in the literature for similar time frames such as Jacobson et al. (1993). In contrast, increased Chinese import penetration drove a statistically significant increase in the probability of a mass layoff for firms in affected industries. The industry-level interquartile range for Chinese import penetration is 0.139, implying a 3.8 percentage point larger mass layoff probability for firms facing larger China shocks. These results continue to hold when we allow the tariff-cut effects to vary by firm size in column (2). While the CUSFTA tariff changes did not induce mass layoffs, the substantial effect of the China Shock on mass layoffs shows that Canadian labor markets were not invulnerable to trade shocks. Given how disruptive mass layoffs are to workers' employment outcomes, the lack of mass layoffs in response to the FTA helps explain its lack of substantial long-run effects on other labor market outcomes.

A.13 Worker Transitions by Initial Firm Size Results Tables

Table A10: Mass Layoffs (1989-2004)

	(1)	(2)
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	0.611	
	(0.626)	
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{small firm})$		0.831
		(0.724)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{medium firm})$		0.515
		(0.777)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{large firm})$		0.354
		(1.319)
$-\Delta \ln(1+\tau_j^{\text{US}})$	0.0178	
	(0.775)	
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{small firm})$		0.0422
		(1.006)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{medium firm})$		0.187
		(0.904)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{large firm})$		-3.520
		(2.254)
$\Delta IPR_j^{\text{CHN}}$	0.277***	0.267***
	(0.0888)	(0.0909)
R-squared	0.051	0.055

Notes: These firm-level regressions examine the effects of Canadian and U.S. tariff cuts and increased Chinese import penetration on mass layoffs across 2,400 firms. The dependent variable is an indicator for having a mass layoff, defined as having at least one year in 1989-2004 in which employment falls below 70 percent of the firm's 1984-1988 peak employment (results robust to definitions based on year-to-year employment changes or firm exit). Column (1) examines overall effects, while column (2) presents the results of tariff cuts separately by firm size in 1988 (small=1-99, medium=100-999, large=1000+). All specifications include the full set of firm-level and industry-level controls described in Section 4. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Table A11: Worker Transitions, by Labor-Force Attachment and Initial Firm Size (1989-1993)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Min./Ag./Unk.	(6) Services	(7) Unemp.
Panel A: Low Attachment (n=20,600)							
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{small firm})$	-0.333	-0.0249	-0.0359	0.0270	0.00258	0.00152	-0.304*
	(0.249)	(0.0312)	(0.0591)	(0.0249)	(0.0327)	(0.0734)	(0.175)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{medium firm})$	0.491**	0.00626	0.0695	-0.00258	-0.00963	0.0740*	0.354***
	(0.192)	(0.0246)	(0.0681)	(0.0289)	(0.0233)	(0.0427)	(0.111)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{large firm})$	-0.179	-0.0266	0.105*	0.00220	0.00650	-0.0498	-0.216
