

Bad Neighbors: Bordering Institutions as Comparative (Dis)Advantage

Rodrigo Miranda¹ Rodrigo Wagner²

¹National Productivity Commission of Chile (CNP).

²Assistant Professor, University of Chile; Affiliated to CID Harvard.

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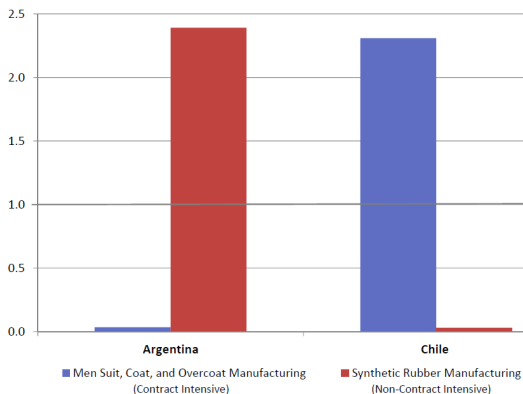
Santiago, Chile

Outline

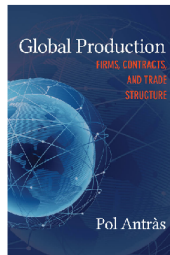
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Current belief: local Institutions matter

Figure: Comparative Advantage (US imports from Chile and Argentina); goods with different contract intensity. Rule of law: CHL +1; ARG, -0.9 st dev.



Sources: U.S. Census and Nunn (2007)



Problem if near-shoring / sourcing.

Figure: Visiting Maersk Container Industries in Chile. Talk to *purchasing manager about sourcing from Argentina. Said no despite skilled metal mechanic firms.* (see Velasco and Wagner, 2014)



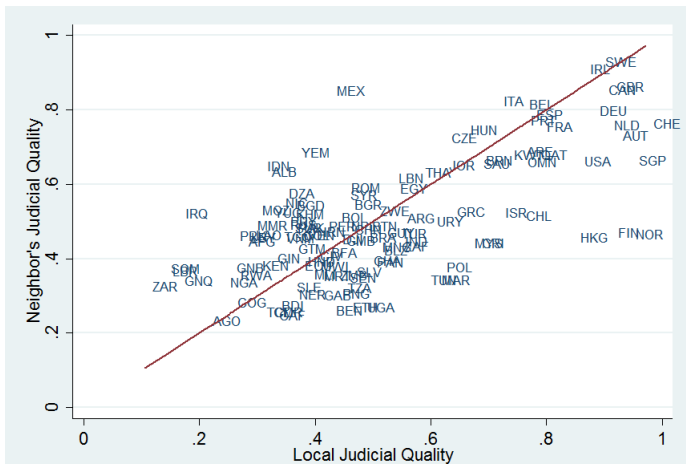
Neighboring institutions & “near-shoring”

- Known fact: a country's *own* institutions improve comparative advantage of contract-intensive goods.
- Neighbors are important for offshoring contract intensive / monitoring intensive inputs. Even in the era of Alibaba!
- **This paper:** *The better the neighbor's rule of law, the more contract-intensive goods you produce/export.*
- **Relevant implications:** cross-border arbitration & integration into GVCs, Firm strategy & MNCs enforcing contracts across borders, Deep Agreements & B2B contract enforcement.

Neighboring vs local rule of law

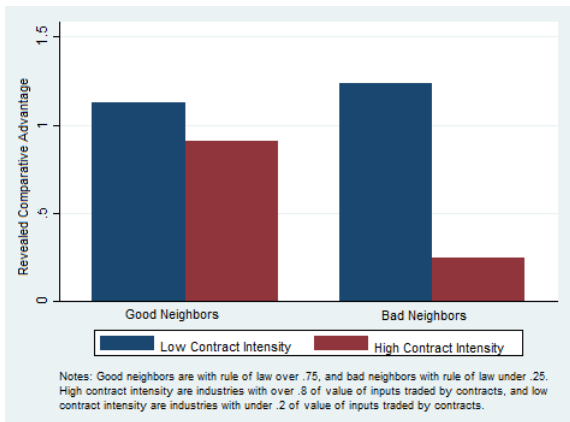
- Mexico and Italy have good neighbors.
- Contrast with Chile, Finland and Israel.

Figure: Rule of Law - Local Countries relative to their Neighbors



Main Result: Neighbors' rule of law & relative exports

Figure: Revealed Comparative Adv. by neighbors' institutional quality and contract intensity.



