The Long-Run Labor Market Effects of CUSFTA

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Research Questions

1. What happens to labor markets when two high-income but asymmetric countries reduce legislated bilateral trade barriers?

2. What are the long-run labour market effects of trade policy on individual workers?
   - Increased import competition from domestic tariff reductions
   - Increased demand for exports from foreign tariff reductions

The 1988 Canada-U.S. Free Trade Agreement (CUSFTA)

Approach

- 21 years of administrative linked employer-employee data tracking Canadian worker outcomes.
- Compare evolution of outcomes for Canadian workers initially in industries facing differential tariff cuts by Canada or the U.S. as legislated by the CUSFTA.
- Outcomes
  - Layoff
  - Years worked
  - Lifetime earnings
- Heterogeneity
  - Low- vs. high-attachment workers
  - Small vs. large initial employers
  - Low- vs. high-income workers

Findings

- Initial Firm and Initial Industry:
  - Canadian tariff cuts increase layoffs and reduce earnings.
  - U.S. tariff cuts reduce layoffs and increase earnings.
- Minimal overall effects of tariff cuts due to shifts to industries/sectors.
  - $\%\Delta$ low attachment initial firm earnings from Canadian cuts: -4%
  - $\%\Delta$ low attachment lifetime earnings from Canadian cuts: -1.9%
  - Accounting for U.S. concessions leads to even smaller effects: -0.2%
- What is behind these small effects?
  - Speedy transitions into less affected industries,
  - No effect on mass layoffs,
  - Changes in industry employment primarily through new entrants, not incumbents.
- Large effects for low-attachment workers at large firms, but still offsetting effects of Canadian and U.S. tariff cuts.

Literature: trade and labor using worker-level data

	Demand/Supply Shocks	Changes in Policy
Imports	ADH strain of "China Shock", Ebenstein et al. (2014)	Topolova (2007, 2010), Harrigan and Barrows (2009), Kovak (2013), Utar (2014,2018), Dix-Carneiro (2014), Hakobyan and McLaren (2016), Pierce and Schott (2016), Dix-Carneiro and Kovak (2018)
Exports	Feenstra, Ma, and Xu (2019)	McCaig (2011), Brambilla et al. (2012), McCaig and Pavcnik (2018)
Exports/Imports	Biscourp and Kramarz (2007), Dauth, Findeisen, and Suedekum (2014,2020,2021), Hummels, Jørgensen, Munch, and Xiang (2014), Costa, Garred, and Pessoa (2016)	THIS PAPER

CUSFTA

Policy background

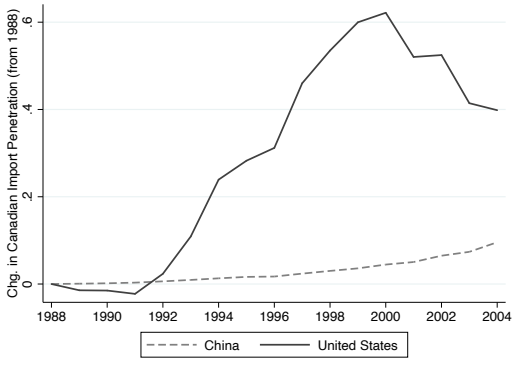
- Negotiations began Sep 1985; signed Jan 2, 1988; in effect Jan 1, 1989
- Passage uncertain - 1988 Parliamentary election
- Cut all tariffs outside agriculture to zero by 1998.

recession exchg.rt. trade mix trade partners

Favorable research setting

- Not part of broader reform package or result of a crisis (Trefler 2004)
- Observe policy changes.
- Tariffs uncorrelated with industry pre-trends pre-trends

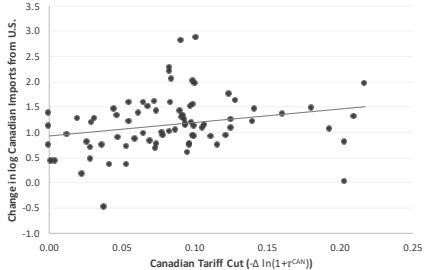
Import Penetration Ratio for Canadian Imports from China and the U.S.



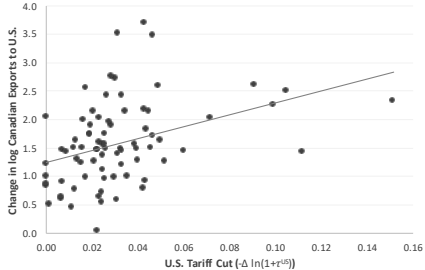
Notes: This shows Figure 1 of the paper. The y-axis plots the change in Canadian import penetration accounted for by Chinese or U.S. imports from 1988 to the year on the x-axis by by plotting $(\text{imports}^c_t - \text{imports}^c_{1988})/(\text{absorption}_{1988})$ from Autor et al. (2014) equation (1), where $c \in \{\text{China,U.S.}\}$ and absorption is industry output plus imports minus exports. All values deflated to 2002 dollars using the Canadian CPI.

Tariff Cuts and Bilateral Trade: Canada (left) and United States (right)

Panel (a): Canada Imports



Panel (b): U.S. Imports



Notes: This shows figure 2 of the paper. Each figure plots the change in log bilateral trade against the tariff cut in the importing country from 1988 to 1998 for each of 78 4-digit NAICS manufacturing industries. The left panel plots the change in log imports into Canada from the U.S. against negative one times the change in log one plus the Canadian tariff; the associated regression line has a slope of 2.66 (s.e. 1.33, p=0.05). The right panel plots the change in log exports from Canada to the U.S. against negative one times the change in log one plus the U.S. tariff from 1988-1989; the associated regression line has a slope 10.48 (s.e. 2.44, $p<0.01$). Romalis (2007)

Data

Statistics Canada matched T2-LEAP-LWF dataset

- LWF (Longitudinal Worker File): 10% sample of all Canadian workers 1984-2004.
  - Wage income, firm tax ID, province, basic demographic information.
  - Records of employment (ROEs) ROEs
  - Industry affiliation (2007 NAICS-4): 328 industries (85 manufacturing)
- LEAP (Longitudinal Employment Analyses Program)
  - Firm (total) employment over time
- T2 (Corporate Tax Return)
  - Firm balance sheet information, sales, capital stock, investment, etc.

What we don't have

- Workers' non-labour income (except EI payments).
- No information on occupation or education.
- Geographic information is only the province of the firm.
- Firm exports/imports.

Sample

- Unit of observation is a worker
- Born between 1940 and 1964 (age 22-64 during 1986-2004)
- Positive earnings in at least one year during 1986-1988 (to set initial firm)
- Initially employed in manufacturing (though we follow into any sector)
- 78 industries

High Attachment and Low Attachment

High Attachment: earnings in every year between 1985 and 1988 $\geq$ equivalent of 1,600 annual hours worked at the provincial minimum wage.

Low Attachment: the remainder in-sample workers (initially in manuf., worked during 1986-88, prime-age)

- $\approx$75% of the sample is high attachment
- Women and younger workers are less likely to be high attachment.

Research Design: Estimating Equation

$$Y_{ifjk} = \beta_0 - \underbrace{\beta_1 \Delta \ln(1+\tau_j^{\text{CAN}})}_{\text{Canada Cut}} - \overbrace{\beta_2 \Delta \ln(1+\tau_j^{\text{US}})}^{\text{U.S. Cut}} + \mathbf{X}_i'\beta_3 + \mathbf{X}_f'\beta_4 + \mathbf{X}_j'\beta_5 + \varepsilon_{ifjk}.$$

i - worker, f - initial firm, j - initial industry, k - time period

- Y_{ifjk}: outcome: separation indicator, cumulative earnings, years worked, or transition indicator during time period k (1989-1993,1989-1998, 1989-2004)
- $\mathbf{X}_i'$ worker controls: gender, birth year indicators, log real average earnings 1986-1988, change in log real earnings 1986-1988, indicators for labor market experience and initial firm tenure, initial province of employment, worker initial age x log real average earnings.
- $\mathbf{X}_f'$ initial firm controls: firm employment size bins (0-99, 100-999, 1000+), average log 1988 real income per worker within firm, average change log worker real income within firm 1986-1988.
- $\mathbf{X}_j'$ initial industry controls: log share of workers earning less than 1988 median income, average 1988 log income per worker, 1988 log capital-labor ratio, change in log share of aggregate employment 1986-1988, mean change in log worker income 1986-1988, cyclicality control, MFN tariff cuts, pre-trends in dependent variables interacted with initial firm size and worker tenure indicators, change in China IPR in initial industry 1988-2004, and 2-digit NAICS FE.

Probability of Work Shortage Separation from Initial Firm (1989-2004)

	Low Attachment		High Attachment	
	(1)	(2)	(3)	(4)
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	0.0731		0.124	
	(0.159)		(0.180)	
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)		-0.480		-0.263
		(0.337)		(0.289)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)		0.225		-0.0300
		(0.195)		(0.219)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)		0.475**		0.382
		(0.205)		(0.271)
$-\Delta \ln(1+\tau_j^{\text{US}})$	-0.155		-0.0297	
	(0.194)		(0.284)	
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)		0.633**		0.481
		(0.318)		(0.337)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)		-0.472*		0.0970
		(0.271)		(0.337)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)		-0.796**		-0.651
		(0.353)		(0.445)
Observations	20,577	20,577	63,128	63,128
R-Squared	0.067	0.068	0.037	0.037

Notes: This shows Table 1 of the text. All specifications include controls as described in the text. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

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Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{CAN})$	-1.013	-6.477**	-2.661	2.598	1.635**	0.467	-0.657	4.014**	0.0686
	(1.284)	(2.701)	(1.712)	(1.766)	(0.766)	(0.358)	(0.549)	(1.567)	(0.0445)
$-\Delta \ln(1+\tau_j^{US})$	-3.030	4.551	6.807**	-9.483***	0.841	-0.181	-0.0663	-5.425*	-0.0728
	(2.319)	(3.884)	(3.064)	(2.844)	(1.731)	(0.576)	(0.993)	(2.955)	(0.0689)
R-squared	0.096	0.132	0.048	0.048	0.046	0.022	0.027	0.062	0.008
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{CAN})$	2.358*	-1.602	-2.899*	4.907	0.955	0.460	-0.588*	1.054	0.0521
	(1.206)	(4.364)	(1.724)	(3.254)	(0.737)	(0.427)	(0.325)	(1.410)	(0.0368)
$-\Delta \ln(1+\tau_j^{US})$	-3.071	8.532	5.095	-9.907*	0.385	-0.292	-0.734	-6.132**	-0.0186
	(1.890)	(7.705)	(4.677)	(5.376)	(1.499)	(0.479)	(0.522)	(2.525)	(0.0616)
R-squared	0.055	0.102	0.035	0.042	0.022	0.028	0.015	0.061	0.004

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	(1.890)	(7.705)	(4.677)	(5.376)	(1.499)	(0.479)	(0.522)	(2.525)	(0.0616)
R-squared	0.058	0.102	0.035	0.042	0.022	0.028	0.015	0.061	0.004

