

Trade and Inequality in Developing Countries

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Is trade responsible?

- ▶ For developed countries, there has been wide recognition that trade is likely playing some role.
- ▶ Idea is consistent with Heckscher-Ohlin or “factor proportions” theory.
 - ▶ Simplest version: 2 countries, 2 goods, 2 factors.
 - ▶ When skilled-labor-abundant country (North) integrates with unskilled-labor-abundant country (South), it shifts toward producing the skill-intensive good.
 - ▶ In North, demand \uparrow for skilled labor, \downarrow for unskilled labor \Rightarrow inequality \uparrow .
- ▶ Debate has been over magnitude of effect.

Is trade responsible? (cont.)

- ▶ Influential recent work by Autor, Dorn & Hanson (2013, 2014) has shown that China shock has had negative impacts on workers in competing sectors in U.S.
- ▶ Recent follow-up shows that this led to polarized voting patterns (Autor, Dorn, Hanson and Majlesi, 2016).
- ▶ Similar research found effect on right-wing vote share in Germany (Dippel, Gold and Heblich, 2016).

Is trade responsible? (cont.)

- ▶ For developing countries, there has (until recently) been less agreement.
- ▶ Back to Heckscher-Ohlin theory:
 - ▶ When unskilled-labor-abundant country (South) integrates with skilled-labor-abundant country (North), it shifts toward producing the unskilled-labor-intensive good.
 - ▶ In South, demand \uparrow for unskilled labor, \downarrow for skilled labor \Rightarrow inequality \downarrow .
- ▶ But evidence has accumulated that inequality \uparrow when trade \uparrow in developing countries.
 - ▶ In influential review paper, Goldberg and Pavcnik (2007) present evidence for this coincidence from Argentina, Brazil, Chile, Colombia, Hong Kong, India, Mexico.

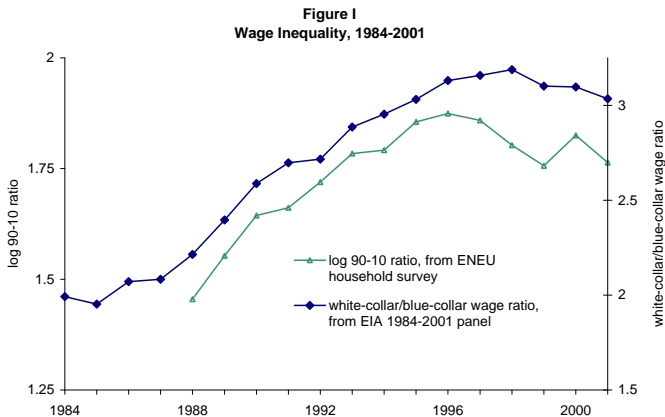
Is trade responsible? (cont.)

- ▶ More complicated Heckscher-Ohlin-type models can account for rising inequality in LDCs, but only if production shifts to skill-intensive activities. There is little evidence of such between-sector shifts.
- ▶ When I first started in this area, dominant view was that therefore inequality must be due to non-trade factors, e.g. technical change (Berman, Bound and Griliches, 1994; Berman, Bound and Machin, 1998).

This talk

- ▶ Non-technical summary of research program I have been working on, showing a particular causal link — “quality upgrading mechanism” — between trade and wage inequality in developing countries.
- ▶ Focus on Mexico, outlier in the OECD figure.
 - ▶ Illustrative in part because it went from very closed to very integrated.
- ▶ Review of other mechanisms that have been proposed to explain same patterns.
- ▶ Additional evidence from new paper on Portugal.
- ▶ Brief discussion of normative and political implications.

Inequality ↑ in Mexico following mid-80s liberalization

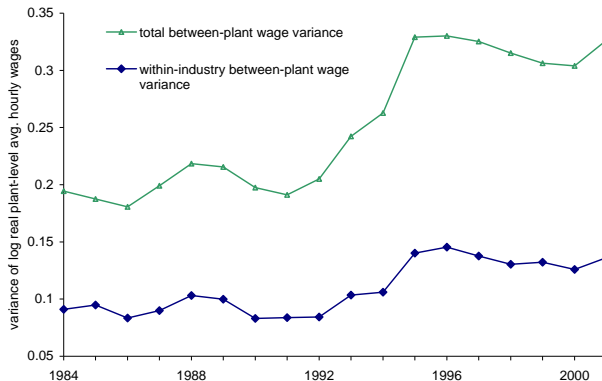


Notes: Log 90-10 ratio is for real hourly wages from ENEU household survey. White-collar/blue-collar ratio is for hours-weighted averages of hourly wages for non-production workers and production workers in EIA 1984-2001 panel of 1114 plants. Variable definitions in Appendix I. Further details on datasets in Section IV of text and Appendix II (online).

► Source: Verhoogen, “Trade, Quality Upgrading ...”, QJE 2008.