Neighbors' institutional quality **after controlling for own institutions**

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Our paper in the Literature: $\{\text{Institutions \& Trade}\} \cap \{\text{Neighbors}\}$

- **Institutions and trade:** Nunn (2007); Levchenko (2007); Acemoglu, Antras, Helpman; Antras (2014). Destination institutions Anderson and Marcouiller (2002).
- ***Proximity matters for complex inputs:*** Cirrera et al (2012), Laurusone & Domeiji (2012) case of Swedish nearsourcing to Easter Europe for “strategic” inputs. Starz (2017): face-to-face matters, and neighbors are easiest option.
- **Neighbors:** impact growth (Ades & Chua, 1997); export similar products Bahar et al (2014); other aspects: Ramírez and Loboguerrero (2002) ; Egger and Pfaffermayr (2006), Moreno and Trehan (1997)...

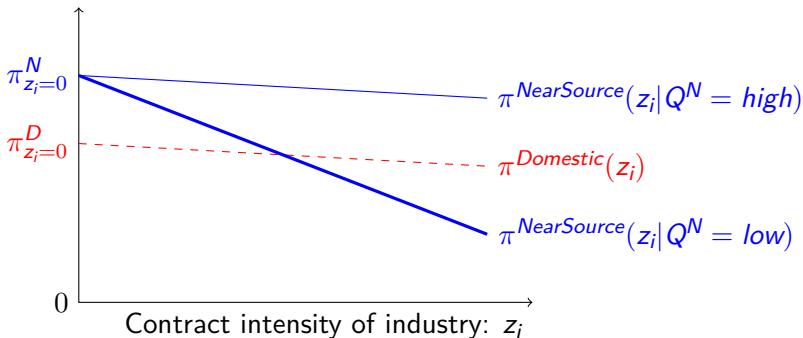
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Framework: Domestic vs Nearshoring

- Contract intensity = $z_i \in (0, 1)$. Neighbors rule of law Q^N
- Profits of sourcing strategies: **Domestic** π^D vs **Near-shoring** π^N . Assume: (i) $\partial\pi/\partial z_i$ for all, Nunn (2007) Levchenko (2007); (ii) $\pi_{z_i=0}^N > \pi_{z_i=0}^D$. (iii) $\frac{\partial\pi^N(z_i|Q^N=low)}{\partial z_i} < \frac{\partial\pi^D}{\partial z_i} \leq 0$

Profits: $\pi(z_i)$



Conceptual Framework

- **Testable Proposition** : *After controlling for other determinants of comparative advantage, countries with better neighboring institutions have comparative advantage in contract-intensive industries.*

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Main Specification

- We estimate a country-industry panel (same year, 1997).

$$\underbrace{\log x_{ci}}_{\text{Exports}} = \underbrace{\alpha_c + \alpha_i}_{\text{Fix. Eff}} + \underbrace{\beta z_i Q_c}_{\text{Own (Nunn)}} + \gamma X_{ci} +$$
$$+ \underbrace{\beta^N z_i Q_c^N}_{\text{Neighbors'}} + \gamma_N X_{ci}^N + \varepsilon_{ic}$$

- Nunn (2007) $z_i Q_c$: contract intensity \times own rule of law.
 - Note identification comes from variation within a country and within industry.
- **We add $z_i Q_c^N$: contract intensity \times neighbors rule of law.**
 - And neighbor's controls $\gamma_N X_{ci}^N$.

Note: Variables with superscript N means neighbor's in weighted average by GDP..

Controls

- We include vectors $\gamma_N X_{ci}$ and $\gamma_N X_{ci}^N$ as controls.
 - All are interactions between an industry variable and a country variable.
- We includes skill (human capital) and capital interactions:
 - Skill intensity of industry $i \times$ skill endowment of country c , and capital intensity of industry $i \times$ capital endowment of country c .
- We includes also other known determinants of comparative advantage.
 - Capital intensity \times ln private credit by banks/GDP ratio, value added \times ln per capita GDP, Grubel-Lloyd index \times ln per capita GDP, TFP growth \times ln per capita GDP and 1-herfindahl index \times ln per capita GDP.
- Data used by Nunn (2007) .
 - Data of local judicial quality, contract intensity on inputs and another relevant variables. Year 1997.
 - Panel data of countries (160) and industries (222).
 - Rule of law index from World Governance Indicators (Normalized between 0 and 1).