Notes: This shows Table 2 of the text. All specifications include controls as described in the text. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Years Worked (1989-2004)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Mining	(7) Agric.	(8) Services	(9) Unknown
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{CAN})$	-1.013	-6.477**	-2.661	2.598	1.635**	0.467	-0.657	4.014**	0.0686
	(1.284)	(2.701)	(1.712)	(1.766)	(0.766)	(0.358)	(0.549)	(1.567)	(0.0445)
$-\Delta \ln(1+\tau_j^{US})$	-3.030	4.551	6.807**	-9.483***	0.841	-0.181	-0.0663	-5.425*	-0.0728
	(2.319)	(3.884)	(3.064)	(2.844)	(1.731)	(0.576)	(0.993)	(2.955)	(0.0689)
R-squared	0.096	0.132	0.048	0.048	0.046	0.022	0.027	0.062	0.008
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{CAN})$	2.338*	-1.602	-2.899*	4.907	0.955	0.460	-0.588*	1.054	0.0521
	(1.206)	(4.364)	(1.724)	(3.254)	(0.737)	(0.427)	(0.325)	(1.410)	(0.0368)
$-\Delta \ln(1+\tau_j^{US})$	-3.071	8.532	5.095	-9.907*	0.385	-0.292	-0.734	-6.132**	-0.0186
	(1.890)	(7.705)	(4.677)	(5.376)	(1.499)	(0.479)	(0.522)	(2.525)	(0.0616)
R-squared	0.058	0.102	0.035	0.042	0.022	0.028	0.015	0.061	0.004

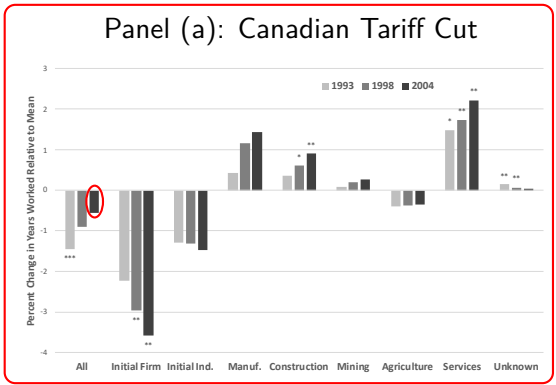
Notes: This shows Table 2 of the text. All specifications include controls as described in the text. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

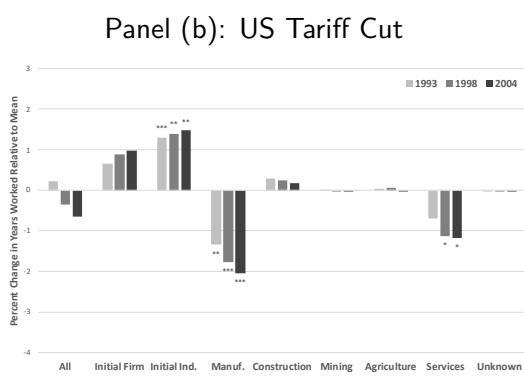
Magnitudes: interquartile comparisons

- %Δ in outcome using interquartile comparisons across industries.
- $Q_3(\Delta \ln(1+\tau_j^{\text{CAN}}))$-$Q_1(\Delta \ln(1+\tau_j^{\text{CAN}}))$: 0.064
- $Q_3(\Delta \ln(1+\tau_j^{\text{US}}))$-$Q_1(\Delta \ln(1+\tau_j^{\text{US}}))$: 0.024
- The effect of Canadian cuts on total years worked (LA worker mean: 11.6):

$$\boxed{100\left(\frac{-1.013 \times 0.064}{11.6}\right) = -0.56\% \text{ fewer years worked } \ (< 1\text{mo})}$$

Percent Change in Years Worked Relative to the Mean: Low Attachment

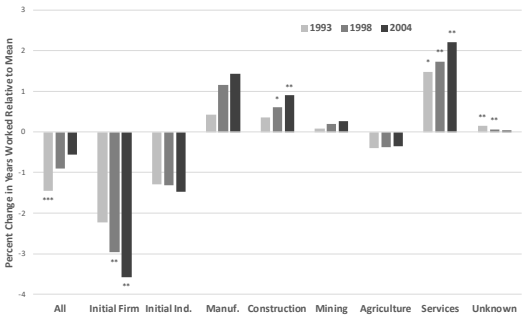




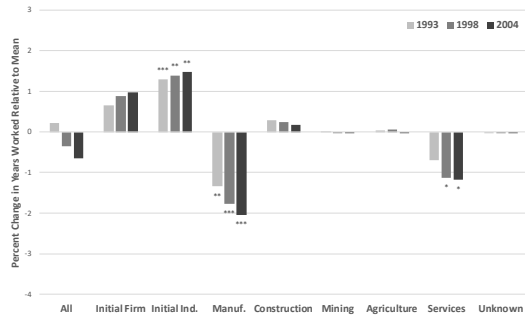
Notes: This shows Panels (a) and (b) of Figure 3 of the text that show the effect of interquartile tariff cut comparisons. The mean of years worked for low attachment workers is 11.6 years. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. High Attachment 1989-1993 1989-1998

Percent Change in Years Worked Relative to the Mean: Low Attachment

Panel (a): Canadian Tariff Cut



Panel (b): US Tariff Cut

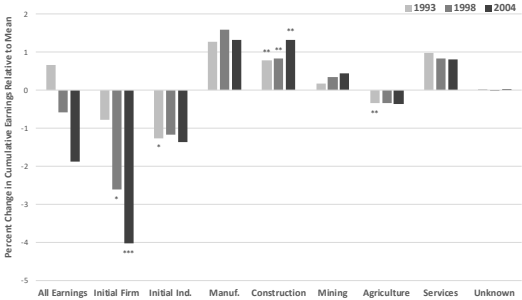


Notes: This shows Panels (a) and (b) of Figure 3 of the text that show the effect of interquartile tariff cut comparisons. The mean of years worked for low attachment workers is 11.6 years. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

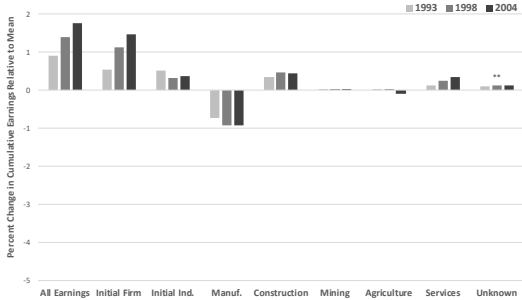
High Attachment 1989-1993 1989-1998

Percent Change in Normalized Cumulative Earnings: Low Attachment

Panel (a): Canadian Tariff Cut



Panel (b): US Tariff Cut



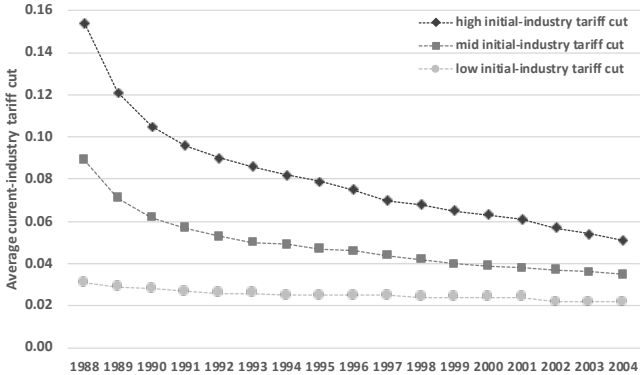
Notes: This shows Panels (a) and (b) of Figure 4 of the text that show the effect of interquartile tariff cut comparisons. The mean of normalized cumulative earnings for low attachment workers is 21.01. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

High Attachment | 1989-1993 | 1989-1998 | 1989-2004

Understanding Our Small Estimated Effects

- Why?
- Quick escapes from affected industries.
- No **mass** layoffs
  - Unlike the China shock.
- Adjustment was among entrants.
  - The China shock affected employment for both entrants and incumbent workers.

Evolution of Canadian Tariff-Cut Exposure: Low Attachment Workers



Notes: This shows Figure 5 of the text. It shows the tariff of current industry employment for workers divided into terciles of the Canadian tariff in the initial industry of employment. High Attachment ADHS Figures

Probability of a Mass Layoff (1989-2004)

Depvar:	Prob. of Mass Layoff	
	(1)	(2)
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	-0.309	
	(0.447)	
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)		-0.523
		(0.688)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)		-0.165
		(0.493)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)		-0.381
		(1.432)
$-\Delta \ln(1+\tau_j^{\text{US}})$	0.0722	
	(0.652)	
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)		0.876
		(1.025)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)		-0.239
		(0.619)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)		-4.221
		(2.692)
$\Delta IPR_j^{\text{CHN}}$	0.193**	0.191**
	(0.0825)	(0.0859)
R-squared	0.028	0.035

Notes: This shows Table 3 of the text. 4206 observations/firms. The dependent variable is an indicator for a firm having at least one year in 1989-2004 in which employment falls below 70 percent of the firm's 1984-1988 peak employment. All specifications include the full set of firm-level and industry-level controls described in the text. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

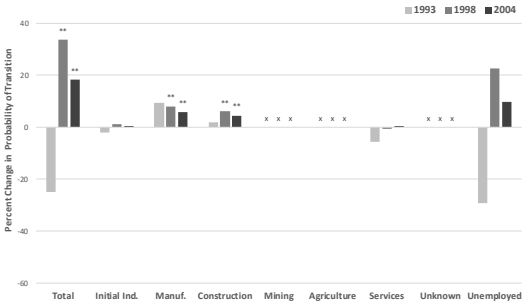
Aggregate Industry Employment Growth (1988-2004)

	Industry Employment Growth (1)	Employment Growth Components: Manufacturing Workers (2)	Non-Manuf. Workers (3)	Previously Unemployed (4)	New Entrants (5)
$-\Delta \ln(1+\tau_j^{\mathrm{CAN}})$	-3.816*	-0.565	-0.726	-0.285*	-2.241**
	(2.131)	(0.580)	(0.589)	(0.153)	(1.112)
$-\Delta \ln(1+\tau_j^{\mathrm{US}})$	-0.460	-0.392	0.0271	-0.0729	-0.0225
	(3.460)	(0.941)	(0.956)	(0.248)	(1.805)
$\Delta IPR_j^{\mathrm{CHN}}$	-0.700**	-0.214**	-0.118	-0.0437*	-0.325*
	(0.333)	(0.0906)	(0.0921)	(0.0239)	(0.174)
R-Squared	0.404	0.403	0.299	0.384	0.469

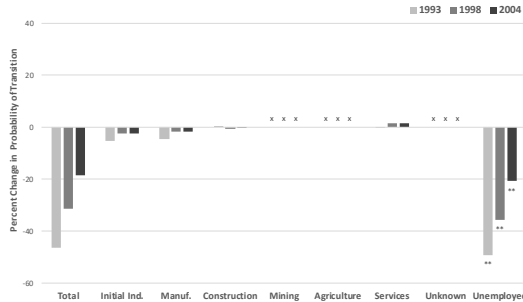
Notes: This slide presents Table 4 of the text. 78 observations. Each column is a separate regression. All specifications include the dependent variable pre-trend, calculated for 1984-1987, and the full set of industry-level controls described in the text. Standard errors clustered by 4-digit NAICS industry which is equivalent to heteroskedasticity-robust for these industry-level regressions. *** p<0.01, ** p<0.05, * p<0.1.