Inequality ↑ in Mexico following mid-80s liberalization

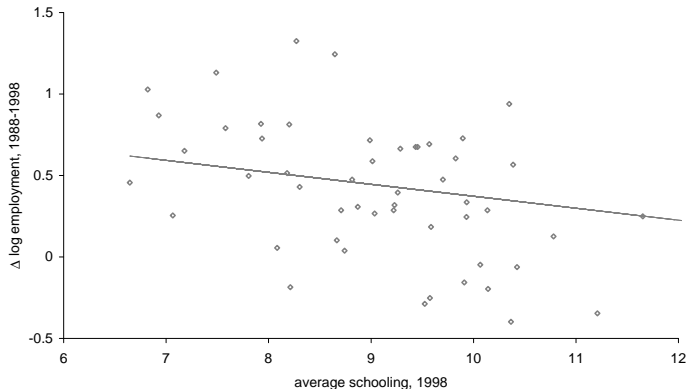
Figure II
Wage Variance, EIA 1984-2001 Panel



Notes: Total wage variance is hours-weighted variance of the log plant-average real hourly wage in balanced EIA 1984-2001 panel of 1114 plants. Within-industry-year variance is hours-weighted variance of residual from regression of the log plant-average real hourly wage on a full set of industry-year dummies (205 industries * 18 years) in EIA 1984-2001 panel. Variable definitions in Appendix I. Further details on dataset in Section IV of text and Appendix II (online).

Production shifted to *unskilled*-labor-intensive sectors

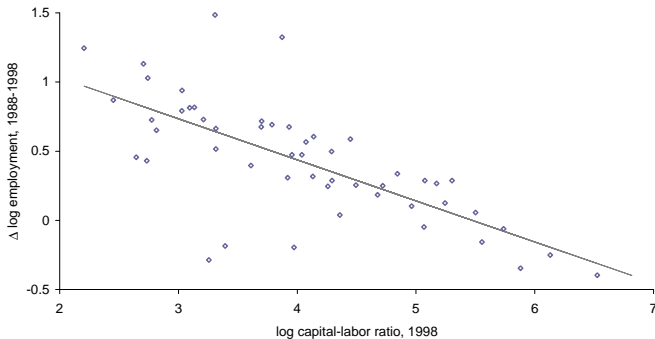
Appendix Figure I: Shift Toward Less-Skill-Intensive Sectors, 1988-1998



Notes: Data on employment in 1988 and 1998 by 4-digit manufacturing industry (including *maquiladoras*) from the Mexican *Censos Industriales* (Industrial Censuses). Data on schooling by 4-digit industry from *Encuesta Nacional de Empleo Urbano* (ENEU); further details in Appendix II. Regression weighted by employment in 1988.

Production shifted to *unskilled*-labor-intensive sectors

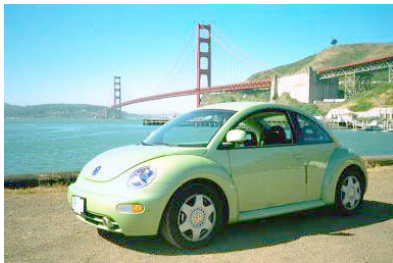
Appendix Figure II: Shift Toward Less-Capital-Intensive Sectors, 1988-1998



Notes: Data on employment in 1988 and 1998 and capital-labor ratio in 1998 by 4-digit manufacturing industry (including *maquiladoras*) from the Mexican *Censos Industriales* (Industrial Censuses). Regression weighted by employment in 1988.

Case Study: VW-Mexico

**New Beetle in
San Francisco,
price ~\$17,750**



**Original Beetles
in Mexico City,
price ~\$7,500**



Case Study: VW-Mexico (cont.)

Técnico (technician):

Average education: 9 years

Starting wage: \$11.18/day



Especialista (Specialist) [not shown]:

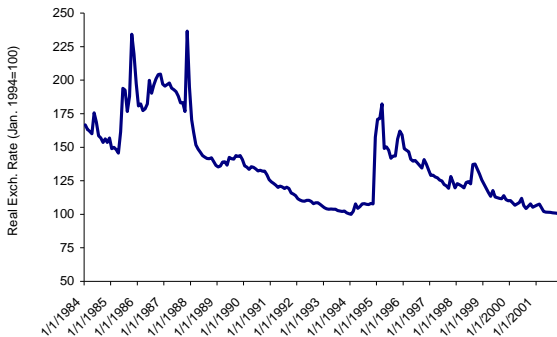
Average education: 9 years + 3 years at VW school

Starting Wage: \$17.74/day



Peso devaluation, Dec. 1994

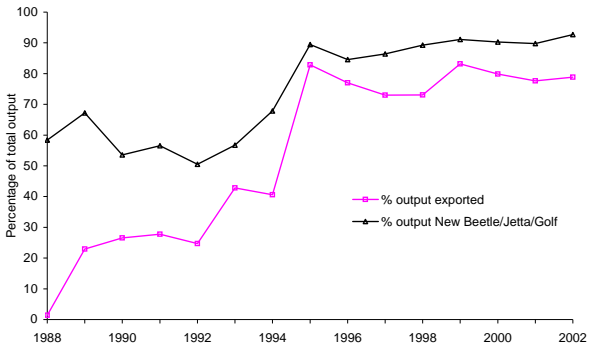
Fig. III
Real Exchange Rate, 1984-2002



Notes: Real exchange rate calculated as $RER = e * CPI(US)/CPI(Mex)$, where e is the peso/US\$ nominal exchange rate. Data from IMF International Financial Statistics.

Case Study: VW-Mexico (cont.)