... More Data Sources

- Feenstra (2007) data:
 - World exports by good, origin and destiny. 1995-2000.
 - SITC Rev. 2 4-digit to HS-6 digit concordance
- World Bank World Integrated Trade Solution (WITS):
 - World exports by good, origin and destiny. After 2000.
 - Tariffs by good, exporter and importer.
- Bureau of Econ. Analysis (BEA):
 - I-O Makes Table.
 - I-O to HS-6 digit concordance.
- Centre d'Etudes Prospectives et d'Informations Internationales (CEPII):
 - BACII: intermediate and primary goods.

Descriptive Stats of Main Variables

	Mean	Std. Dev.	Obs.	Countries	Industries
Own country:					
Judicial quality	0.563	0.211	22,598	160	222
Judicial quality interaction	0.279	0.170	22,598	160	222
GDP (Log)	8.657	1.085	22,598	160	222
Country's Neighbors:					
Judicial quality	0.542	0.164	18,504	121	222
Judicial quality interaction	0.268	0.150	18,504	121	222
Neighbor's GDP (log of sum)	8.673	.905	18,504	121	222

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Specifications

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- ① With Only Institutional Interactions effects.
- ② Only Institutional Interactions effects, and only Manufacturing Industries.
- ③ Controlling by Skill and Capital Interactions.
- ④ Controlling by other Determinants of Comparative Advantage.
- ⑤ Controlling by Skill and Capital Interactions, and by other Determinants of Comparative Advantage.

Sanity check: Nunn (2007) $z_i Q_c$ in our sample

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	(1)	(2)	(3)	(4)	(5)
<u>Local. Judic. qua. int:</u> $z_i Q_c$	0.288*** (0.289)	0.318*** (0.377)	0.326*** (0.425)	0.235*** (0.333)	0.296*** (0.441)
Factor Endowments	NO	NO	YES	NO	YES
Dets. of Comp. Advantage	NO	NO	NO	YES	YES
Fixed effects	YES	YES	YES	YES	YES
Observations	22,598	10,976	10,976	15,737	10,816

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Our Specification: adding neighbors

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	(1)	(2)	(3)	(4)	(5)
Neigh. Judic. qua. int: $z_i Q_C^N$	0.159***	0.206***	0.210***	0.148***	0.210***
	(0.494)	(0.621)	(0.628)	(0.544)	(0.667)
Local. Judic. qua. int: $z_i Q_C$	0.200***	0.212***	0.254***	0.157***	0.221***
	(0.395)	(0.558)	(0.587)	(0.466)	(0.596)
Factor Endowments	NO	NO	YES	NO	YES
Dets. of Comp. Advantage	NO	NO	NO	YES	YES
Fixed effects	YES	YES	YES	YES	YES
Observations	18,383	8,148	8,148	12,934	7,988

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

High Correlation Local vs Neighboring Institutions ($\rho = 0.65$)

- $\text{Corr}(Q^N, Q) = 0.65$. Why? Spatial correlation. Identical legal origin (same colonial institutions)... [See: Plot Neighbor vs local rule of law](#).
- Approach: “Worst” case scenario: Attribute all common effects to own institutions. Replace Q_c^N with residual $e_c^N = Q_c^N - \mathbb{E}[Q_c^N | Q_c]$.

“Worst” case scenario

	(1)	(2)	(3)	(4)	(5)
Neigh. Judic. qua. int: $z_i e_c^N$	0.0725***	0.0934***	0.114***	0.0643***	0.110***
	(0.494)	(0.621)	(0.675)	(0.559)	(0.708)
Local. Judic. qua. int: $z_i Q_c$	0.288***	0.326***	0.358***	0.239***	0.330***
	(0.289)	(0.415)	(0.461)	(0.359)	(0.484)
Factor Endowments	NO	NO	YES	NO	YES
Dets. of Comp. Advantage	NO	NO	NO	YES	YES
Fixed effects	YES	YES	YES	YES	YES
Observations	18,383	8,148	8,148	12,934	7,988

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Ranking Magnitudes

Nunn (2007)		Our results		"Worst" case	
Intra-Industry Tr.:	0.546***	Intra-Industry Tr.:	0.631***	Intra-Industry Tr.:	0.631***
Input Concentr.:	0.522***	Input Concentr.:	0.603***	Input Concentr.:	0.603***
Judic. Qua. Int.:	0.296***	Neigh. Jud. Qua. Int.:	0.244***	Judic. Qua. Int.:	0.390***
Value add Int:	-0.137**	Judic. Qua. Int.:	0.196***	Skill Int.:	0.115***
Capital Int.:	0.0737*	Skill Int.:	0.115***	Capital Int.:	0.104*
Skill Int.:	0.063***	Capital Int.:	0.104*	Neigh. Jud. Qua. Int.:	0.096***

Standardized beta coefficients are reported.