	(0.278)	(0.0376)	(0.0581)	(0.0291)	(0.0182)	(0.0499)	(0.199)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{small firm})$	0.484*	0.0865*	0.00187	0.0613	0.00999	0.00355	0.320
	(0.252)	(0.0446)	(0.0841)	(0.0397)	(0.0379)	(0.0865)	(0.199)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{medium firm})$	-0.629**	0.0375	-0.116	0.0972**	0.0511	-0.0872	-0.612***
	(0.294)	(0.0450)	(0.0870)	(0.0470)	(0.0372)	(0.0734)	(0.192)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{large firm})$	-0.0926	0.0367	-0.0781	0.113**	0.00136	0.00537	-0.171
	(0.307)	(0.0431)	(0.109)	(0.0506)	(0.0368)	(0.0871)	(0.255)
R-squared	0.043	0.006	0.006	0.011	0.007	0.006	0.051
Panel B: High Attachment (n=63,100)							
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{small firm})$	-0.134	-0.0308	0.00149	0.00689	-0.0144	-0.0584	-0.0385
	(0.189)	(0.0430)	(0.0645)	(0.0229)	(0.0174)	(0.0486)	(0.0897)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{medium firm})$	0.133	-0.00298	0.0224	0.0186	-0.0176	0.00632	0.106
	(0.134)	(0.0225)	(0.0473)	(0.0180)	(0.0139)	(0.0267)	(0.0816)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{large firm})$	0.0233	-0.0169	0.0545	0.0285	0.00512	0.0204	-0.0683
	(0.196)	(0.0365)	(0.0577)	(0.0265)	(0.0122)	(0.0271)	(0.107)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{small firm})$	0.186	0.0347	-0.0156	0.0650	0.00140	0.0645	0.0363
	(0.224)	(0.0523)	(0.0703)	(0.0464)	(0.0186)	(0.0651)	(0.126)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{medium firm})$	-0.213	0.0248	-0.0849	0.0272	0.0170	-0.0659	-0.131
	(0.205)	(0.0431)	(0.0610)	(0.0308)	(0.0212)	(0.0399)	(0.122)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{large firm})$	-0.294	-0.0117	-0.0717	0.0612	-0.0225	-0.0945*	-0.155
	(0.333)	(0.0316)	(0.111)	(0.0512)	(0.0164)	(0.0496)	(0.194)
R-squared	0.025	0.008	0.005	0.008	0.003	0.005	0.018

Notes: Dependent variable in column (1) is an indicator for experiencing a permanent work-shortage based separation from the worker's initial firm during 1989-1993. The subsequent columns additively decompose this separation indicator based upon the worker's employment status in the year following separation. The independent variables of interest are the 1988-1998 tariff cuts facing U.S. exports to Canada ($-\Delta\ln(1+\tau_j^{\text{CAN}})$) or facing Canadian exports to the U.S. ($-\Delta\ln(1+\tau_j^{\text{US}})$) in the worker's initial industry, interacted with initial firm size (small=1-99, medium-100-999, large=1000+). Because the transition indicators in columns (2) through (9) additively decompose the overall separation indicator, the coefficients in columns (2) through (9) sum to the overall effect in column (1). All specifications include extensive worker, initial firm, and initial industry controls, described in Section 4. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Table A12: Worker Transitions, by Labor-Force Attachment and Initial Firm Size (1989-1998)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Min./Ag./Unk.	(6) Services	(7) Unemp.
Panel A: Low Attachment (n=20,600)							
$-\Delta\ln(1+\tau_j^{\text{CAN}})*\mathbb{1}(\text{small firm})$	-0.486	-0.0183	-0.0211	0.0186	-0.0136	0.0338	-0.485**
	(0.304)	(0.0435)	(0.0629)	(0.0270)	(0.0320)	(0.0668)	(0.223)