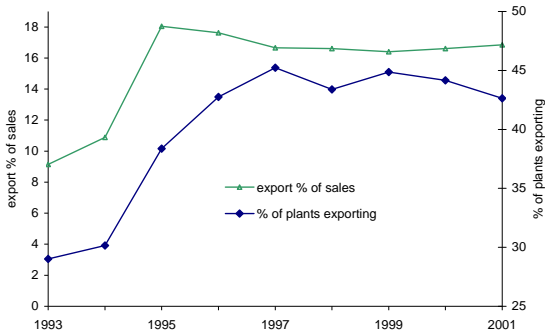
Figure IV
Exports, High-quality Models as Percentage of VW Output



Notes: Output measured in physical units. Omitted model from upper curve is the Original Beetle. Data from Bulletins of the *Asociacion Mexicana de la Industria Automotriz* (Mexican Automobile Industry Association).

Shift toward exporting: all manufacturing

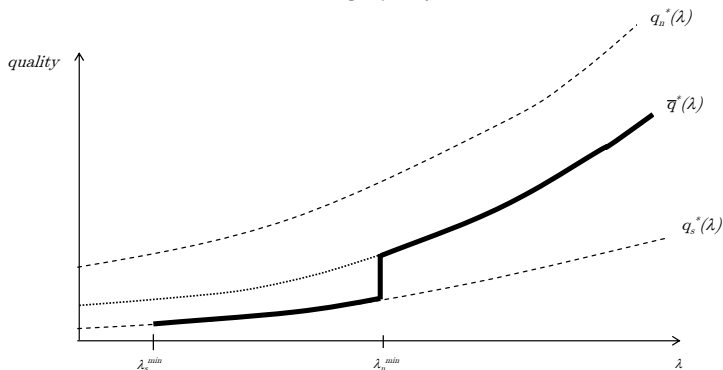
Figure V
Shift Toward Exporting, 1993-2001



Notes: Data from EIA 1993-2001 Panel. Export percentage of sales calculated as (total exports for all plants)/(total sales for all plants). Plants with exports greater than zero classified as exporting. Further details on dataset in Section IV of text and Appendix II (online).

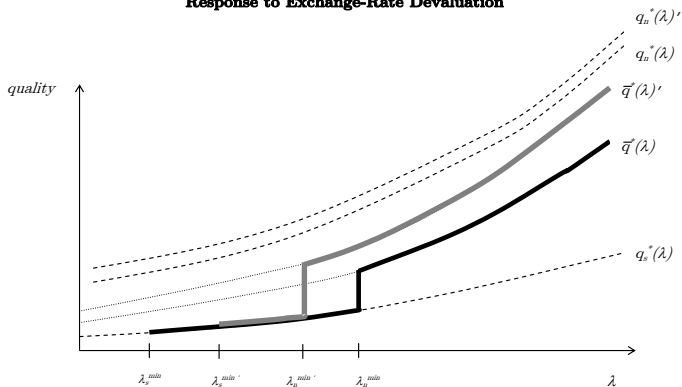
Theoretical prediction

Figure VI
Average Quality



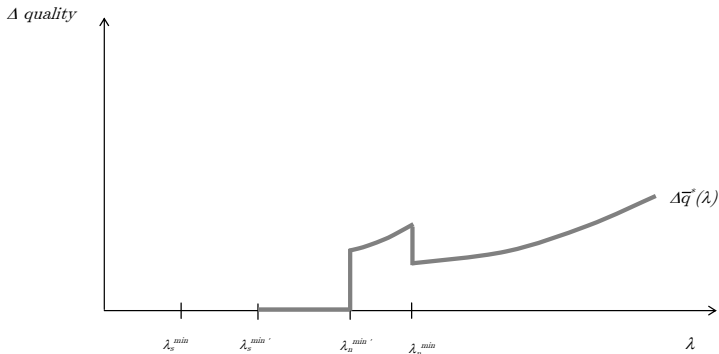
Theoretical prediction (cont.)

Figure VII
Response to Exchange-Rate Devaluation



Theoretical prediction (cont.)

Figure VIII
Change in Average Quality in Response to Devaluation



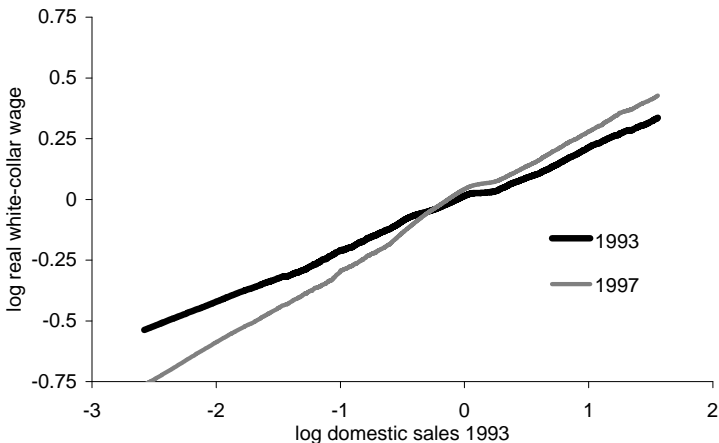
Larger firms ↑ exports more, 1994-1997

App. Fig. IVa: Export share of sales



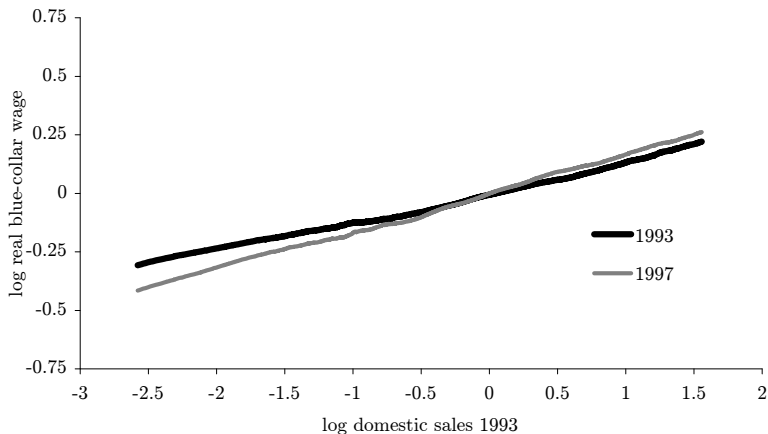
Larger firms ↑ white-collar wages more, 1993-1997