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Robustness Checks I

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- Same robustness checks as Nunn (2007).
- Alternative measures of Judicial Quality.
 - Gwartney-Lawson (2003) measurement.
 - Doing Business (2004) measures:
 - Number of procedures needed to enforce a contract.
 - Official costs in court fees and attorney fees.
 - Time to resolve a dispute.
- Alternative measures of Contract Intensity.
 - Liberal measurement of Rauch (1999), z_i^{rs2} (see Nunn, 2007).
- Effects across Economic Development Level.
 - OECD vs Non-OECD countries.

Robustness Checks 1.1

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Using Alternative Measures of Q_C :	With factor interactions (skill and capital) as controls			
	z_i^{fs1}		z_i^{fs2}	
	Local	Neighs	Local	Neighs
Gwartney-Lawson (2003)	0.318*** (0.0631)	0.220*** (0.0669)	0.239*** (0.0899)	0.345*** (0.0932)
DB: Number of Procedures	0.213*** (0.0110)	0.237*** (0.0135)	0.196*** (0.0160)	0.289*** (0.0193)
DB: Official Costs	0.211*** (0.161)	0.148*** (0.235)	0.239*** (0.235)	0.286*** (0.319)
DB: Time	0.211*** (0.161)	0.148*** (0.235)	0.239*** (0.235)	0.286*** (0.319)

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Robustness Checks 1.2

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Using Q as “WGI’s rule of law”	With factor interactions (skill and capital) as controls			
	z_i^{rs1}		z_i^{rs2}	
	Local	Neighs	Local	Neighs
OECD countries	0.612*** (1.064)	0.235*** (0.906)	0.364*** (1.538)	0.188* (1.227)
Non-OECD countries	0.156*** (0.866)	0.346*** (1.109)	0.169*** (1.193)	0.540*** (1.447)

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Robustness Checks 2.1

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- Based in Levchenko (2007).
 - Using relative share of exports or RCA to USA as LHS, following Levchenko (2007).
 - Using $(1 - h)_i$ or Herfindahl Index of intermediate inputs of Levchenko (2007).
 - As contract intensity measurement.
- Comparison between log of production and log of exports as LHS.
 - Getting production data of industries from UNIDO manufacturing production data.
- Differences across weighting method of neighboring countries.
 - Weighted by GDP (baseline) vs. simple mean, weighted by $1/\log(\text{distance})$, only best neighbor and only worst neighbor.

Robustness Checks 2.2

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Following Levchenko (2007) :	Levchenko	Our Data	With Neighbors
$-h_i \times \text{Own institutions}$	2.33*** (0.60)	8.163*** (2.029)	6.116** (2.383)
$-h_i \times \text{Neighbors' institutions}$			4.204* (2.499)
Observations	31,568	10,985	8,750

OLS coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Robustness Checks 2.3

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Using Levchenko (2007) contr. int.	(1)	(2)	(3)	(4)	(5)
Neighbor's Judic.l qua. int.: $(1 - h)_i Q_C^N$	0.313*** (1.299)	0.411*** (1.896)	0.433*** (1.932)	0.340*** (2.452)	0.639*** (3.236)
Local Judic. qua. int.: $(1 - h)_i Q_C$	0.378*** (1.011)	0.430*** (1.674)	0.387*** (1.702)	0.299** (2.194)	0.129 (2.821)
Other Dets. of Comp. Adv.	NO	NO	NO	YES	YES
Skill and Capital Int.	NO	NO	YES	NO	YES
Observations	18,383	8,148	8,148	12,934	7,988

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

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Channels and Heterogenous effects

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- Imports of Inputs from neighbors.
 - As LHS.
- Depth of FTAs with neighbors.
 - Interacting with $z_i Q_c$ and $z_i Q_c^N$.
- Trade in Value Added (VA).
 - As LHS.
 - Calculated as Exports minus Intermediate inputs imports.