$-\Delta\ln(1+\tau_j^{\text{CAN}})*\mathbb{1}(\text{medium firm})$	0.343	-0.0148	0.0667	0.0196	-0.0141	0.0345	0.251**
	(0.220)	(0.0316)	(0.0748)	(0.0278)	(0.0243)	(0.0557)	(0.119)
$-\Delta\ln(1+\tau_j^{\text{CAN}})*\mathbb{1}(\text{large firm})$	0.582***	0.0223	0.155**	0.0730*	0.0309	-0.0128	0.314*
	(0.207)	(0.0504)	(0.0692)	(0.0402)	(0.0191)	(0.0590)	(0.182)
$-\Delta\ln(1+\tau_j^{\text{US}})*\mathbb{1}(\text{small firm})$	0.624**	0.133**	-0.0277	0.0962**	0.0355	-0.00958	0.397*
	(0.295)	(0.0587)	(0.0832)	(0.0468)	(0.0385)	(0.0752)	(0.234)
$-\Delta\ln(1+\tau_j^{\text{US}})*\mathbb{1}(\text{medium firm})$	-0.574*	0.137**	-0.134*	0.0927*	0.0579	-0.0262	-0.701***
	(0.297)	(0.0657)	(0.0804)	(0.0524)	(0.0397)	(0.0965)	(0.194)
$-\Delta\ln(1+\tau_j^{\text{US}})*\mathbb{1}(\text{large firm})$	-0.879**	0.00764	-0.140	0.0541	-0.0150	-0.0131	-0.773**
	(0.349)	(0.0754)	(0.135)	(0.0669)	(0.0323)	(0.0987)	(0.355)
R-squared	0.064	0.009	0.006	0.013	0.009	0.006	0.077
Panel B: High Attachment (n=63,100)							
$-\Delta\ln(1+\tau_j^{\text{CAN}})*\mathbb{1}(\text{small firm})$	-0.210	-0.0739	-0.0364	0.00712	-0.0121	-0.0266	-0.0686
	(0.259)	(0.0519)	(0.0784)	(0.0285)	(0.0196)	(0.0593)	(0.122)
$-\Delta\ln(1+\tau_j^{\text{CAN}})*\mathbb{1}(\text{medium firm})$	0.132	-0.00838	0.0417	0.0188	-0.0186	0.0206	0.0781
	(0.206)	(0.0285)	(0.0658)	(0.0241)	(0.0170)	(0.0430)	(0.107)
$-\Delta\ln(1+\tau_j^{\text{CAN}})*\mathbb{1}(\text{large firm})$	0.477**	0.0277	0.169**	0.0926***	0.0293*	0.0512	0.107
	(0.233)	(0.0466)	(0.0701)	(0.0302)	(0.0167)	(0.0439)	(0.153)
$-\Delta\ln(1+\tau_j^{\text{US}})*\mathbb{1}(\text{small firm})$	0.371	0.128*	0.0203	0.101	0.00479	-0.00715	0.124
	(0.309)	(0.0652)	(0.0857)	(0.0614)	(0.0205)	(0.0797)	(0.157)
$-\Delta\ln(1+\tau_j^{\text{US}})*\mathbb{1}(\text{medium firm})$	-0.204	0.0883	-0.0879	0.0565	0.0362	-0.113*	-0.184
	(0.291)	(0.0606)	(0.0816)	(0.0448)	(0.0252)	(0.0608)	(0.159)
$-\Delta\ln(1+\tau_j^{\text{US}})*\mathbb{1}(\text{large firm})$	-0.725*	-0.0623	-0.154	0.0276	-0.0539**	-0.112*	-0.371
	(0.425)	(0.0653)	(0.123)	(0.0641)	(0.0208)	(0.0602)	(0.233)
R-squared	0.036	0.015	0.006	0.012	0.004	0.005	0.028

Notes: Dependent variable in column (1) is an indicator for experiencing a permanent work-shortage based separation from the worker's initial firm during 1989-1998. The subsequent columns additively decompose this separation indicator based upon the worker's employment status in the year following separation. The independent variables of interest are the 1988-1998 tariff cuts facing U.S. exports to Canada ($-\Delta\ln(1+\tau_j^{\text{CAN}})$) or facing Canadian exports to the U.S. ($-\Delta\ln(1+\tau_j^{\text{US}})$) in the worker's initial industry, interacted with initial firm size (small=1-99, medium-100-999, large=1000+). Because the transition indicators in columns (2) through (9) additively decompose the overall separation indicator, the coefficients in columns (2) through (9) sum to the overall effect in column (1). All specifications include extensive worker, initial firm, and initial industry controls, described in Section 4. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Table A13: Worker Transitions, by Labor-Force Attachment and Initial Firm Size (1989-2003)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Min./Ag./Unk.	(6) Services	(7) Unemp.