App. Fig. IVb: Log white-collar wage



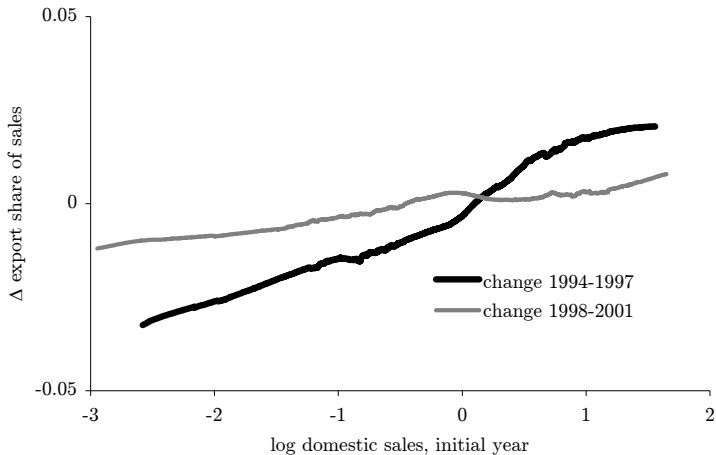
Larger firms ↑ blue-collar wages more, 1993-1997

App. Fig. IVc: Log blue-collar wage



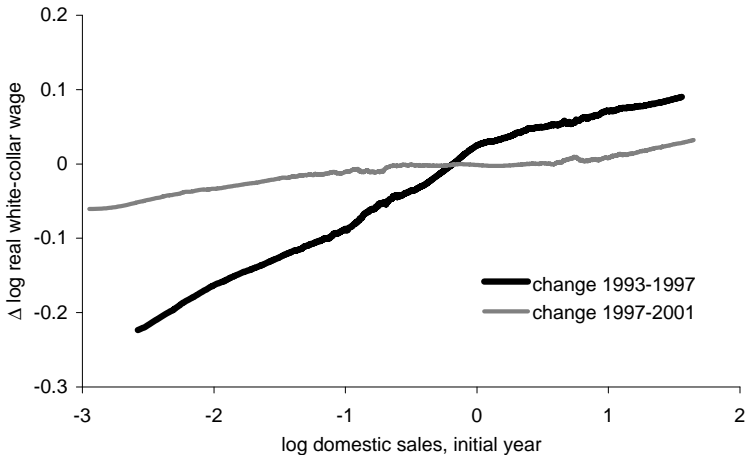
Greater differential change, exports

App. Fig. Va: Changes in export share of sales



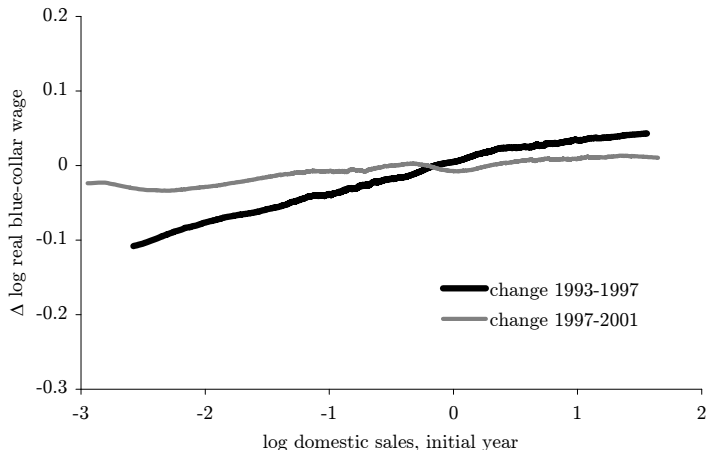
Greater differential change, white-collar wages

App. Fig. Vb: Changes in log white-collar wage



Greater differential change, blue-collar wages

App. Fig. Vc: Changes in log blue-collar wage



Similar pattern for ISO 9000 certification

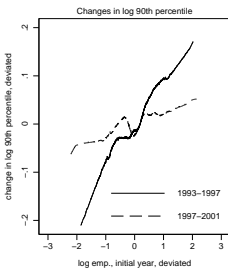
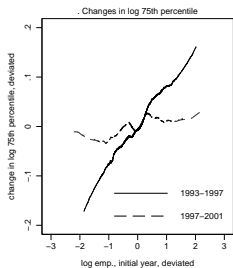
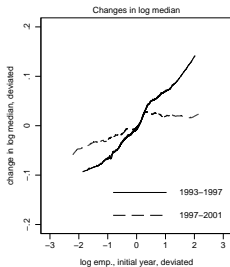
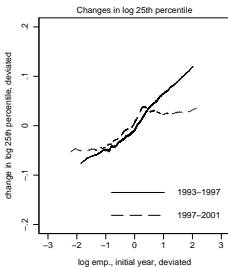
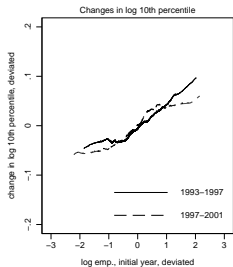
B. Differential Responses, 1993–1997 and 1997–2001