Channels and Heterogeneous effects

Intermediate inputs (as LHS, in log)	(1)	(2)	(3)	(4)	(5)
Neighbor's Judicial quality interaction: $z_i Q_C^N$	-0.0273 (1.494)	0.153* (1.748)	0.194** (1.948)	-0.0227 (1.765)	0.213** (2.104)
Judicial quality interaction: $z_i Q_C$	-0.0211 (0.989)	-0.230*** (1.408)	-0.214*** (1.537)	-0.0284 (1.283)	-0.224** (1.678)
Another Determinants of Comparative Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES
Observations	4,852	2,327	2,327	3,811	2,327

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Channels and Heterogeneous effects

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Depth of FTA with neighbors (interacting)	(1)	(2)	(3)	(4)	(5)
Neighbor's Judicial quality interaction: $z_i Q_c^N$	0.0917*** (0.771)	0.104 (1.562)	0.155** (1.616)	0.0809** (0.886)	0.164** (1.652)
Judicial quality interaction: $z_i Q_c$	0.231*** (0.492)	0.287*** (0.744)	0.306*** (0.776)	0.194*** (0.597)	0.281*** (0.778)
Depth Neighbor's triple int.: $z_i Q_c^N d_c^N$	0.189*** (1.081)	0.270** (1.776)	0.276** (1.791)	0.170*** (1.174)	0.253** (1.815)
Depth Local triple int.: $z_i Q_c d_c^N$	-0.119*** (0.860)	-0.202*** (1.113)	-0.241*** (1.112)	-0.122** (0.916)	-0.246*** (1.116)
Another Determinants of Comparative Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES
Observations	18,383	8,148	8,148	12,934	7,988

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Channels and Heterogeneous effects

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VA: Exports (as LHS, in log)	(1)	(2)	(3)	(4)	(5)
Neighbor's Judicial quality interaction: $z_i Q_C^N$	0.129*** (0.804)	0.162*** (0.895)	0.241*** (1.003)	0.146*** (0.870)	0.239*** (1.071)
Judicial quality interaction: $z_i Q_C$	0.211*** (0.718)	0.202*** (0.847)	0.176*** (0.956)	0.158*** (0.764)	0.172*** (0.963)
Another Determinants of Comparative Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES
Observations	4,741	2,601	2,601	3,800	2,589

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Additional Channels & Heterogeneous effects

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- Substitution between local and neighboring institutions.
 - Incorporating triple interaction $z_i Q_c Q_c^N$.
- Interacting Downstream variable.
 - With average share in each industry that sells in differentiated markets: $Diff_i$.
- Interacting with share of countries with common “de facto” language.
 - Variable $Lang_c^N$, using CEPII common language talked by at least 9% of pop..

Some evidence of substitution Q^N vs Q

Substitution: local vs neighboring	(1)	(2)	(3)	(4)	(5)
Neighbor's Judicial quality interaction: $z_i Q_c^N$	0.125** (1.355)	0.416*** (2.018)	0.517*** (2.069)	0.0725 (1.563)	0.501*** (2.087)
Judicial quality interaction: $z_i Q_c$	0.166*** (1.185)	0.413*** (1.720)	0.471*** (1.744)	0.0956 (1.316)	0.439*** (1.728)
Judicial quality (local and neighs.) int.: $z_i Q_c Q_c^N$	0.0474 (1.965)	-0.284** (2.769)	-0.353*** (2.785)	0.0918 (2.164)	-0.341*** (2.770)
Another Determinants of Comparative Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES
Observations	18,383	8,148	8,148	12,934	7,988

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Upstream or Downstream contracts?

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Upstream and Downstream Contract int.	(1)	(2)	(3)	(4)	(5)
Local Upstream interaction: $z_i Q_C$	0.112*** (0.495)	0.222*** (0.656)	0.232*** (0.714)	0.177*** (0.563)	0.256*** (0.709)
Local Downstream interaction: $Diff_i \times Q_C$	0.123*** (0.320)	0.00353 (0.442)	-0.00278 (0.459)	-0.0176 (0.393)	-0.0873** (0.471)
Neighbor's Upstream interaction: $z_i Q_C^N$	0.0940*** (0.636)	0.130*** (0.736)	0.151*** (0.832)	0.0964*** (0.676)	0.151*** (0.830)
Neighbor's Downstream interaction: $Diff_i \times Q_C^N$	0.103*** (0.412)	0.105*** (0.501)	0.158*** (0.540)	0.0731** (0.470)	0.159*** (0.551)
Another Determinants of Comparative Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES
Observations	18,041	8,766	8,058	12,799	7,899

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Common language: enhances effect