One-Year Transitions: Canadian Tariff Cuts, Low Attachment by Firm Size

Panel (a): Large Canadian Firms

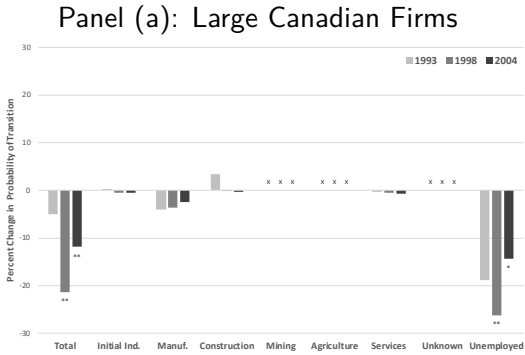


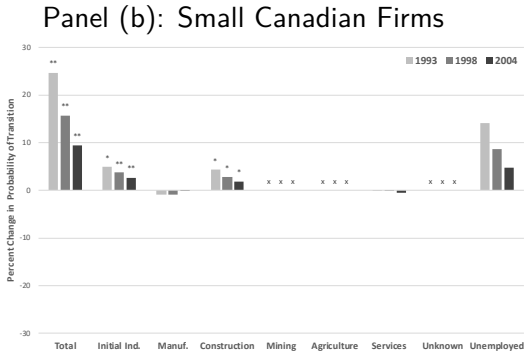
Panel (b): Small Canadian Firms



Notes: This shows Panels (a) and (c) of Figure 6 of the text that show the effect of interquartile tariff cut comparisons. The unconditional probability of a permanent work shortage related separation is 0.167 for a low attachment worker. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. High Attachment 1989-1993 1989-1998 1989-2004

One-Year Transitions: US Tariff Cuts, Low Attachment by Firm Size

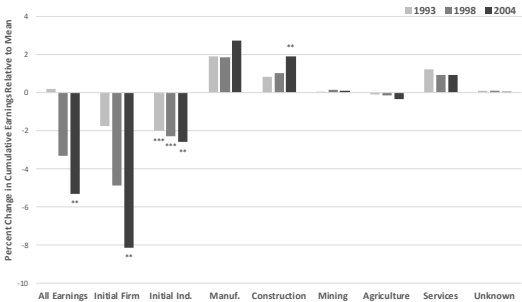




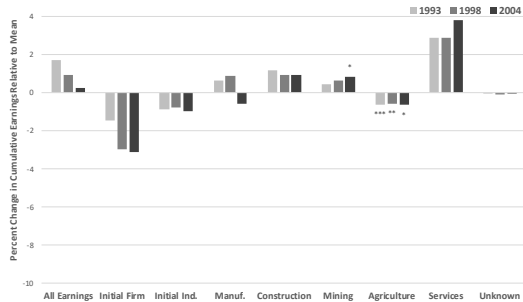
Notes: This shows Panels (a) and (c) of Figure 7 of the text that show the effect of interquartile tariff cut comparisons. The unconditional probability of a permanent work shortage related separation is 0.167 for a low attachment worker. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. High Attachment 1989-1993 1989-1998 1989-2004

Canadian Tariff Cuts and Earnings: Low Attachment by Firm Size

Panel (a): Large Canadian Firms



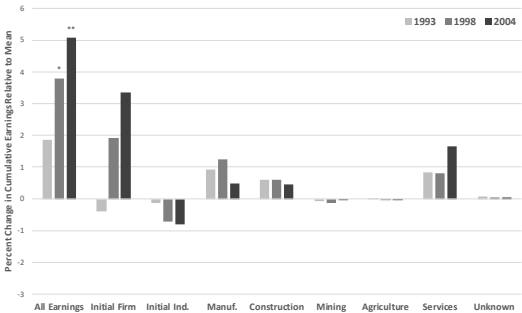
Panel (b): Small Canadian Firms



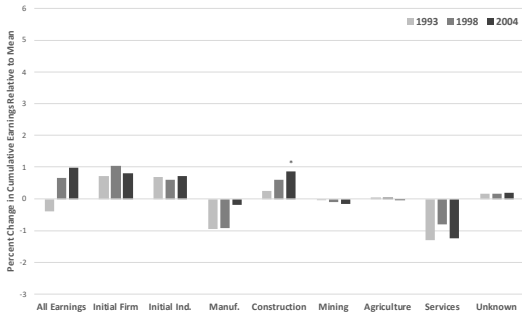
Notes: This shows Panels (a) and (c) of Figure 8 of the text that show the effect of interquartile tariff cut comparisons. The unconditional mean of normalized cumulative earnings for low attachment workers is 21.01. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. High Attachment 1989-1993 1989-1998 1989-2004

US Tariff Cuts and Earnings: Low Attachment by Firm Size

Panel (a): Large Canadian Firms



Panel (b): Small Canadian Firms



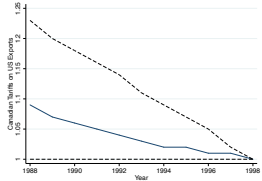
Notes: This shows Panels (a) and (c) of Figure 9 of the text that show the effect of interquartile tariff cut comparisons. The unconditional mean of normalized cumulative earnings for low attachment workers is 21.01. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. High Attachment 1989-1993 1989-1998 1989-2004 Net Effects (Cumulative Earnings) Net Effects (Initial Firm Earnings)

Conclusions

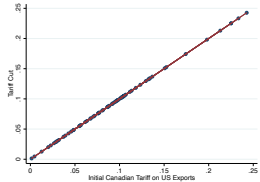
- Effect of import competition and export market access at the **initial employer**:
  - Canadian concessions increase the probability of a layoff and lower earnings.
  - U.S. concessions lower the probability of a layoff and raise earnings
- Small effects on lifetime incomes; separated workers successfully reallocated.
- Smaller and less precisely estimated effects for high attachment workers.
- More optimistic findings than in other episodes (e.g. China Shock).
- Different shocks can have very different effects even in the same institutional context

CUSFTA Tariff Cuts

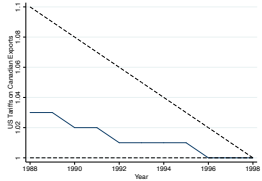
Panel A: Canadian Tariffs Over Time



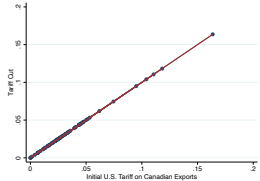
Panel B: Canadian Tariff Cuts Against Initial Level



Panel C: U.S. Tariffs Over Time



Panel D: U.S. Tariff Cuts Against Initial Level



Notes: This shows Figure A1 of the Appendix of the text.

- Tariff cuts $\approx -1 \cdot$ initial level
- Independent variation in Canada vs. U.S. tariff cuts variation

Records of Employment

- Each time a worker experiences an interruption in earnings, their employer must fill out a Record of Employment (ROE).

- Reason for separations (e.g. firing, return to school, season ends, quit, work shortage). **Can isolate work-shortage related interruptions.**

- Types of separations:
  - **Temporary**: returned to firm in the year of separation or following year
  - **Permanent**: did not return to firm in the year of separation or following year
  - Focus on **permanent separations** in this paper (Flaaen et al. (2019))

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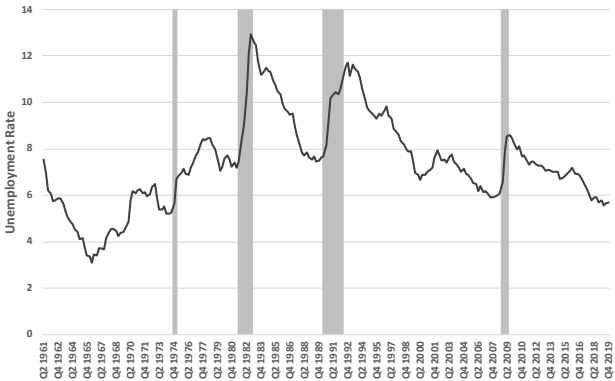
Canadian Business Cycle



- 1974-75: Export decline due to U.S. recession (OPEC, stagflation)
- 1981-82: U.S. Volker recession and second oil shock, high interest rates
- 1990-92: Manufacturing decline, Gulf War, new goods and services tax (GST)
- 2000-01: Minimal effects of U.S. dot-com bust
- 2008-09: Declining export demand (Great Recession, financial crisis). Relatively mild in Canada (strong balance sheets, banking regulation)

[Cross and Bergevin 2012]

Sources: Unemployment Rate: Federal Reserve Bank of St. Louis FRED Economic Data - series "Unemployment Rate: Aged 15 and Over: All Persons for Canada." Recession dates: C.D. Howe Institute Business Cycle Council

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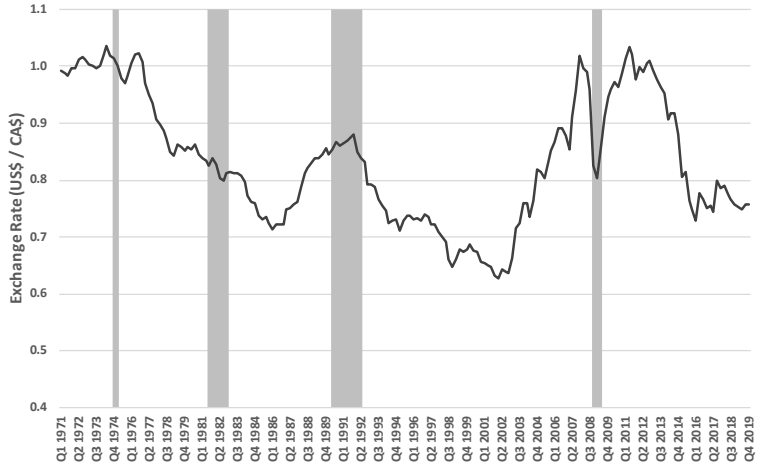
Canada-US Exchange Rate



Sources: Unemployment Rate: Federal Reserve Bank of St. Louis FRED Economic Data - series "Canada / U.S. Foreign Exchange Rate" Recession dates: C.D. Howe Institute Business Cycle Council

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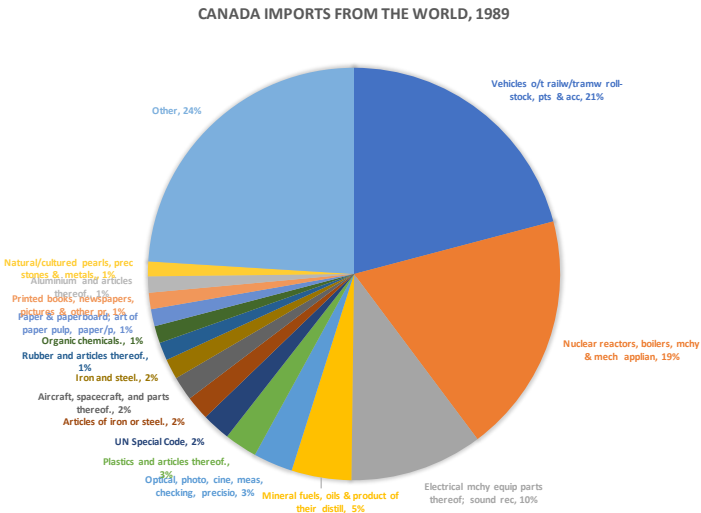
Trade Composition



Source: UN Comtrade

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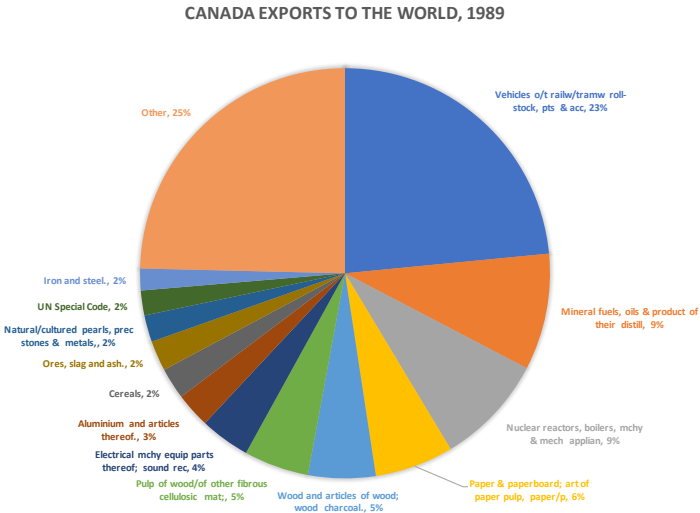
Trade Composition