		Δ ISO 9000 certification (1)	Δ white-collar avg. schooling (2)	Δ blue-collar avg. schooling (3)	Δ has formal training (4)	Δ turnover rate (5)	Δ accident rate (6)	Δ absentee rate (7)
1993–1997	Log domestic sales, 1993	0.079*** [0.018]	-0.105 [0.104]	0.204*** [0.078]	0.008 [0.020]	1.067 [4.224]	0.219 [0.247]	-0.025 [0.093]
	R^2	0.171	0.164	0.194	0.1	0.184	0.141	0.243
1997–2001	Log domestic sales, 1997	0.036*** [0.015]	0.058 [0.088]	-0.023 [0.075]	-0.024 [0.017]	-4.294 [4.655]	0.045 [0.222]	-0.140 [0.093]
	R^2	0.127	0.151	0.173	0.082	0.161	0.134	0.138
	Difference (1993–1997 vs. 1997–2001)	0.042* [0.024]	-0.163 [0.136]	0.228** [0.109]	0.032 [0.026]	5.361 [6.286]	0.174 [0.332]	0.115 [0.131]
	N	844	484	484	836	513	713	354

Looking at wage outcomes inside firm

- ▶ Two follow-up projects use “employer-employee” data from Mexican social security agency to explore wage outcomes in more detail:
 1. Frías, Kaplan & Verhoogen, “Exports and Within-Plant Wage Distributions,” AER P&P 2012
 2. Frías, Kaplan, Verhoogen & Alfaro, “Exports and Wage Premia,” new version early 2017.

Exports and Within-Plant Wage Distributions



Exports and Within-Plant Wage Distributions (cont.)

△ quantiles of within-firm log wage distribution

	△ log mean hourly wage (EIA)	△ mean log daily wage (IMSS)	△ quantiles of within-firm log wage distribution				
	(1)	(2)	10th (3)	25th (4)	50th (5)	75th (6)	90th (7)
△ export share	2.647** (1.227)	3.928*** (1.443)	-0.058 (0.639)	2.455** (1.113)	3.965*** (1.532)	5.296*** (1.945)	5.333*** (2.026)
initial log emp.	0.006 (0.012)	0.007 (0.014)	0.037*** (0.007)	0.021* (0.011)	0.007 (0.015)	-0.004 (0.019)	0.004 (0.020)
industry-year effects	Y	Y	Y	Y	Y	Y	Y
state-year effects	Y	Y	Y	Y	Y	Y	Y
N	5062	5062	5062	5062	5062	5062	5062

- ▶ Differential export shock associated with an larger effects on the upper quantiles of wage distribution than lower quantiles.
- ▶ But effect 90th percentile not larger than at 75th.

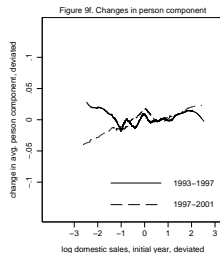
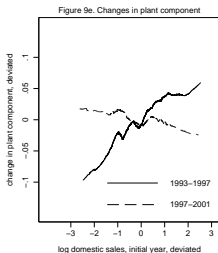
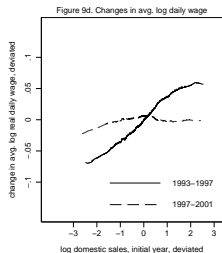
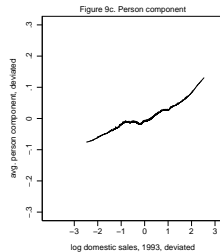
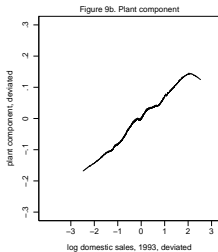
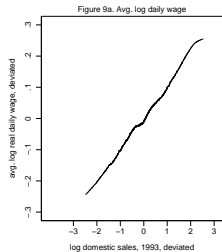
Exports and Wage Premia

- ▶ Standard model (Abowd, Kramarz and Margolis, 1999):

$$w_{it} = \eta_t + \alpha_i + \mathbf{x}'_{it}\boldsymbol{\gamma}_t + \psi_{j(i,t)t} + \varepsilon_{it} \quad (1)$$

- ▶ i, j, t index individuals, plants, years
- ▶ w_{it} = log wage
- ▶ \mathbf{x}_{it} = vector of observable individual characteristics
- ▶ $\psi_{j(i,t)}$ = plant-year effect for plant j in which individual i is located in year t
- ▶ Need assumption that where individual workers is not correlated with shocks to his/her productivity in the same period.
- ▶ Interpret plant effect coefficients (“plant components”) ψ as *wage premia*.

Exports and Wage Premia (cont.)



Exports and Wage Premia (cont.)