Panel A: Low Attachment (n=20,600)							
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{small firm})$	-0.485	-0.0425	-0.0439	0.0240	-0.00410	0.0377	-0.456*
	(0.329)	(0.0464)	(0.0705)	(0.0285)	(0.0344)	(0.0697)	(0.233)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{medium firm})$	0.241	-0.0229	0.0324	0.0128	-0.0128	0.0343	0.197*
	(0.203)	(0.0318)	(0.0732)	(0.0324)	(0.0239)	(0.0604)	(0.111)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{large firm})$	0.489**	0.0159	0.167**	0.0907**	0.0311	-0.00552	0.190
	(0.200)	(0.0486)	(0.0691)	(0.0446)	(0.0199)	(0.0651)	(0.168)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{small firm})$	0.617*	0.152**	0.00622	0.110**	0.0146	-0.0410	0.376
	(0.316)	(0.0633)	(0.0928)	(0.0533)	(0.0417)	(0.0762)	(0.243)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{medium firm})$	-0.489*	0.151**	-0.0843	0.124*	0.0452	-0.0565	-0.669***
	(0.290)	(0.0652)	(0.0832)	(0.0664)	(0.0376)	(0.102)	(0.209)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{large firm})$	-0.796**	-0.00180	-0.147	0.0429	-0.0364	-0.0304	-0.623*
	(0.355)	(0.0720)	(0.137)	(0.0766)	(0.0358)	(0.126)	(0.319)
R-squared	0.070	0.010	0.007	0.015	0.010	0.007	0.083
Panel B: High Attachment (n=63,100)							
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{small firm})$	-0.335	-0.0813	-0.0592	0.00443	-0.0188	-0.0542	-0.126
	(0.292)	(0.0582)	(0.0853)	(0.0340)	(0.0220)	(0.0763)	(0.138)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{medium firm})$	-0.0365	-0.0395	-0.00883	0.0112	-0.0163	0.000200	0.0167
	(0.216)	(0.0330)	(0.0638)	(0.0312)	(0.0176)	(0.0503)	(0.117)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{large firm})$	0.378	0.0178	0.142**	0.102***	0.0323*	0.0433	0.0405
	(0.277)	(0.0487)	(0.0704)	(0.0342)	(0.0183)	(0.0503)	(0.176)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{small firm})$	0.502	0.208***	-0.00527	0.135*	0.00541	-0.0161	0.175
	(0.346)	(0.0759)	(0.0933)	(0.0777)	(0.0220)	(0.0910)	(0.174)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{medium firm})$	0.0591	0.138**	-0.0588	0.0937	0.0296	-0.0566	-0.0873
	(0.345)	(0.0659)	(0.0986)	(0.0674)	(0.0252)	(0.0719)	(0.178)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{large firm})$	-0.635	-0.0493	-0.166	0.0428	-0.0729***	-0.0945	-0.295
	(0.440)	(0.0670)	(0.122)	(0.0784)	(0.0236)	(0.0741)	(0.232)
R-squared	0.038	0.015	0.006	0.014	0.004	0.006	0.030

Notes: Dependent variable in column (1) is an indicator for experiencing a permanent work-shortage based separation from the worker's initial firm during 1989-2004. The subsequent columns additively decompose this separation indicator based upon the worker's employment status in the year following separation. The independent variables of interest are the 1988-1998 tariff cuts facing U.S. exports to Canada ($-\Delta\ln(1+\tau_j^{\text{CAN}})$) or facing Canadian exports to the U.S. ($-\Delta\ln(1+\tau_j^{\text{US}})$) in the worker's initial industry, interacted with initial firm size (small=1-99, medium-100-999, large=1000+). Because the transition indicators in columns (2) through (9) additively decompose the overall separation indicator, the coefficients in columns (2) through (9) sum to the overall effect in column (1). All specifications include extensive worker, initial firm, and initial industry controls, described in Section 4. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

A.14 Cumulative Normalized Earnings by Initial Firm Size Results Tables

Table A14: Cumulative Normalized Earnings, by Labor-Force Attachment and Initial Firm Size (1989-1993)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Min./Ag./Unk.	(7) Services