Source: UN Comtrade

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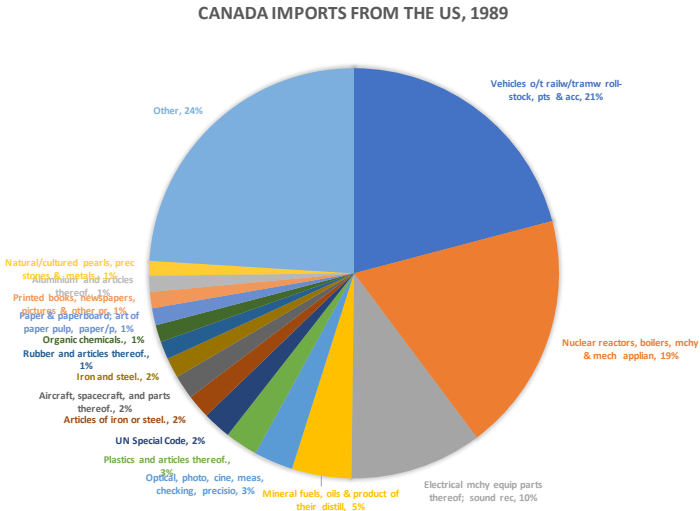
Trade Composition



Source: UN Comtrade

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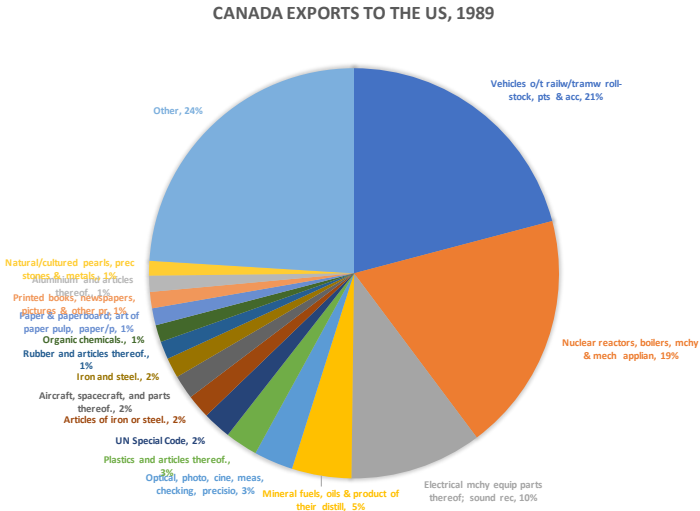
Trade Composition



Source: UN Comtrade

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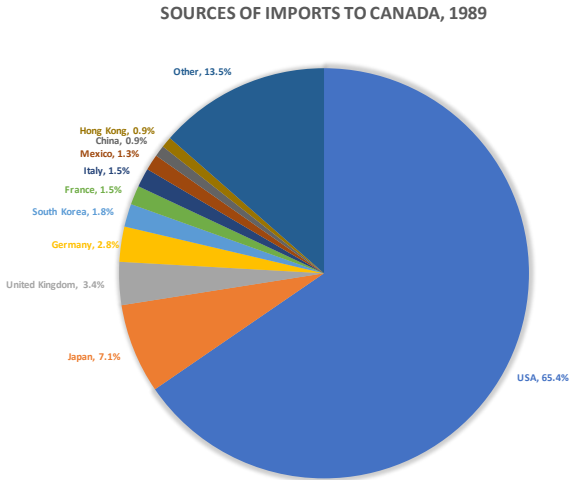
Trading Partners



Source: UN Comtrade

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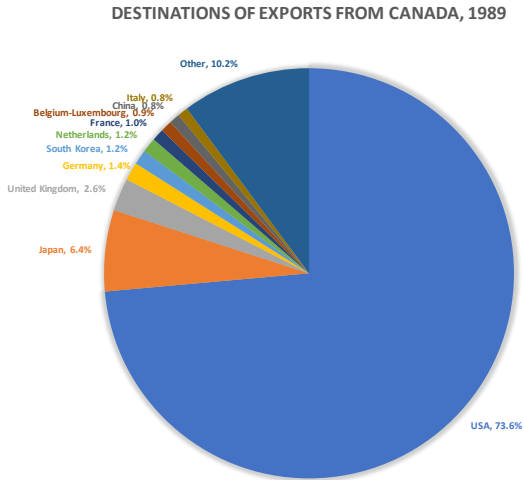
Trading Partners



Source: UN Comtrade

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CUSFTA Tariff Cuts

Table: Tariff Changes 1988-1989

	NAICS	Industry Name	$\Delta_{88-98}\tau_j^{CAN}$	$\Delta_{88-98}\ln(1+\tau_j^{CAN})$	$\Delta_{88-98}\tau_j^{US}$	$\Delta_{88-98}\ln(1+\tau_j^{US})$
1	3152	Cut and Sew Clothing Manufacturing	-0.243	-0.217	-0.168	-0.155
2	3133	Textile and Fabric Finishing and Fabric Coating	-0.233	-0.209	-0.062	-0.060
3	3162	Footwear Manufacturing	-0.225	-0.203	-0.118	-0.112
4	3132	Fabric Mills	-0.225	-0.203	-0.107	-0.101
5	3274	Lime and Gypsum Product Manufacturing	-0.213	-0.193	-0.023	-0.022
	...					
42	3361	Motor Vehicle Manufacturing	-0.092	-0.088	-0.000	-0.000
43	3339	Other General-Purpose Machinery Manufacturing	-0.092	-0.088	-0.017	-0.016
44	3363	Motor Vehicle Parts Manufacturing	-0.089	-0.085	-0.015	-0.015
45	3118	Bakeries and Tortilla Manufacturing	-0.088	-0.084	-0.044	-0.043
	...					
82	3253	Pesticide, Fertilizer and Other Agricultural Chemical Manufacturing	-0.013	-0.013	-0.001	-0.001
83	3364	Aerospace Product and Parts Manufacturing	-0.005	-0.005	-0.012	-0.012
84	3211	Sawmills and Wood Preservation	-0.001	-0.001	-0.000	-0.000
85	3328	Coating, Engraving, Heat Treating and Allied Activities	0.000	0.000	0.000	0.000
86	3121	Beverage Manufacturing	0.050	0.036	-0.041	-0.040

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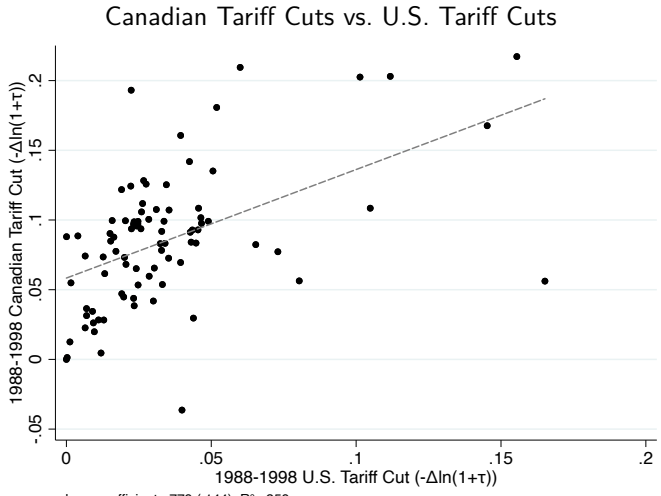
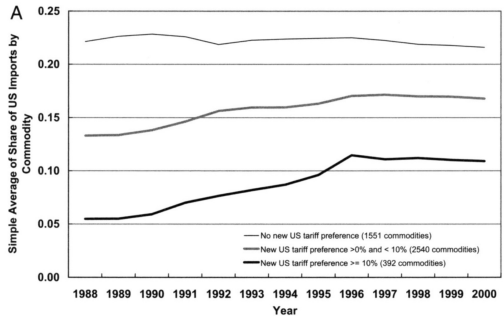
CUSFTA Tariff Cuts



Effect of CUSFTA on Trade Flows

- Trefler (2004): Canadian tariff cuts substantially increased U.S. $\rightarrow$ Canada trade
- Romalis (2007): U.S. tariff cuts increased Canada $\rightarrow$ U.S. trade

FIGURE 3A.—CANADA'S SHARE OF U.S. IMPORTS, 1988–2000



[Romalis 2007]

Exogeneity of Tariffs

Dependent variable:	$\ln(1+\tau^{CAN}_{j,1988})$		$\ln(1+\tau^{US}_{j,1988})$	
$\ln(1+\tau^{US}_{j,1988})$		0.965***		
		(0.166)		
$\ln(1+\tau^{CAN}_{j,1988})$				0.351***
				(0.060)
$\Delta_{1988-1998} \ln(1+\tau_j^{CAN,MFN})$		0.644***		-0.186**
		(0.010)		(0.073)
$\Delta_{1988-1998} \ln(1+\tau_j^{US,MFN})$		0.007		-0.028
		(0.202)		(0.122)
$\Delta_{1998-2004} IPR_j^{CHN}$	0.015	0.040**	-0.012	-0.022*
	(0.029)	(0.020)	(0.014)	(0.012)
Separation prob.$_{1985-1988,j}$	-0.143	0.042	-0.054	-0.042
	(0.200)	(0.137)	(0.098)	(0.082)
Cyclicality$_j$	0.008*	-0.003	0.008***	0.006***
	(0.004)	(0.003)	(0.002)	(0.002)
Share below median income$_{j,1988}$	-0.043	-0.006	-0.014	-0.006
	(0.057)	(0.039)	(0.028)	(0.023)
Mean log earnings$_{j,1988}$	-0.075	-0.023	-0.036	-0.015
	(0.047)	(0.032)	(0.023)	(0.020)
Log capital-labor ratio$_{j,1988}$	-0.005	0.002	-0.003	-0.003
	(0.005)	(0.004)	(0.003)	(0.002)
$\Delta_{1984-1988} \ln\left(\frac{emp_j}{\sum_{j'} emp_{j'}}\right)$	-0.012	0.033	-0.053***	-0.048***
	(0.037)	(0.027)	(0.018)	(0.015)
$\Delta_{1986-1988}$ Mean log earnings$_j$	-0.186	-0.137	-0.114	-0.029
	(0.147)	(0.103)	(0.072)	(0.063)
R-squared	0.323	0.706	0.417	0.618

Notes: This shows Table A2 of the paper. 78 observations. ***: $p < 0.01$, **: $0.01 \leq p < 0.05$, *: $0.05 \leq p < 0.1$. Standard errors clustered at the 2007 NAICS-4 digit level in parentheses. back

Years Worked (1989-1993)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Mining	(7) Agric.	(8) Services	(9) Unknown
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	-0.819***	-1.268	-0.732	0.240	0.199	0.0479	-0.227	0.841*	0.0804**
	(0.299)	(0.772)	(0.443)	(0.446)	(0.245)	(0.0804)	(0.162)	(0.471)	(0.0305)
$-\Delta \ln(1+\tau_j^{\text{US}})$	0.319	0.933	1.890***	-1.950**	0.430	0.0248	0.0554	-1.017	-0.0481
	(0.519)	(1.204)	(0.688)	(0.839)	(0.514)	(0.120)	(0.297)	(0.905)	(0.0498)
R-squared	0.115	0.175	0.034	0.035	0.037	0.013	0.020	0.056	0.009
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	0.935**	0.575	-0.441	0.475	0.227	0.0679	-0.126*	0.142	0.0144
	(0.389)	(0.922)	(0.366)	(0.764)	(0.165)	(0.0682)	(0.0746)	(0.260)	(0.0258)
$-\Delta \ln(1+\tau_j^{\text{US}})$	-0.685	2.377	0.723	-1.717	-0.0353	-0.115	-0.0682	-1.813***	-0.0370
	(0.577)	(1.901)	(0.762)	(1.334)	(0.364)	(0.0907)	(0.114)	(0.466)	(0.0504)
R-squared	0.037	0.111	0.017	0.039	0.020	0.012	0.009	0.054	0.004