	Δ avg. log daily wage (IMSS) (1)	Δ plant comp. (2)	Δ person comp. (3)
<i>Changes over 1993-1997 period</i>			
log domestic sales, 1993	0.033*** (0.004)	0.027*** (0.003)	0.006*** (0.002)
<i>Changes over 1997-2001 period</i>			
log domestic sales, 1997	0.000 (0.003)	0.002 (0.003)	-0.002 (0.002)
$\beta_{1997-2001} - \beta_{1993-1997}$	-0.032*** (0.005)	-0.024*** (0.004)	-0.008*** (0.003)
6-digit industry effects	Y	Y	Y
region (state) effects	Y	Y	Y
N	2211	2211	2211

Notes: Log plant size is log employment in Column (1), log domestic sales otherwise. (Domestic sales enters the denominator of export share, and we avoid regressing changes in export share on initial level of domestic sales to avoid a spurious negative correlation.) Export share is fraction of total sales derived from exports. Robust standard errors in brackets. *10% level, **5% level, ***1% level.

Feenstra and Hanson (1996) outsourcing hypothesis

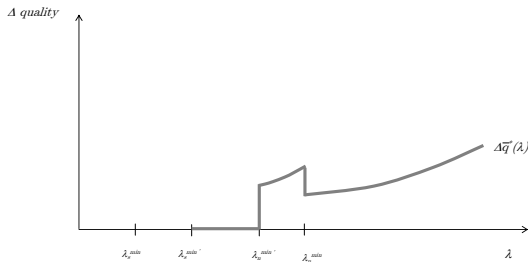
- ▶ Each sector consists of many activities of different skill intensities.
- ▶ Most skill-intensive located in North; least skill-intensive in South.
- ▶ When trade costs fall, the least skill-intensive activities from North shift to South.
 - ▶ Average skill intensity \uparrow in both North, South.
 - ▶ Return to skill \uparrow in both North, South.
 - ▶ Inequality \uparrow in both North, South.
- ▶ Very plausible, but in Mexican can outsourced activities (maquiladoras) tend to be unskilled-labor-intensive even relative to rest of Mexican manufacturing.

Bustos (2011b) technology upgrading

- ▶ Firms have choice between:
 - ▶ Traditional technology: low fixed costs, high variable costs.
 - ▶ New technology: high fixed costs, low variable costs.as in Yeaple (2005).
- ▶ Choice depends on scale of production: more-productive, larger firms have greater incentive to adopt, since fixed costs per unit are smaller.
- ▶ Trade liberalization increases scale of larger firms, induces them to upgrade technology.

Bustos (2011b) technology upgrading (cont.)

Figure VIII
Change in Average Quality in Response to Devaluation



- Recall Fig. VIII from Verhoogen (2008). Bustos (2011b) generates similar prediction for technology spending: larger effect for new exporters (3rd quintile in Argentinean case).

Bustos (2011b) technology upgrading (cont.)

TABLE 7—TECHNOLOGY ADOPTION BY QUARTILE OF THE FIRM SIZE DISTRIBUTION

Dependent variable indicated in columns	Change in spending on technology			Product and process innovation		
	(1)	(2)	(3)	(4)	(5)	(6)
Δ Brazil's tariffs						
× First size quartile	−0.872 [0.604]	−0.725 [0.570]	−1.235 [0.755]	−0.041 [0.116]	−0.076 [0.113]	−0.165 [0.143]
× Second size quartile	−0.846 [0.569]	−0.662 [0.629]	−1.171 [0.828]	−0.199 [0.149]	−0.227 [0.145]	−0.326 [0.163]**
× Third size quartile	−2.106 [0.609]***	−1.927 [0.627]***	−2.424 [0.886]***	−0.359 [0.133]***	−0.403 [0.146]***	−0.465 [0.171]***
× Fourth size quartile	−0.372 [0.534]	−0.146 [0.563]	−0.648 [0.773]	−0.190 [0.130]	−0.229 [0.132]*	−0.319 [0.154]**
Controls						
Δ Arg.'s tariffs w.r.t. world		yes			yes	
Δ Arg.'s tariffs w.r.t. Brazil			yes			yes
Industry-level controls		yes	yes		yes	yes
Firm-level controls	yes	yes	yes	yes	yes	yes
2-digit ISIC industry dummies	yes	yes	yes	yes	yes	yes
Observations	894	872	870	1,301	1,269	1,263
R^2	0.05	0.06	0.06	0.20	0.20	0.20

Notes: Standard errors are clustered at the 4-digit ISIC industry level. Δ denotes a change in a variable during the period 1992–1996. Controls for changes in Argentina's tariffs with respect to the world and Brazil include both output and input tariffs. Industry-level controls include demand elasticity, skill intensity, and capital intensity of the 4-digit ISIC industry in the United States. Firm-level controls include dummies for the second, third, and fourth quartile of the firm-size distribution in the initial year (1992).

- ▶ Follow-up paper (Bustos, 2011a) looks at skill choices, finds skill share moves with technology spending/adoption.

Helpman, Itskhoki and Redding (2010) labor screening

- ▶ Workers have an unobserved firm-specific productivity.
- ▶ Firms can pay fixed cost to screen workers, hire only those above some minimum level.
- ▶ As scale \uparrow :
 - ▶ incentive to pay fixed costs of screening \uparrow
 - ▶ average productivity, wage in firm \uparrow .
- ▶ Can have effect on inequality, for reasons similar to Bustos (2011b).
- ▶ Note that in both Bustos (2011b) and Helpman, Itskhoki and Redding (2010), mechanism is a *scale effect*.

Exports $\uparrow \Rightarrow$ quality \uparrow

- ▶ Atkin et al. (forthcoming) randomized initial export contacts among Egyptian rug producers.