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Common “de facto” language	(1)	(2)	(3)	(4)	(5)
Neighbor's Judicial quality interaction: $z_i Q_c^N$	0.144*** (0.735)	0.129*** (0.913)	0.174*** (0.951)	0.0943*** (0.793)	0.156*** (0.973)
Judicial quality interaction: $z_i Q_c$	0.189*** (0.579)	0.298*** (0.904)	0.313*** (0.922)	0.151*** (0.688)	0.304*** (0.926)
Language Neighs. triple int.: $z_i Q_c^N Lang_c^N$	0.0335 (1.075)	0.154** (1.318)	0.156** (1.315)	0.101* (1.114)	0.168** (1.298)
Language Local triple int.: $z_i Q_c Lang_c^N$	0.0481 (0.866)	-0.162** (1.225)	-0.173*** (1.212)	0.0289 (0.962)	-0.196*** (1.214)
Another Determinants of Comparative Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES
Observations	18,383	8,148	8,148	12,934	7,988

Standardized beta coefficients are reported.

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Additional Channels and Heterogeneous effects

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- Incorporating institutional interactions of second grade neighbors.
 - Neighbors of neighbors, without common border with local country.
- Spatial autocorrelation of log of exports.
 - Controlling by log of exports of Neighbors.
 - Based in Bahar et al (2014) evidence.
- Simultaneous estimates (SUR) with two LHS.
 - log of exports to Neighbors and log of exports to the rest of world (ROW).

Neighbors of my neighbors: Q^{N2}

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LHS: natural log of exports i, c	(1)	(2)	(3)	(4)	(5)
Neighs. Judicial quality int: $z_i Q_c^N$	0.138*** (0.573)	0.227*** (0.886)	0.224*** (0.900)	0.114*** (0.659)	0.212*** (0.912)
2nd grd. Neighs. Judic. qua. int.: $z_i Q_c^{N2}$	0.0330* (0.503)	0.00771 (0.696)	0.0212 (0.708)	0.0171 (0.609)	0.0318 (0.742)
Local Judicial quality int.: $z_i Q_c$	0.198*** (0.398)	0.190*** (0.645)	0.205*** (0.657)	0.158*** (0.467)	0.194*** (0.685)
Other Dets. of Comp. Adv.	NO	NO	NO	YES	YES
Skill and Capital Int.	NO	NO	YES	NO	YES
Observations	17,946	7,592	7,592	12,502	7,432

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

“Spatial autocorr.” log exports of Neighbors as Control

LHS: natural log of exports i, c	(1)	(2)	(3)	(4)	(5)
Neighs. Judicial quality int.: $z_i e_c^N$	0.0529*** (0.673)	0.0529*** (0.772)	0.0650*** (0.847)	0.0542*** (0.744)	0.0605*** (0.863)
Local Judicial quality int.: $z_i Q_c$	0.229*** (0.383)	0.242*** (0.520)	0.268*** (0.577)	0.192*** (0.490)	0.226*** (0.597)
Log of exports of neighs. (sum): $\ln x_{ci}^N$	0.287*** (0.0128)	0.276*** (0.0181)	0.272*** (0.0183)	0.264*** (0.0155)	0.255*** (0.0179)
Other Dets. of Comp. Adv.	NO	NO	NO	YES	YES
Skill and Capital Int.	NO	NO	YES	NO	YES
Observations	9,099	4,517	4,517	6,345	4,517

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

SUR system: to Neighbors and to ROW

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SUR system	(1)		(2)		(3)	
	(Neighs.)	(ROW)	(Neighs.)	(ROW)	(Neighs.)	(ROW)
Neighs. Judicial quality int: $z_i Q_c^N$	0.132*** (0.666)	0.211*** (0.768)	0.115*** (0.625)	0.0592 (0.709)	0.139*** (0.709)	0.134** (0.811)
Judicial quality int.: $z_i Q_c$	0.189*** (0.585)	0.277*** (0.675)	0.131*** (0.535)	0.258*** (0.607)	0.164*** (0.615)	0.259*** (0.704)
Other Dets. of Comp. Adv.	NO		YES		YES	
Skill and Capital Int.	YES		NO		YES	
Observations	4,291	4,291	5,712	5,712	4,291	4,291

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Additional Robustness Tests

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- Results are robust to a lot of specifications and interactions.
 - Controlling by vertical integration variables. See [Here](#).
 - Effects in a Year-Industry-Country panel. See [Here](#).
 - Interaction with Black Market Premium. See [Here](#).
 - Interaction with Car Theft variable. See [Here](#).
 - Interpersonal Trust. See [Appendix](#).
 - Logistics Quality. See [Appendix](#).
- For more details see [Appendix](#)

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Instrumental Variables and 2SLS Estimation

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- Rule of law could be correlated through other channels to current exports.
 - Higher Return to better institutions for contract intensive goods.
- Instrumental variable for rule of law: legal origin.
 - British, french, german, scandinavian and socialist.
 - Following Nunn(2007).
 - **Local judicial quality**: instrumented by local legal origin (dummy).
 - Neighbor's judicial quality: instrumented by **average of neighbor's legal origin** (fraction).