Panel A: Low Attachment (n=20,600)							
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{small firm})$	0.724	-2.918	-0.825	0.796	1.175	-0.0831	2.579
	(2.836)	(2.499)	(0.870)	(1.563)	(0.882)	(0.474)	(1.836)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{medium firm})$	-1.695	-2.511	-0.748	1.690	0.594	-0.182	-0.538
	(3.043)	(3.017)	(0.893)	(1.244)	(0.692)	(0.282)	(1.669)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{large firm})$	-0.876	-2.985	-1.964***	2.016	0.692	0.106	1.258
	(2.575)	(4.032)	(0.631)	(2.042)	(0.642)	(0.400)	(1.154)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{small firm})$	0.0362	3.206	1.384	-2.416	0.514	0.411	-3.063
	(3.755)	(3.273)	(1.181)	(2.010)	(0.977)	(0.725)	(2.718)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{medium firm})$	3.667	0.356	0.848	-3.633	1.281	0.742*	4.073*
	(3.992)	(3.889)	(1.338)	(2.370)	(1.244)	(0.430)	(2.258)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{large firm})$	4.236	-0.760	-0.483	1.872	1.472	0.0694	2.066
	(5.895)	(7.390)	(1.104)	(3.191)	(1.102)	(0.706)	(2.617)
R-squared	0.105	0.065	0.013	0.034	0.022	0.019	0.082
Panel B: High Attachment (n=63,100)							
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{small firm})$	1.655	1.665	-0.587	-0.438	0.112	-0.0652	0.968*
	(1.264)	(1.410)	(0.521)	(0.778)	(0.274)	(0.154)	(0.551)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{medium firm})$	-0.813	-0.0216	-0.403	0.272	0.0886	-0.0534	-0.695
	(1.073)	(1.624)	(0.392)	(0.691)	(0.149)	(0.127)	(0.611)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}(\text{large firm})$	1.976**	0.645	-0.517	1.403	0.447**	0.0397	-0.0426
	(0.924)	(2.271)	(0.457)	(1.404)	(0.189)	(0.146)	(0.610)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{small firm})$	-2.294*	0.340	1.471**	-1.627	0.231	-0.121	-2.589***
	(1.360)	(1.843)	(0.708)	(1.007)	(0.531)	(0.207)	(0.792)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{medium firm})$	1.881	2.771	0.590	-1.901*	0.270	-0.141	0.293
	(1.440)	(2.151)	(0.634)	(1.123)	(0.262)	(0.156)	(0.780)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}(\text{large firm})$	-1.613	2.676	-2.383***	-0.281	0.0394	-0.494*	-1.172*
	(1.955)	(4.782)	(0.792)	(2.649)	(0.282)	(0.278)	(0.680)
R-squared	0.074	0.078	0.018	0.038	0.017	0.010	0.051

Notes: Dependent variable is the sum of a worker's earnings during 1989-1993, divided by the worker's average yearly earnings in 1986-1988 (omitting years with zero earnings), defined in equation (2). The independent variables of interest are the 1988-1998 tariff cuts facing U.S. exports to Canada ($-\Delta\ln(1+\tau_j^{\text{CAN}})$) or facing Canadian exports to the U.S. ($-\Delta\ln(1+\tau_j^{\text{US}})$) in the worker's initial industry, interacted with initial firm size (small=1-99, medium-100-999, large=1000+). Column (1) examines total earnings from all sources, (2) earnings from the initial firm, (3) from firms other than the initial firm, but in the same initial 4-digit industry, (4) in manufacturing industries (NAICS=3xxx) other than the initial industry, (5) in construction and utilities (NAICS=22xx, 23xx), (6) in mining (NAICS=21xx), agriculture (NAICS=1xxx), or from a firm with unknown industry code, and (7) in services (NAICS≥4xxx). Because earnings in columns (2) through (7) additively decompose total earnings, the coefficients in columns (2) through (7) sum to the overall effect in column (1). All specifications include extensive worker, initial firm, and initial industry controls, described in Section 4. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Table A15: Cumulative Normalized Earnings, by Labor-Force Attachment and Initial Firm Size (1989-1998)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Min./Ag./Unk.	(7) Services