Exports $\uparrow \Rightarrow$ quality \uparrow

	Control Mean	ITT (1)	TOT (2)
Corners	2.98	1.11 *** (0.12)	1.70 *** (0.11)
Waviness	2.99	1.10 *** (0.12)	1.68 *** (0.10)
Weight	3.08	1.07 *** (0.11)	1.63 *** (0.11)
Touch	3.12	0.40 *** (0.06)	0.66 *** (0.07)
Packedness	3.11	0.89 *** (0.11)	1.59 *** (0.12)
Warp Thread Tightness	3.05	0.83 *** (0.10)	1.49 *** (0.12)
Firmness	2.98	0.87 *** (0.11)	1.60 *** (0.12)
Design Accuracy	3.17	0.79 *** (0.10)	1.41 *** (0.12)
Warp Thread Packedness	3.05	1.07 *** (0.11)	1.65 *** (0.11)
Inputs	3.07	0.89 *** (0.10)	1.62 *** (0.12)

Scale vs. income-based quality channel

- ▶ Brambilla, Lederman and Porto (AER, 2012):
 - ▶ Brazilian devaluation affects destination of exports for Argentinian firms.
 - ▶ Find positive effect on wages of exporting to richer markets, but not of exporting *per se*.
- ▶ Bastos, Silva and Verhoogen (2016)
 - ▶ Exchange rates shift where Portuguese firms export goods.
 - ▶ Avg. destination income $\uparrow \Rightarrow$ firms pay more for inputs.
 - ▶ Exports *per se* $\uparrow \Rightarrow$ no effect on input prices.
- ▶ Both suggest that income-based quality channel — not scale effects — is driving wage effects.

Firms charge higher prices in richer destinations (1997)

	dep. var.: firm-product log export price			
	(1)	(2)	(3)	(4)
richer than Portugal	0.09*** (0.03)	0.09*** (0.03)		
log GDP/cap.			0.03*** (0.01)	0.03*** (0.01)
log GDP	0.01* (0.00)	0.00 (0.01)	0.01 (0.01)	0.00 (0.01)
European Union	0.05* (0.03)	0.02 (0.02)	0.06** (0.03)	0.03 (0.02)
landlocked	0.02 (0.03)	0.03 (0.02)	0.01 (0.03)	0.02 (0.02)
log distance	0.07*** (0.01)	0.06*** (0.01)	0.07*** (0.01)	0.06*** (0.01)
product effects	Y	N	Y	N
firm-product effects	N	Y	N	Y
R2	0.75	0.93	0.75	0.93
N	71519	71519	71519	71519

Exchange rates affect existing exporters more

	dep. var.: % firm's sales			
	(1)	(2)	(3)	(4)
A. Data at firm-destination-product-year level				
log(RER)	0.092*** (0.012)	0.100*** (0.010)	0.022** (0.010)	0.031*** (0.012)
log(RER)*1(any exports in 1997)			0.430*** (0.041)	
log(RER)*(sales share in 1997)				0.353*** (0.057)
firm effects	Y			
destination effects	Y			
firm-product-destination effects	N	Y	Y	Y
year effects	Y	Y	Y	Y
R2	0.15	0.70	0.70	0.70
N	954025	954025	954025	954025

Exports to richer destinations $\uparrow \Rightarrow$ input prices \uparrow

	dep. var.: firm-average log real input price					
	(1)	(2)	(3)	(4)	(5)	(6)
log avg. destination gdp/cap	0.66*** (0.21)	0.72*** (0.25)	0.73*** (0.25)	0.71*** (0.25)	0.69*** (0.26)	0.68*** (0.26)
export share of sales		-0.34*** (0.13)	-0.34** (0.13)	-0.33** (0.13)	-0.22 (0.31)	-0.22 (0.32)
log avg. destination distance			-0.00 (0.00)	-0.00 (0.00)	-0.01 (0.01)	0.06** (0.03)
log sales				0.02*** (0.01)	0.02*** (0.01)	0.01 (0.01)
initial source interactions	Y	Y	Y	Y	Y	Y
firm effects	Y	Y	Y	Y	Y	Y
year effects	Y	Y	Y	Y	Y	Y
N	45659	45659	45659	45659	45659	45659
Kleibergen-Paap LM statistic (under-identification)	264.22	250.03	249.61	248.92	192.30	232.20
Kleibergen-Paap LM p-value	0.00	0.00	0.00	0.00	0.00	0.00
Kleibergen-Paap Wald rk F-stat (weak insts.)	3.11	2.67	2.67	2.65	2.09	2.32
Anderson-Rubin Wald test F-stat	2.20	2.19	2.19	2.17	2.18	2.18
Anderson-Rubin Wald test p-value	0.00	0.00	0.00	0.00	0.00	0.00

Notes: Columns 1 to 4 treat only log avg. destination GDP/cap as endogenous; Column 5 adds export share of sales, and Column 6 adds log avg. destination distance to endogenous set. Petroleum exports and imports excluded. Robust standard errors in parentheses. *10% level, **5% level, ***1% level.

Conclusion

- ▶ Using data from Mexico, supplemented by other studies, I have argued that quality upgrading is a causal channel linking trade and wage inequality in developing countries.
 - ▶ Leads to increased wage dispersion across plants.
 - ▶ Pattern explained in large part by firms paying wage premia, not by changes in skill composition.
 - ▶ Quality upgrading also leads to increased dispersion within plants.
- ▶ Quality upgrading is not the only possible mechanism linking trade and wage inequality in LDCs, but it appears to be an important one.
- ▶ Question I haven't answered: how much of rise in inequality in LDCs is due to trade?
 - ▶ Hard to answer convincingly.
 - ▶ Subject of future work.