Instrumental Variables and 2SLS Estimation

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Legal origin as instrument (2SLS):	(1)	(2)	(3)	(4)
Neighbor's Judicial quality interaction: $z_i Q_C^N$	0.291*** (0.617)	0.397*** (0.776)	0.464*** (0.900)	0.458*** (0.930)
Judicial quality interaction: $z_i Q_C$	0.129*** (0.857)	0.115*** (0.866)	0.169*** (0.955)	0.163*** (1.024)
Skill and Capital int.	NO	NO	YES	YES
Another Dets. of Comp. Adv.	NO	NO	NO	YES
F first stage (local)	4242.00	1797.79	674.98	654.78
F first stage (neighbors)	6327.95	12759.41	1323.41	850.85
Observations	18,383	8,148	8,148	7,988

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Propensity Score Matching 1

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- According “surprising neighboring institutions” e_c^N :
 - Under 0.1 and over -0.1 as treatment and control, respectively.
 - With common support.
 - See [High Correlation Between Local and Neighboring Slide](#).
- Matching variables:
 - Log of exports.
 - Log of revealed comparative advantage.
- Match variables:
 - Local rule of law.
 - Local rule of law and log of GDP.
 - Nunn’s variables: log of GDP per capita, trade openness, skill and capital stocks and credit/GDP.

Propensity Score Matching 2

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by log of exports ($\ln x_{ci}$)	(1)	(2)	(3)	(4)
<i>ATE</i> matching on domestic rule of law	1.122*** (0.172) 1,849	1.175*** (0.111) 4,158	1.480*** (0.127) 3,672	2.062*** (0.183) 1,931
<i>ATE</i> matching on domestic rule of law and log GDP	1.443*** (0.172) 1,747	1.458*** (0.112) 3,930	1.848*** (0.127) 3,447	2.546*** (0.184) 1,796
<i>ATE</i> matching on all covariates in Nunn (2007)	1.345*** (0.199) 1,196	1.535*** (0.127) 2,740	1.887*** (0.144) 2,402	2.468*** (0.221) 1,186
Contract intensity interval	[0;0.25]	(0.25;0.5]	(0.5;0.75]	(0.75;1]

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Propensity Score Matching 3

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by log of RCA ($\ln RCA_{ci}$)	(1)	(2)	(3)	(4)
<i>ATE</i> matching on domestic rule of law	0.0567 (0.114) 1,849	0.266*** (0.0748) 4,158	0.647*** (0.0761) 3,672	1.168*** (0.107) 1,931
<i>ATE</i> matching on domestic rule of law and log GDP	0.106 (0.116) 1,747	0.272*** (0.0758) 3,930	0.716*** (0.0770) 3,447	1.299*** (0.109) 1,796
<i>ATE</i> matching on all covariates in Nunn (2007)	0.0998 (0.135) 1,196	0.374*** (0.0853) 2,740	0.830*** (0.0835) 2,402	1.465*** (0.126) 1,186
Contract intensity interval	[0;0.25]	(0.25;0.5]	(0.5;0.75]	(0.75;1]

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

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Contry-Industry-Year Panel

$$\ln x_{ict} = \beta^N z_i Q_{ct}^N + \mu_{ic} + \mu_{ct} + \mu_{it} + \dots$$

	(1)	(2)	(3)	(4)	(5)
Neighs. Jud. qua. int.: $z_i Q_{ct}^N$	0.050*** (0.115)	0.112*** (0.961)	0.0697* (0.982)	0.128*** (1.022)	0.144** (1.830)
Judic. qua. int.: $z_i Q_{ct}$	0.196*** (0.107)	0.176*** (1.315)	0.101* (1.459)	0.173*** (1.442)	0.131*** (1.227)
Constant	YES	YES	YES	YES	YES
Single FE	YES	YES	YES	YES	YES
<u>Double FE</u>	NO	YES	YES	YES	YES
Observations	354,068	52,185	52,231	49,544	33,124
Years	95 to 14	95-03-11	97-05-13	98-06-14	95-11
R^2	0.650	0.926	0.927	0.935	0.950

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

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Concluding remarks

- Neighbors institutions matter for local comparative advantage.
 - Higher effects in contract intensive industries.
 - Access to good foreign suppliers in neighboring countries.
 - The more similar neighbor, the more relevant !
- Implications:
 - Inputs: access to suppliers with low enforcement costs.
 - Enforcing GVC w/ neighboring countries as “industrial policy”
 - Firm strategy and Opportunity for Multinationals.
 - Policy spillovers; B2B Arbitration across borders as complement.