Notes: This presents Table A4 of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. back

Years Worked (1989-1998)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Mining	(7) Agric.	(8) Services	(9) Unknown
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{CAN})$	-1.015	-3.360**	-1.479	1.299	0.688*	0.215	-0.416	1.964**	0.0728**
	(0.773)	(1.678)	(1.001)	(1.100)	(0.411)	(0.205)	(0.368)	(0.977)	(0.0356)
$-\Delta \ln(1+\tau_j^{US})$	-0.996	2.565	4.038**	-5.127***	0.719	-0.0664	0.154	-3.254*	-0.0266
	(1.393)	(2.373)	(1.695)	(1.852)	(0.980)	(0.293)	(0.689)	(1.899)	(0.0471)
R-squared	0.103	0.150	0.044	0.041	0.041	0.017	0.023	0.056	0.010
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{CAN})$	1.627**	-0.536	-1.122	2.553	0.532	0.190	-0.349*	0.326	0.0335
	(0.657)	(2.260)	(0.901)	(1.799)	(0.381)	(0.207)	(0.194)	(0.732)	(0.0272)
$-\Delta \ln(1+\tau_j^{US})$	-1.468	5.841	2.086	-4.836	0.00433	-0.139	-0.311	-4.071***	-0.0422
	(0.915)	(4.557)	(2.535)	(3.189)	(0.829)	(0.251)	(0.320)	(1.290)	(0.0528)
R-squared	0.041	0.107	0.032	0.042	0.020	0.021	0.012	0.057	0.004

Notes: This presents Table A5 of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. back

Normalized Cumulative Earnings (1989-1993)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Mining	(7) Agric.	(8) Services	(9) Unknown
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{CAN})$	0.683	-0.796	-1.292*	1.302	0.799**	0.175	-0.353**	1.009	0.0136
	(1.205)	(1.284)	(0.773)	(1.215)	(0.362)	(0.196)	(0.174)	(0.914)	(0.0804)
$-\Delta \ln(1+\tau_j^{US})$	2.385	1.388	1.364	-1.909	0.875	0.0686	0.0922	0.329	0.245
	(1.811)	(2.207)	(1.111)	(2.073)	(0.753)	(0.412)	(0.318)	(1.723)	(0.201)
R-squared	0.110	0.065	0.013	0.035	0.024	0.011	0.020	0.087	0.012
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{CAN})$	1.349*	1.161	-0.373	0.372	0.220	0.0743	-0.0799	0.0444	0.00394
	(0.792)	(1.091)	(0.451)	(0.806)	(0.174)	(0.0802)	(0.0659)	(0.350)	(0.0257)
$-\Delta \ln(1+\tau_j^{US})$	-0.0916	2.413	-0.0705	-1.191	0.104	-0.212	-0.0520	-1.269***	-0.0254
	(0.936)	(1.790)	(0.788)	(1.237)	(0.362)	(0.130)	(0.0913)	(0.476)	(0.0402)
R-squared	0.076	0.077	0.016	0.039	0.019	0.009	0.008	0.055	0.005

Notes: This presents Table A6 of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. back

Normalized Cumulative Earnings (1989-1998)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Mining	(7) Agric.	(8) Services	(9) Unknown
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	-1.198	-5.336*	-2.418	3.229	1.688**	0.679	-0.706	1.710	-0.0436
	(3.309)	(2.780)	(2.040)	(2.973)	(0.815)	(0.578)	(0.497)	(2.308)	(0.111)
$-\Delta \ln(1+\tau_j^{\text{US}})$	7.251	5.960	1.616	-4.862	2.479	0.0354	0.0979	1.318	0.606**
	(5.808)	(4.770)	(3.199)	(5.378)	(1.590)	(1.028)	(0.908)	(5.314)	(0.289)
R-squared	0.115	0.059	0.014	0.030	0.025	0.016	0.019	0.105	0.010
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	0.993	-0.821	-0.688	2.283	0.467	0.200	-0.206	-0.270	0.0260
	(2.009)	(2.926)	(1.196)	(1.964)	(0.396)	(0.243)	(0.176)	(0.968)	(0.0350)
$-\Delta \ln(1+\tau_j^{\text{US}})$	0.00475	7.419	-0.659	-3.909	0.325	-0.343	-0.328	-2.461*	-0.0379
	(2.446)	(5.236)	(2.832)	(3.263)	(0.856)	(0.390)	(0.259)	(1.302)	(0.0440)
R-squared	0.087	0.072	0.026	0.046	0.021	0.016	0.011	0.066	0.004

Notes: This presents Table A7 of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

back

Normalized Cumulative Earnings (1989-2004)

	(1) Total	(2) Initial Firm	(3) Initial Ind.	(4) Manuf.	(5) Constr.	(6) Mining	(7) Agric.	(8) Services	(9) Unknown
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	-6.142	-13.21***	-4.455	4.314	4.311**	1.446	-1.203	2.614	0.0449
	(6.742)	(4.853)	(3.802)	(5.614)	(1.742)	(1.117)	(0.839)	(4.619)	(0.224)
$-\Delta \ln(1+\tau_j^{\text{US}})$	14.74	12.34	3.107	-7.687	3.783	0.263	-0.858	2.800	0.988
	(12.67)	(9.066)	(6.182)	(10.52)	(2.811)	(2.028)	(1.424)	(10.66)	(0.722)
R-squared	0.141	0.048	0.017	0.038	0.030	0.021	0.017	0.123	0.005
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{\text{CAN}})$	0.542	-3.007	-2.101	4.822	0.794	0.570	-0.385	-0.195	0.0435
	(3.295)	(5.698)	(2.263)	(3.649)	(0.817)	(0.591)	(0.307)	(2.108)	(0.0437)
$-\Delta \ln(1+\tau_j^{\text{US}})$	0.627	11.69	0.285	-8.773	1.216	-0.554	-0.803*	-2.417	-0.0213
	(4.197)	(9.409)	(5.188)	(5.849)	(1.700)	(0.847)	(0.435)	(3.020)	(0.0592)
R-squared	0.121	0.070	0.029	0.052	0.023	0.024	0.014	0.077	0.004

Notes: This presents Table A8 of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. back

ADHS (2013) Table 9

Table 9. Imports from China and Earnings and Employment by Wage Level and Size of Initial Firm, 1992-2007: 2SLS Estimates.
Dep Vars: 100 x Cum Earnings; 100 x Years with Earnings; 100 x Earnings per Year of Emp (in Multiples of Initial Annual Wage).

	I. Overall Outcomes						II. Outcomes at Initial Firm					
	Cum Earnings		Yrs w/ Earn>0		Earn/ Year		Cum Earnings		Yrs w/ Earn>0		Earn/ Year	
	(1)		(2)		(3)		(4)		(5)		(6)	
A1. Initial Employer: Avg Firm Wage<Sample Median												
(Δ China Imports)/ US Consumption$_{91}$	-12.63	**	0.73	-0.82	**		-9.29	*	-4.17	-0.45	~	
	(4.85)		(1.09)	(0.29)			(4.17)		(2.55)	(0.23)		
A2. Initial Employer: Avg Firm Wage≥Sample Median												
(Δ China Imports)/ US Consumption$_{91}$	-5.16	*	-0.55	-0.29	*		-8.52	*	-6.53	*	-0.22	**
	(2.09)		(0.50)	(0.12)			(3.85)		(3.25)		(0.08)	
B1. Initial Employer: Firm Size 1-999 Employees												
(Δ China Imports)/ US Consumption$_{91}$	-4.34	*	0.05	-0.27	**		-4.47	*	-2.31	~	-0.21	**
	(1.85)		(0.43)	(0.11)			(1.85)		(1.26)		(0.08)	
B2. Initial Employer: Firm Size 1000+ Employees												
(Δ China Imports)/ US Consumption$_{91}$	-14.93	**	-1.67	-0.81	*		-20.12	*	-15.47	*	-0.49	*
	(5.78)		(1.32)	(0.34)			(8.49)		(6.38)		(0.22)	

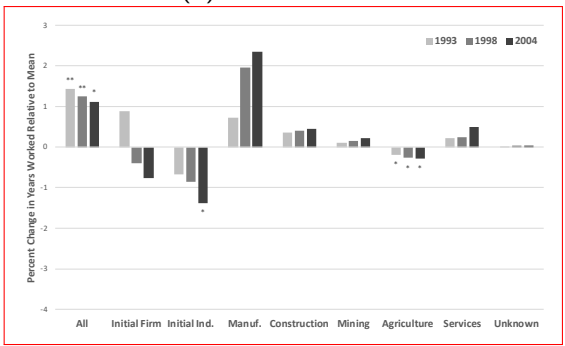
Notes: N=254,126/N=254,003/N=238,131/N=269,998 in panels A1/A2/B1/B2, except slightly smaller samples in in columns 3 and 6. All regressions include a constant and the full vector of control variables from column 9 of Table 1. Robust standard errors in parentheses are clustered on start-of-period 3-digit industry. ~ p ≤ 0.10, * p ≤ 0.05, ** p ≤ 0.01.

- NBER working paper version of Autor, Dorn, Hanson, and Song (2013)
- "Somewhat less expected is the pattern of worker adjustment by initial employer size."
- "... trade impact on cumulative earnings is 2.4 times greater for workers initially employed in larger firms ..."

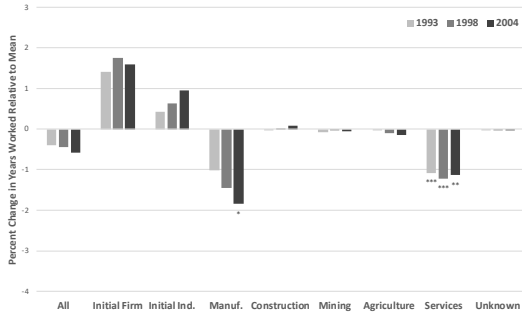
back

Percent Change in Years Worked: High Attachment

Panel (a): Canadian Tariff Cut



Panel (b): US Tariff Cut

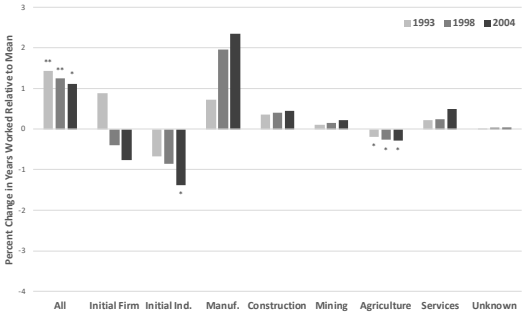


Notes: This slide shows Panels (c) and (d) of Figure 3 that show the effect of interquartile tariff cut comparisons. The mean of years worked for high attachment workers is 14.64 years. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

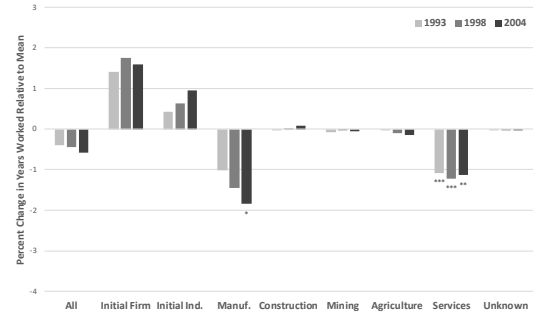
back

Percent Change in Years Worked: High Attachment

Panel (a): Canadian Tariff Cut



Panel (b): US Tariff Cut

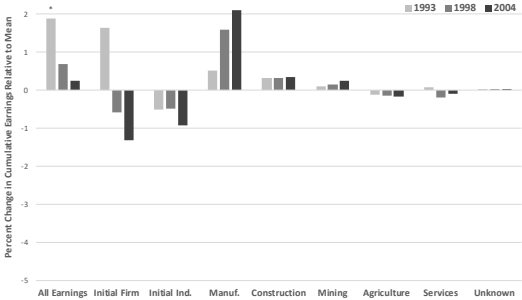


Notes: This slide shows Panels (c) and (d) of Figure 3 that show the effect of interquartile tariff cut comparisons. The mean of years worked for high attachment workers is 14.64 years. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

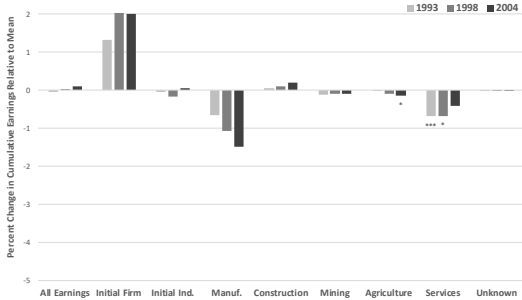
back ADD REGRESSION TABLES.