Normative dimensions

- ▶ We tend to think of inequality as a “bad.”
 - ▶ The fact that trade is increasing it in LDCs would seem to be a black mark against trade.
- ▶ On other hand, in the story I have tried to tell, it arises because a subset of firms are able to upgrade and export successfully.
 - ▶ Some increase in dispersion among firms seems inevitable. Not all firms are going to be able to export.
- ▶ But there is a role for policy to mitigate effects:
 - ▶ One direction is to promote upgrading of all firms (including small and medium-sized), in conjunction with policies to open export markets.
 - ▶ As do rich countries, LDCs need to find mechanisms to insure people against the risks that trade may pose for them.
- ▶ Otherwise political support for liberalized trade is likely to erode, as we are seeing in the North.

References |

Abowd, John, Francis Kramarz, and David Margolis, "High Wage Workers and High Wage Firms," Econometrica, 1999, 67 (2), 251–333.

Atkin, David, Amit K. Khandelwal, and Adam Osman, "Exporting and Firm Performance: Evidence from a Randomized Trial," forthcoming. Forthcoming, Quarterly Journal of Economics.

Autor, David H., David Dorn, and Gordon H. Hanson, "The China Syndrome: Local Labor Market Effects of Import Competition in the United States," American Economic Review, 2013, 103 (6), 2121–68.

—, —, —, and Jae Song, "Trade Adjustment: Worker Level Evidence," Quarterly Journal of Economics, 2014, pp. 1799–1860.

—, —, —, and Kaveh Majlesi, "Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure," 2016. Unpub. paper.

Bastos, Paulo, Joana Silva, and Eric Verhoogen, "Export Destinations and Input Prices," 2016. Unpub. paper.

Berman, Eli, John Bound, and Stephen Machin, "Implications of Skill-Biased Technological Change: International Evidence," Quarterly Journal of Economics, 1998, 113 (4), 1245 – 1279.

—, —, and Zvi Griliches, "Changes in the Demand for Skilled Labor within U.S. Manufacturing: Evidence from the Annual Survey of Manufactures," Quarterly Journal of Economics, 1994, 109 (2), 367 – 397.

Brambilla, Irene, Daniel Lederman, and Guido Porto, "Exports, Export Destinations and Skills," American Economic Review, 2012, 102 (7), 3406–3488.

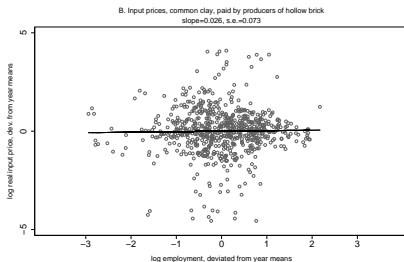
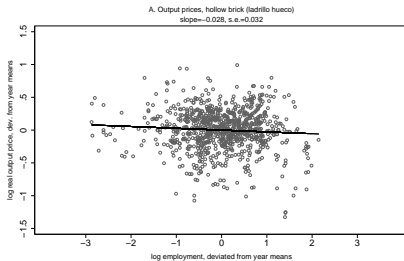
Bustos, Paula, "The Impact of Trade Liberalization on Skill Upgrading: Evidence from Argentina," July 2011. Mimeo, Universitat Pompeu Fabra.

—, "Trade Liberalization, Exports and Technology Upgrading: Evidence on the Impact of MERCOSUR on Argentinian Firms," American Economic Review, 2011, 101 (1), 304–340.

References II

- Dippel, Christian, Robert Gold, and Stephan Heblich, "Globalization and Its (Dis-)Content: Trade Shocks and Voting Behavior," 2016. Unpub. paper.
- Feenstra, Robert and Gordon Hanson, "Foreign Investment, Outsourcing and Relative Wages," in Robert Feenstra and Gene Grossman, eds., Political Economy of Trade Policy: Essays in Honor of Jagdish Bhagwati, Cambridge MA: MIT Press, 1996.
- Frías, Judith A., David S. Kaplan, and Eric Verhoogen, "Exports and Within-Plant Wage Distributions: Evidence from Mexico," American Economic Review Papers and Proceedings, 2012, 102 (3), 435–440.
- Goldberg, Pinelopi Koujianou and Nina Pavcnik, "Distributional Effects of Globalization in Developing Countries," Journal of Economic Literature, March 2007, 45 (1).
- Helpman, Elhanan, Oleg Itskhoki, and Stephen Redding, "Inequality and Unemployment in a Global Economy," Econometrica, July 2010, 78 (4), 1239–1283.
- OECD, In It Together: Why Less Inequality Benefits All, OECD Publishing, 2015.
- Verhoogen, Eric, "Trade, Quality Upgrading and Wage Inequality in the Mexican Manufacturing Sector," Quarterly Journal of Economics, 2008, 123 (2), 489–530.
- Yeaple, Stephen Ross, "A Simple Model of Firm Heterogeneity, International Trade, and Wages," Journal of International Economics, January 2005, 65 (1), 1–20.

Cross-sectional Evidence for Quality Differences (cont.)



Cross-sectional Evidence for Quality Differences (cont.)