Panel A: Low Attachment (n=20,600)							
$-\Delta\ln(1+\tau_j^{CAN})*\mathbb{1}$(small firm)	0.267	-8.025*	-1.591	2.162	1.923	0.0949	5.702
	(5.900)	(4.352)	(2.277)	(4.395)	(1.505)	(0.968)	(4.129)
$-\Delta\ln(1+\tau_j^{CAN})*\mathbb{1}$(medium firm)	0.368	-5.454	-0.534	6.010*	1.245	-0.400	-0.499
	(7.384)	(5.859)	(1.966)	(3.299)	(1.468)	(0.660)	(4.687)
$-\Delta\ln(1+\tau_j^{CAN})*\mathbb{1}$(large firm)	-9.418*	-11.89	-4.516***	3.746	1.566	0.229	1.452
	(4.823)	(7.468)	(1.510)	(4.483)	(1.367)	(1.071)	(3.221)
$-\Delta\ln(1+\tau_j^{US})*\mathbb{1}$(small firm)	4.096	7.889	2.234	-4.471	2.711	0.512	-4.780
	(8.465)	(6.331)	(2.911)	(5.311)	(2.025)	(1.401)	(6.772)
$-\Delta\ln(1+\tau_j^{US})*\mathbb{1}$(medium firm)	1.376	-1.042	0.444	-9.729	2.872	1.475*	7.357
	(10.40)	(7.009)	(3.239)	(6.196)	(2.722)	(0.853)	(6.875)
$-\Delta\ln(1+\tau_j^{US})*\mathbb{1}$(large firm)	19.82*	10.86	-3.739	5.379	3.088	-0.231	4.458
	(11.87)	(15.79)	(2.473)	(7.447)	(2.662)	(2.006)	(6.906)
R-squared	0.108	0.060	0.015	0.029	0.022	0.024	0.100
Panel B: High Attachment (n=63,100)							
$-\Delta\ln(1+\tau_j^{CAN})*\mathbb{1}$(small firm)	3.394	3.411	-1.833	-0.0156	0.138	0.0189	1.675
	(2.884)	(3.789)	(1.640)	(2.136)	(0.615)	(0.385)	(1.485)
$-\Delta\ln(1+\tau_j^{CAN})*\mathbb{1}$(medium firm)	-0.643	0.701	-1.162	1.946	0.521	-0.173	-2.478
	(2.503)	(4.375)	(1.035)	(1.929)	(0.349)	(0.308)	(1.865)
$-\Delta\ln(1+\tau_j^{CAN})*\mathbb{1}$(large firm)	-0.570	-5.514	-0.473	4.865	0.806*	-0.0632	-0.191
	(2.261)	(4.939)	(1.194)	(3.307)	(0.418)	(0.495)	(1.799)
$-\Delta\ln(1+\tau_j^{US})*\mathbb{1}$(small firm)	-6.062*	-0.869	4.586**	-4.477*	0.626	-0.452	-5.476***
	(3.344)	(4.917)	(2.284)	(2.614)	(1.227)	(0.488)	(2.015)
$-\Delta\ln(1+\tau_j^{US})*\mathbb{1}$(medium firm)	1.607	2.892	2.748	-5.812*	0.281	-0.201	1.700
	(3.691)	(5.957)	(2.029)	(3.017)	(0.676)	(0.439)	(2.313)
$-\Delta\ln(1+\tau_j^{US})*\mathbb{1}$(large firm)	-1.660	13.36	-9.556***	-1.939	0.472	-1.356*	-2.635
	(4.278)	(12.03)	(3.297)	(6.368)	(0.675)	(0.806)	(1.826)
R-squared	0.081	0.075	0.033	0.046	0.018	0.016	0.062

Notes: Dependent variable is the sum of a worker's earnings during 1989-1998, divided by the worker's average yearly earnings in 1986-1988 (omitting years with zero earnings), defined in equation (2). The independent variables of interest are the 1988-1998 tariff cuts facing U.S. exports to Canada ($-\Delta\ln(1+\tau_j^{CAN})$) or facing Canadian exports to the U.S. ($-\Delta\ln(1+\tau_j^{US})$) in the worker's initial industry, interacted with initial firm size (small=1-99, medium-100-999, large=1000+). Column (1) examines total earnings from all sources, (2) earnings from the initial firm, (3) from firms other than the initial firm, but in the same initial 4-digit industry, (4) in manufacturing industries (NAICS=3xxx) other than the initial industry, (5) in construction and utilities (NAICS=22xx, 23xx), (6) in mining (NAICS=21xx), agriculture (NAICS=1xxx), or from a firm with unknown industry code, and (7) in services (NAICS≥4xxx). Because earnings in columns (2) through (7) additively decompose total earnings, the coefficients in columns (2) through (7) sum to the overall effect in column (1). All specifications include extensive worker, initial firm, and initial industry controls, described in Section 4. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Table A16: Cumulative Normalized Earnings, by Labor-Force Attachment and Initial Firm Size (1989-2004)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Min./Ag./Unk.	(7) Services