High Attachment Percent Change in Cumulative Earnings

Panel (a): Canadian Tariff Cut



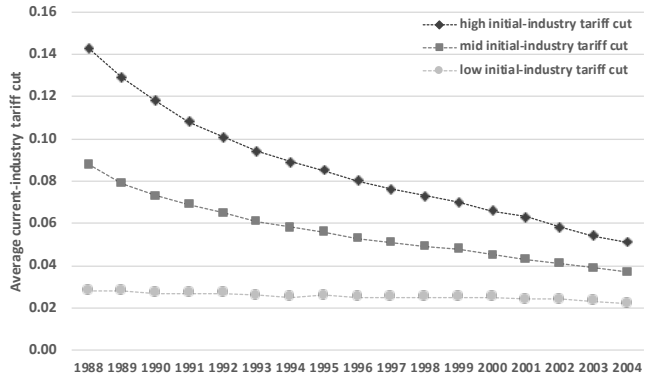
Panel (b): US Tariff Cut



Notes: This slide shows Panels (c) and (d) of Figure 4 that show the effect of interquartile tariff cut comparisons. The unconditional mean of normalized cumulative earnings for high attachment workers is 14.64. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

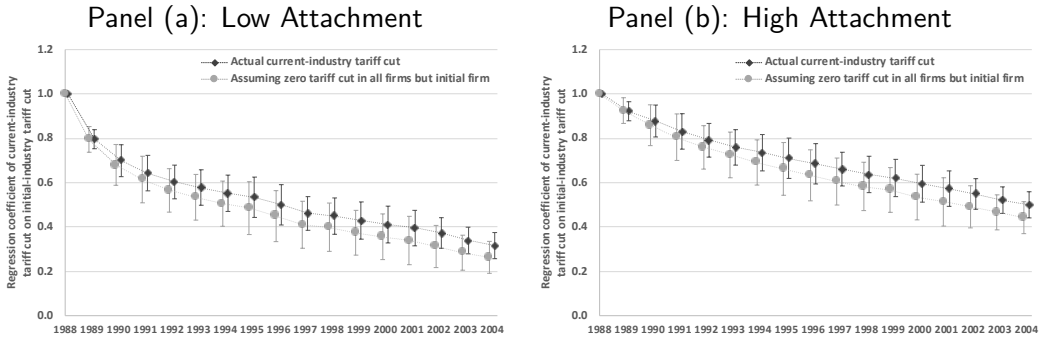
back

Evolution of Canadian Tariff-Cut Exposure: High Attachment Workers



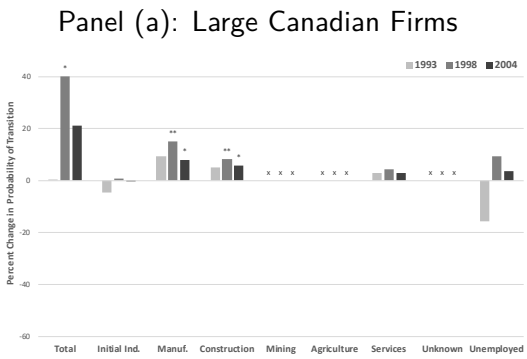
Notes: This slide presents Figure A4 of the text. Back

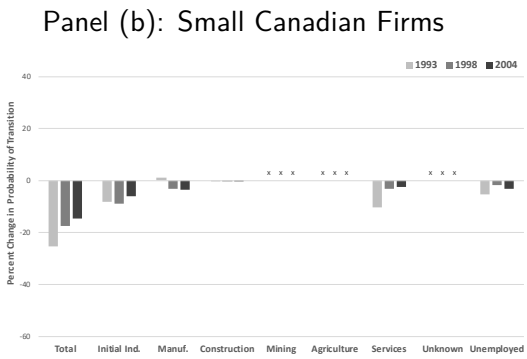
Figure IV of Autor et al. (2014) Comparison: Low and High Attachment Workers



Notes: This slide presents Figure A5 of the text. These figures replicate Figure IV of Autor et al. (2014). Back

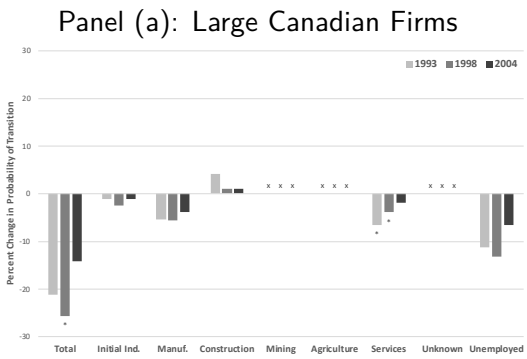
Canadian Tariff Cuts and Separations: High Attachment by Firm Size

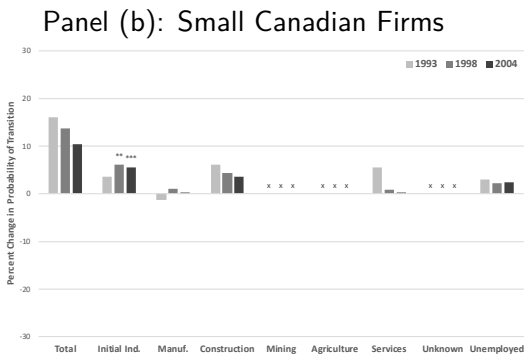




Notes: This slide presents Panels (b) and (d) of Figure 6 of the text that show the effect of interquartile tariff cut comparisons. The unconditional probability of a permanent work shortage related separation is 0.115 for a high attachment worker. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Back

US Tariff Cuts and Separations: High Attachment by Firm Size





Notes: This slide presents Panels (b) and (d) of Figure 7 of the text that show the effect of interquartile tariff cut comparisons. The unconditional probability of a permanent work shortage related separation is 0.115 for a high attachment worker. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Back

Canadian Tariff Cuts and Separations: Low Attachment by Firm Size (1989-1993)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{CAN}) * \mathbb{1}$(small firm)	-0.378	-0.0419	-0.0360	0.000103	–	–	-0.00242	–	-0.401**
	(0.260)	(0.0330)	(0.0640)	(0.0303)			(0.0630)		(0.182)
$-\Delta \ln(1+\tau_j^{CAN}) * \mathbb{1}$(medium firm)	0.448**	0.00199	0.0319	-0.00744	–	–	0.0730	–	0.181
	(0.180)	(0.0284)	(0.0717)	(0.0245)			(0.0537)		(0.179)
$-\Delta \ln(1+\tau_j^{CAN}) * \mathbb{1}$(large firm)	-0.204	-0.0167	0.0763	0.0153	–	–	-0.0447	–	-0.237
	(0.295)	(0.0327)	(0.0521)	(0.0225)			(0.0514)		(0.198)
$-\Delta \ln(1+\tau_j^{US}) * \mathbb{1}$(small firm)	0.516**	0.101*	-0.0172	0.0901*	–	–	-0.00172	–	0.295
	(0.257)	(0.0511)	(0.0886)	(0.0514)			(0.0827)		(0.210)
$-\Delta \ln(1+\tau_j^{US}) * \mathbb{1}$(medium firm)	-0.611**	0.0246	-0.0649	0.0819	0.0101	–	-0.0762	–	-0.472*
	(0.280)	(0.0534)	(0.0893)	(0.0611)	(0.0121)		(0.0838)		(0.248)
$-\Delta \ln(1+\tau_j^{US}) * \mathbb{1}$(large firm)	-0.106	0.00217	-0.0838	0.0711	–	–	-0.00503	–	-0.393
	(0.314)	(0.0421)	(0.102)	(0.0455)			(0.0808)		(0.338)
R-squared	0.043	0.005	0.006	0.010	0.005	0.005	0.006	0.005	0.047

Notes: This shows Panel (a) of Table A18 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as –. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. Back

Canadian Tariff Cuts and Separations: Low Attachment by Firm Size (1989-1998)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	-0.513	-0.0394	-0.0262	-0.00804	–	–	0.0253	–	-0.579**
	(0.316)	(0.0453)	(0.0702)	(0.0335)			(0.0607)		(0.242)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	0.304	-0.0218	0.0349	0.0135	–	–	0.0391	–	0.103
	(0.213)	(0.0391)	(0.0798)	(0.0289)			(0.0688)		(0.225)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	0.550**	0.0173	0.131**	0.0991**	–	–	-0.00802	–	0.369
	(0.217)	(0.0435)	(0.0629)	(0.0463)			(0.0576)		(0.245)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	0.657**	0.156**	-0.0366	0.116*	–	–	-0.00621	–	0.358
	(0.299)	(0.0677)	(0.0914)	(0.0653)			(0.0763)		(0.253)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	-0.543*	0.130	-0.0944	0.0737	0.0105	–	-0.0218	–	-0.615*
	(0.281)	(0.0853)	(0.0881)	(0.0732)	(0.0124)		(0.111)		(0.312)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	-0.892**	-0.0226	-0.150	-0.00607	–	–	-0.0255	–	-1.094**
	(0.361)	(0.0672)	(0.125)	(0.0652)			(0.0897)		(0.522)
R-squared	0.063	0.008	0.006	0.011	0.005	0.007	0.006	0.005	0.071

Notes: This shows Panel (a) of Table A19 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as –. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. Back

Canadian Tariff Cuts and Separations: Low Attachment by Firm Size (1989-2004)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	-0.480	-0.0640	-0.0438	-0.000651	–	–	0.0366	–	-0.542**
	(0.337)	(0.0495)	(0.0773)	(0.0331)			(0.0562)		(0.257)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	0.225	-0.0328	0.00232	0.00304	–	–	0.0429	–	0.0505
	(0.195)	(0.0411)	(0.0780)	(0.0336)			(0.0732)		(0.221)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	0.475**	0.00904	0.154**	0.119**	–	–	0.00572	–	0.254
	(0.205)	(0.0427)	(0.0622)	(0.0543)			(0.0691)		(0.228)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	0.633**	0.174**	-0.00310	0.125*	–	–	-0.0357	–	0.318
	(0.318)	(0.0731)	(0.101)	(0.0710)			(0.0732)		(0.261)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	-0.472*	0.146*	-0.0502	0.111	0.0120	–	-0.0555	–	-0.579*
	(0.271)	(0.0863)	(0.0947)	(0.0941)	(0.0129)		(0.117)		(0.321)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	-0.796**	-0.0360	-0.164	-0.0214	–	–	-0.0471	–	-0.959*
	(0.353)	(0.0658)	(0.128)	(0.0787)			(0.118)		(0.483)
R-squared	0.068	0.009	0.007	0.012	0.005	0.007	0.007	0.005	0.076

Notes: This shows Panel (a) of Table A20 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as –. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. Back

Canadian Tariff Cuts and Separations: High Attachment by Firm Size (1989-1993)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	-0.142	-0.0465	0.00610	-0.00197	–	–	-0.0586	–	-0.0297
	(0.184)	(0.0455)	(0.0610)	(0.0287)			(0.0536)		(0.0954)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	0.104	-0.0192	0.0167	0.0157	–	–	0.00695	–	0.0647
	(0.137)	(0.0245)	(0.0446)	(0.0196)			(0.0284)		(0.102)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	0.00199	-0.0250	0.0535	0.0293	–	–	0.0165	–	-0.0880
	(0.204)	(0.0363)	(0.0585)	(0.0202)			(0.0306)		(0.116)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	0.231	0.0499	-0.0176	0.0884	–	–	0.0788	–	0.0437
	(0.221)	(0.0518)	(0.0730)	(0.0667)			(0.0658)		(0.135)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	-0.159	0.0312	-0.0567	0.0415	–	–	-0.0447	–	-0.0346
	(0.207)	(0.0482)	(0.0670)	(0.0370)			(0.0437)		(0.139)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	-0.306	-0.0169	-0.0788	0.0604	–	–	-0.0935*	–	-0.162
	(0.346)	(0.0325)	(0.107)	(0.0514)			(0.0499)		(0.211)
R-squared	0.025	0.007	0.005	0.006	0.003	0.004	0.005	0.001	0.018

Notes: This shows Panel (b) of Table A18 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as –. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Canadian Tariff Cuts and Separations: High Attachment by Firm Size (1989-1998)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	-0.197	-0.0996	-0.0362	-0.00357	–	–	-0.0331	–	-0.0202
	(0.260)	(0.0602)	(0.0789)	(0.0345)			(0.0653)		(0.125)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	0.102	-0.0356	0.0352	0.0199	–	–	0.0216	–	0.0372
	(0.211)	(0.0321)	(0.0653)	(0.0217)			(0.0411)		(0.127)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	0.451*	0.00889	0.169**	0.0931**	–	–	0.0491	–	0.106
	(0.233)	(0.0424)	(0.0732)	(0.0446)			(0.0472)		(0.195)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	0.394	0.173**	0.0292	0.127	–	–	0.0243	–	0.0648
	(0.304)	(0.0746)	(0.0939)	(0.0882)			(0.0807)		(0.160)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	-0.145	0.127*	-0.0599	0.0625	–	–	-0.0925	–	-0.0856
	(0.286)	(0.0687)	(0.0864)	(0.0506)			(0.0648)		(0.178)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	-0.738*	-0.0690	-0.162	0.0321	–	–	-0.111*	–	-0.377
	(0.437)	(0.0593)	(0.123)	(0.0686)			(0.0643)		(0.264)
R-squared	0.036	0.015	0.006	0.008	0.002	0.005	0.005	0.001	0.027

Notes: This shows Panel (b) of Table A19 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as –. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

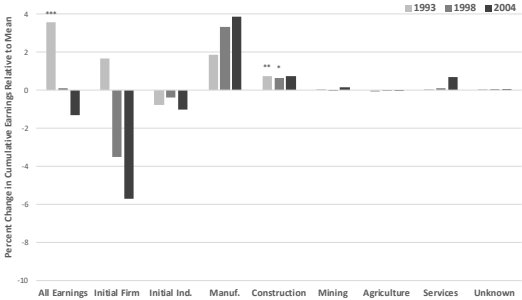
Canadian Tariff Cuts and Separations: High Attachment by Firm Size (1989-2004)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	-0.263	-0.106	-0.0614	-0.00588	–	–	-0.0459	–	-0.0577
	(0.289)	(0.0666)	(0.0872)	(0.0394)			(0.0758)		(0.140)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	-0.0300	-0.0662*	-0.0174	0.0140	–	–	0.0131	–	-0.00396
	(0.219)	(0.0370)	(0.0627)	(0.0254)			(0.0417)		(0.130)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	0.382	-0.00223	0.141*	0.103*	–	–	0.0541	–	0.0671
	(0.271)	(0.0441)	(0.0743)	(0.0542)			(0.0585)		(0.231)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	0.481	0.258***	0.00679	0.164	–	–	0.000381	–	0.112
	(0.337)	(0.0865)	(0.0998)	(0.110)			(0.0890)		(0.179)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	0.0970	0.178**	-0.0287	0.102	–	–	-0.0453	–	-0.00326
	(0.337)	(0.0751)	(0.102)	(0.0785)			(0.0714)		(0.200)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	-0.651	-0.0551	-0.173	0.0458	–	–	-0.0912	–	-0.303
	(0.445)	(0.0608)	(0.123)	(0.0876)			(0.0828)		(0.279)
R-squared	0.037	0.015	0.006	0.009	0.003	0.005	0.006	0.001	0.029

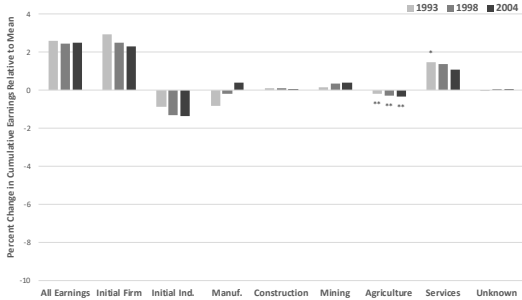
Notes: This shows Panel (b) of Table A20 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as –. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Effects of Canadian Tariff Cuts on Worker Earnings: High Attachment

Panel (a): Large Canadian Firms



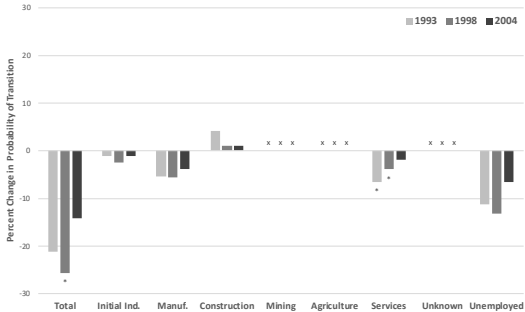
Panel (b): Small Canadian Firms



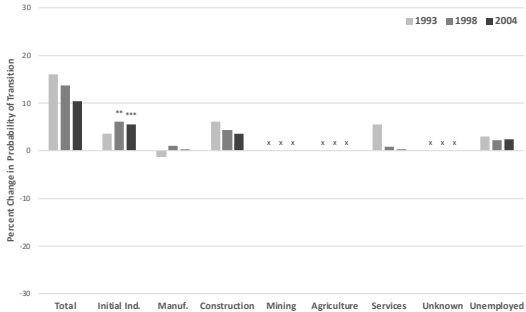
Notes: This slide presents Panels (b) and (d) of Figure 8 of the text that show the effect of interquartile tariff cut comparisons. The unconditional probability of a permanent work shortage related separation is XXXX for a high attachment worker. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Back

Effects of US Tariff Cuts on Worker Earnings: High Attachment

Panel (a): Large Canadian Firms



Panel (b): Small Canadian Firms



Notes: This slide presents Panels (b) and (d) of Figure 7 of the text that show the effect of interquartile tariff cut comparisons. The unconditional probability of a permanent work shortage related separation is 0.115 for a high attachment worker. Results scaled by 16/years in window. Stars indicate statistical significance based on standard errors clustered by 4-digit NAICS industry. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Back

Tariff Cuts And Worker Earnings: Low Attachment (1989-1993)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	1.735	-1.498	-0.913	0.651	1.217	0.449	-0.627***	2.961	-0.0569
	(3.023)	(2.635)	(0.983)	(1.667)	(0.903)	(0.334)	(0.213)	(1.940)	(0.270)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	-0.858	-1.305	-0.912	1.541	0.576	0.0297	-0.337*	-0.423	0.00250
	(3.274)	(3.304)	(1.031)	(1.344)	(0.685)	(0.174)	(0.191)	(1.832)	(0.0809)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	0.207	-1.781	-2.051***	1.961	0.840	0.0556	-0.122	1.269	0.0917
	(2.414)	(3.840)	(0.690)	(1.998)	(0.653)	(0.369)	(0.268)	(1.233)	(0.0925)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	-1.038	1.873	1.845	-2.474	0.654	-0.0159	0.102	-3.445	0.408
	(3.752)	(3.382)	(1.345)	(2.191)	(1.019)	(0.507)	(0.326)	(2.860)	(0.484)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	3.302	-0.231	1.374	-3.721	1.326	0.366	0.210	4.167*	0.177
	(4.203)	(4.160)	(1.532)	(2.467)	(1.295)	(0.292)	(0.275)	(2.329)	(0.138)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	4.918	-1.031	-0.376	2.389	1.564	-0.185	0.00729	2.186	0.178
	(5.724)	(7.077)	(1.024)	(3.222)	(1.104)	(0.455)	(0.642)	(2.659)	(0.151)
R-squared	0.111	0.066	0.014	0.036	0.025	0.011	0.020	0.088	0.013

Notes: This shows Panel (a) of Table A21 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as −. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. Back

Tariff Cuts And Worker Earnings: Low Attachment (1989-1998)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	1.888	-6.067	-1.647	1.840	1.932	1.259	-1.181**	5.945	-0.193
	(6.437)	(4.579)	(2.543)	(4.666)	(1.592)	(0.807)	(0.574)	(4.468)	(0.275)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	1.631	-3.967	-0.816	5.886	1.395	0.291	-0.697	-0.328	-0.133
	(7.735)	(6.273)	(2.322)	(3.568)	(1.439)	(0.450)	(0.473)	(5.019)	(0.222)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	-6.834	-9.988	-4.716***	3.756	2.120	0.276	-0.345	1.902	0.162
	(4.404)	(7.487)	(1.755)	(4.349)	(1.459)	(0.908)	(0.780)	(3.180)	(0.131)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	3.492	5.542	3.198	-4.808	3.144	-0.511	0.272	-4.229	0.885
	(8.730)	(6.743)	(3.319)	(5.699)	(2.108)	(1.216)	(0.838)	(7.103)	(0.552)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	1.666	-1.917	1.497	-10.28	2.673	0.628	0.174	8.247	0.648**
	(10.63)	(7.328)	(3.702)	(6.434)	(2.691)	(0.666)	(0.650)	(7.157)	(0.314)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	19.98*	10.01	-3.701	6.582	3.219	-0.618	-0.0258	4.302	0.211
	(11.52)	(15.63)	(2.691)	(7.476)	(2.559)	(1.413)	(1.920)	(6.867)	(0.192)
R-squared	0.116	0.060	0.016	0.031	0.025	0.017	0.019	0.106	0.010

Notes: This shows Panel (a) of Table A22 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as −. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. Back

Tariff Cuts And Worker Earnings: Low Attachment (1989-2004)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel A: Low Attachment (n=20,577)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	0.811	-10.20	-3.205	-1.891	3.092	2.749*	-2.123*	12.48	-0.0871
	(11.69)	(7.118)	(4.919)	(9.292)	(3.159)	(1.444)	(1.123)	(9.047)	(0.604)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	1.093	-7.228	-1.719	8.224	3.962**	0.676	-0.584	-2.191	-0.0467
	(13.71)	(9.890)	(4.529)	(6.848)	(1.893)	(0.880)	(0.933)	(10.26)	(0.319)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	-17.40**	-26.71**	-8.512**	9.028	6.320**	0.279	-1.041	3.005	0.231
	(7.922)	(10.52)	(3.483)	(7.648)	(2.548)	(1.891)	(1.296)	(6.473)	(0.168)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	8.246	6.866	6.134	-1.591	7.248*	-1.248	-0.393	-10.32	1.548
	(18.27)	(11.40)	(6.228)	(13.47)	(4.106)	(2.330)	(1.613)	(13.81)	(1.239)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	5.439	-2.648	2.972	-15.81	2.833	1.031	-1.589	17.74	0.913*
	(19.63)	(11.90)	(7.313)	(12.04)	(3.675)	(1.306)	(1.120)	(15.04)	(0.498)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	42.68**	28.08	-6.863	4.014	3.779	-0.451	-0.148	13.88	0.388
	(19.23)	(23.96)	(5.515)	(13.45)	(4.963)	(3.205)	(3.024)	(13.00)	(0.332)
R-squared	0.141	0.049	0.019	0.038	0.030	0.021	0.018	0.123	0.005