Panel A: Low Attachment (n=20,600)							
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	-2.173	-12.57*	-3.304	-1.544	3.152	0.648	11.45
	(10.73)	(6.763)	(4.456)	(8.453)	(2.843)	(1.871)	(8.423)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	0.0251	-8.676	-1.295	8.235	3.875**	0.0330	-2.147
	(13.23)	(9.460)	(3.916)	(6.342)	(1.776)	(1.222)	(9.724)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	-21.95**	-29.33***	-8.180***	8.479	5.436**	-0.527	2.175
	(8.379)	(10.21)	(3.013)	(7.855)	(2.294)	(2.019)	(6.734)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	10.90	10.26	4.651	-0.684	6.393*	0.0568	-9.776
	(17.76)	(10.68)	(5.537)	(12.34)	(3.728)	(2.452)	(13.30)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	3.608	-1.820	1.165	-14.87	2.817	0.803	15.51
	(19.42)	(11.65)	(6.547)	(11.39)	(3.462)	(1.548)	(14.59)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	42.33**	29.24	-6.906	2.059	3.421	0.516	14.00
	(19.47)	(23.56)	(4.763)	(13.38)	(4.813)	(3.346)	(13.15)
R-squared	0.134	0.050	0.018	0.037	0.027	0.022	0.116
Panel B: High Attachment (n=63,100)							
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	5.807	5.952	-3.201	1.252	0.176	0.146	1.483
	(4.716)	(6.717)	(3.279)	(4.205)	(1.220)	(0.708)	(3.105)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	0.0154	2.972	-3.154	4.134	0.793	-0.338	-4.392
	(4.062)	(8.019)	(2.157)	(3.761)	(0.692)	(0.529)	(3.861)
$-\Delta\ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	-3.864	-12.87	-2.216	9.190*	1.482	0.0464	0.508
	(3.933)	(8.217)	(2.129)	(5.401)	(0.936)	(1.225)	(2.903)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	-8.728	-0.917	7.823*	-9.536*	1.936	-0.686	-7.348*
	(5.682)	(8.703)	(4.472)	(4.902)	(2.369)	(0.887)	(4.250)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	1.151	2.356	6.571	-12.19**	1.215	-0.129	3.328
	(5.753)	(10.68)	(4.122)	(5.786)	(1.436)	(0.779)	(5.006)
$-\Delta\ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	-2.465	22.37	-15.10**	-6.675	1.365	-3.153*	-1.273
	(6.516)	(20.00)	(6.016)	(10.97)	(1.378)	(1.663)	(3.585)
R-squared	0.114	0.072	0.036	0.052	0.020	0.022	0.073

Notes: Dependent variable is the sum of a worker's earnings during 1989-2004, divided by the worker's average yearly earnings in 1986-1988 (omitting years with zero earnings), defined in equation (2). The independent variables of interest are the 1988-1998 tariff cuts facing U.S. exports to Canada ($-\Delta\ln(1+\tau_j^{\text{CAN}})$) or facing Canadian exports to the U.S. ($-\Delta\ln(1+\tau_j^{\text{US}})$) in the worker's initial industry, interacted with initial firm size (small=1-99, medium-100-999, large=1000+). Column (1) examines total earnings from all sources, (2) earnings from the initial firm, (3) from firms other than the initial firm, but in the same initial 4-digit industry, (4) in manufacturing industries (NAICS=3xxx) other than the initial industry, (5) in construction and utilities (NAICS=22xx, 23xx), (6) in mining (NAICS=21xx), agriculture (NAICS=1xxx), or from a firm with unknown industry code, and (7) in services (NAICS≥4xxx). Because earnings in columns (2) through (7) additively decompose total earnings, the coefficients in columns (2) through (7) sum to the overall effect in column (1). All specifications include extensive worker, initial firm, and initial industry controls, described in Section 4. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.