Notes: This shows Panel (a) of Table A23 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as −. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1. Back

Tariff Cuts And Worker Earnings: High Attachment (1989-1993)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	1.839	2.103	-0.629	-0.590	0.0876	0.114	-0.155**	1.061*	-0.0383
	(1.345)	(1.400)	(0.554)	(0.821)	(0.305)	(0.142)	(0.0721)	(0.600)	(0.0584)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	-0.484	0.357	-0.533	0.199	0.0697	0.00857	-0.0416	-0.515	-0.0200
	(1.090)	(1.680)	(0.438)	(0.753)	(0.166)	(0.0995)	(0.0629)	(0.669)	(0.0257)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	2.534***	1.190	-0.548	1.323	0.531**	0.0467	-0.0557	0.0513	0.0423
	(0.890)	(2.183)	(0.480)	(1.393)	(0.237)	(0.0970)	(0.0944)	(0.636)	(0.0427)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	-2.242	-0.245	1.706**	-1.461	0.403	-0.143	0.0164	-2.680***	0.0175
	(1.447)	(1.776)	(0.777)	(1.077)	(0.623)	(0.185)	(0.121)	(0.843)	(0.0665)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	2.020	2.431	0.923	-1.861	0.415	-0.108	-0.0584	0.142	0.0277
	(1.409)	(2.115)	(0.694)	(1.174)	(0.326)	(0.129)	(0.0871)	(0.818)	(0.0368)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	-1.427	1.977	-2.225***	-0.129	0.180	-0.436**	0.00286	-1.144	-0.0878
	(1.866)	(4.652)	(0.766)	(2.699)	(0.341)	(0.212)	(0.191)	(0.741)	(0.0707)
R-squared	0.077	0.078	0.020	0.041	0.020	0.009	0.008	0.055	0.005

Notes: This shows Panel (b) of Table A21 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as $-$. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Tariff Cuts And Worker Earnings: High Attachment (1989-1998)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	3.519	3.536	-1.879	-0.259	0.113	0.456	-0.429**	1.973	0.00709
	(2.883)	(3.814)	(1.750)	(2.238)	(0.655)	(0.320)	(0.202)	(1.644)	(0.104)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	-0.462	1.003	-1.523	1.813	0.446	0.0295	-0.186	-2.050	0.00384
	(2.431)	(4.488)	(1.141)	(2.070)	(0.389)	(0.238)	(0.169)	(1.980)	(0.0258)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	0.149	-5.052	-0.567	4.722	0.922*	-0.0136	-0.0608	0.148	0.0514
	(2.187)	(4.960)	(1.244)	(3.255)	(0.502)	(0.390)	(0.267)	(1.825)	(0.0479)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	-5.820*	-1.758	5.330**	-4.090	0.925	-0.372	-0.116	-5.724***	-0.0142
	(3.412)	(4.781)	(2.453)	(2.761)	(1.398)	(0.467)	(0.308)	(2.075)	(0.123)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	1.994	2.012	3.829*	-5.614*	0.624	-0.0460	-0.196	1.364	0.0221
	(3.550)	(5.790)	(2.157)	(3.111)	(0.846)	(0.356)	(0.264)	(2.396)	(0.0399)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	-1.794	11.97	-8.812***	-1.681	0.775	-1.091*	-0.320	-2.548	-0.0890
	(4.200)	(12.20)	(3.221)	(6.527)	(0.800)	(0.642)	(0.517)	(1.981)	(0.0741)
R-squared	0.088	0.074	0.035	0.048	0.021	0.016	0.012	0.066	0.004

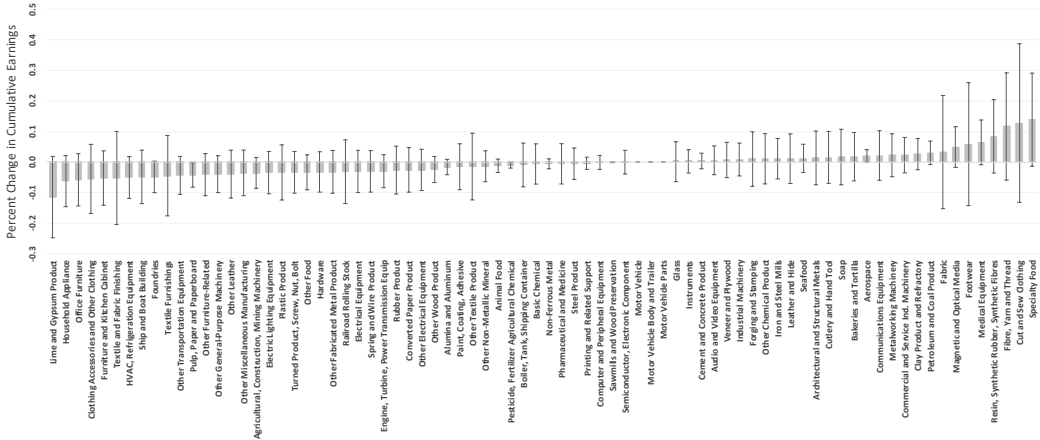
Notes: This shows Panel (b) of Table A22 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as $-$. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Tariff Cuts And Worker Earnings: High Attachment (1989-2004)

	(1) Total	(2) Initial Ind.	(3) Manuf.	(4) Constr.	(5) Mining	(6) Agric.	(7) Services	(8) Unknown	(9) Unemp.
Panel B: High Attachment (n=63,128)									
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(small firm)	5.704	5.269	-3.169	0.920	0.00395	0.926	-0.821**	2.466	0.110
	(4.692)	(6.803)	(3.459)	(4.430)	(1.264)	(0.624)	(0.358)	(3.374)	(0.139)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(medium firm)	-0.179	2.759	-3.665	3.648	0.681	0.117	-0.378	-3.355	0.0136
	(3.869)	(8.173)	(2.286)	(4.027)	(0.761)	(0.415)	(0.276)	(3.956)	(0.0358)
$-\Delta \ln(1+\tau_j^{\text{CAN}}) * \mathbb{1}$(large firm)	-2.969	-13.00	-2.293	8.858	1.692	0.301	-0.110	1.558	0.0208
	(3.715)	(8.372)	(2.267)	(5.384)	(1.122)	(1.103)	(0.460)	(2.852)	(0.0528)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(small firm)	-8.002	-1.824	9.246*	-8.865*	2.530	-0.407	-0.336	-8.260*	-0.0862
	(5.818)	(8.409)	(4.723)	(5.177)	(2.648)	(0.954)	(0.495)	(4.307)	(0.173)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(medium firm)	2.220	0.983	8.474**	-11.36*	1.715	0.184	-0.483	2.646	0.0614
	(5.525)	(10.23)	(4.247)	(5.919)	(1.709)	(0.718)	(0.420)	(4.981)	(0.0642)
$-\Delta \ln(1+\tau_j^{\text{US}}) * \mathbb{1}$(large firm)	-2.101	20.08	-13.59**	-5.846	1.897	-2.447	-1.013	-1.112	-0.0641
	(6.489)	(20.80)	(6.032)	(11.22)	(1.626)	(1.480)	(0.868)	(3.788)	(0.0809)
R-squared	0.121	0.071	0.037	0.054	0.023	0.025	0.014	0.078	0.004

Notes: This shows Panel (b) of Table A23 in the Appendix of the text. All specifications include extensive worker, initial firm, and initial industry controls, described in the text. Estimates suppressed due to data confidentiality concerns are shown as −. Standard errors clustered by 4-digit NAICS industry. *** p<0.01, ** p<0.05, * p<0.1.

Net Effects of Tariff Cuts on Cumulative Earnings: Low Attachment Workers, Large Firms (1989-2004)



Notes: This shows Figure A8 in the Appendix of the text that show the effect of interquartile tariff cut comparisons. Values are expressed relative to the worker group's unconditional average cumulative earnings: 21.0. Industries sorted from most negative to most positive net effect estimate. Error bars reflect 95 percent confidence intervals. Out of 78 industries, 3 net effect estimates are statistically distinguishable from zero at the 5 percent level.

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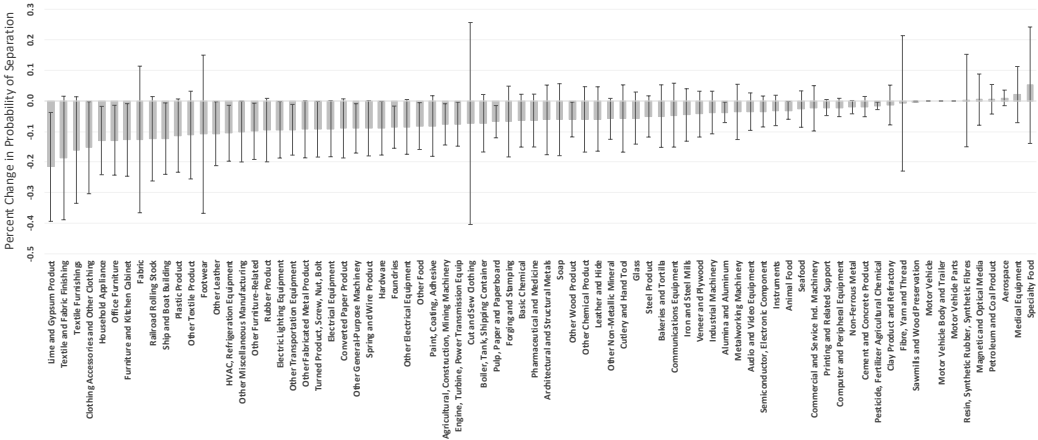
Net Effects of Tariff Cuts on Earnings at Initial Firm: Low Attachment Workers, Large Firms (1989-2004)



Notes: This shows Figure A9 in the Appendix of the text that show the effect of interquartile tariff cut comparisons. Values are expressed relative to the worker group's unconditional average cumulative earnings: 21.0. Industries sorted from most negative to most positive net effect estimate. Error bars reflect 95 percent confidence intervals. Out of 78 industries, 25 net effect estimates are statistically distinguishable from zero at the 5 percent level.

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Safety Net Comparison

- Canadian Labour Adjustment Benefits much narrower and less generous than US Trade Adjustment Assistance (Lysenko Schwartz 2015)
  - Eligibility: in approved industry/region combination, age 54-65, "no present prospect of employment" or reemployed with low earnings.
  - Supplemental UI benefits (minimal training or relocation funds)
- Canada's unionization rate roughly double that of US for any worker group (Riddell 1993)
- Canada's UI system more generous (Card and Riddell 1993)
  - 10-12 weeks employed to be eligible (US 20 weeks)
  - 85% of Canadian unemployed get UI (1/3 in US)
  - Replacement rate higher in Canada
  - UI duration 5-6 weeks longer in Canada
- Canada's Social Assistance Program more generous than AFDC and food stamps combined, and eligibility much broader (Blank and Hanratty 1993)
- All US programs means-tested, but Canada has universal health insurance, pension and family allowance (Blank and Hanratty 1993)