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Controlling for Vertical Integration Variables

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- ① Industries with many inputs ($z_i Q_c l_i^{n_i > \bar{n}}$).
 - ① Industries with many inputs.
 - ② Skill endowment \times contract intensity.
 - ③ Capital endowment \times contract intensity.
 - ④ Log income \times contract intensity.
 - ⑤ Log credit/GDP \times contract intensity.

	(1)	(2)	(3)	(4)	(5)
Neighs. Judicial quality interaction: $z_i Q_c^N$	0.102*** (0.576)	0.236*** (0.802)	0.315*** (0.805)	0.225*** (0.747)	0.110*** (0.673)
Local Judicial quality interaction: $z_i Q_c$	0.132*** (0.462)	0.255*** (0.674)	0.164*** (0.751)	0.158*** (0.574)	0.202*** (0.550)
Industries with many inputs: $z_i Q_c I_i^{n_i > \bar{n}}$ and $z_i Q_c^N I_i^{n_i > \bar{n}}$	YES	NO	NO	NO	NO
Skill endowment \times contract intensity: $z_i H_c$ and $z_i H_c^N$	NO	YES	NO	NO	NO
Capital endowment \times contract intensity: $z_i K_c$ and $z_i K_c^N$	NO	NO	YES	NO	NO
Log income \times contract intensity: $z_i \ln(y_c)$ and $z_i \ln(y_c)^N$	NO	NO	NO	YES	NO
Log credit/GDP \times contract intensity: $z_i CR_c$ and $z_i CR_c^N$	NO	NO	NO	NO	YES
Observations	18,383	9,837	9,837	18,041	15,677

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Contry-Industry-Year Panel

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- Data is only for 1997.
 - Feasible, because institutional quality don't change significantly over time.
- But we need to verify if results persist over time.
 - Panel industry-country-year.
 - Single FE for all years.
 - Double FE
 - Only country variables and exports (LHS) varying over time.

Poor exchange rate policy

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- Interacting with local and neighbor's black market premium of exchange rate.
 - Using absolute value of premium for local and neighbors.
 - Eliminating outliers (3 countries with too high premium).
 - Using dummy over world average (B_c and B_c^N).
- Data Source: Global Development Network Growth Database, The World Bank.

	(1)	(2)	(3)	(4)	(5)
Neigh. Judic. qua. int: $z_i Q_C^N$	0.205*** (0.703)	0.252*** (0.928)	0.268*** (0.945)	0.206*** (0.753)	0.263*** (0.983)
Local. Judic. qua. int: $z_i Q_C$	0.211*** (0.574)	0.169*** (0.834)	0.209*** (0.842)	0.168*** (0.639)	0.181*** (0.860)
Neigh. Neigh. BMP. triple int.: $z_i Q_C^N B_C^N$	0.0777*	-1.771***	-2.060***	0.114*	-2.189***
Local Local BMP triple int.: $z_i Q_C B_C$	-0.0880	-0.944***	-1.041***	-0.106	-1.013***
Local Neigh. BMP triple int.: $z_i Q_C B_C^N$	-0.0307	1.135***	1.230***	-0.161*	1.283***
Neigh. Local BMP triple int.: $z_i Q_C^N B_C$	-0.134	1.549***	1.692***	-0.113	1.659***
Factor endowments	NO	NO	YES	NO	YES
Dets. of Comp. Advantage	NO	NO	NO	YES	YES
Fixed effects	YES	YES	YES	YES	YES
Observations	18,383	8,148	8,148	12,934	7,988

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Car Theft

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- Logistic insecurity could be worse institutional weakness.
 - For local and neighboring countries.
- Use rate of theft of motor vehicles of 2007 from UNODC.
 - Dummy over world average.

Private car theft (dummy up to mean)	(1)	(2)	(3)	(4)	(5)
Neighbor's Judicial quality interaction: $z_i Q_c^N$	0.128* (1.702)	0.180 (3.774)	0.187 (3.808)	0.159* (1.977)	0.203 (3.870)
Judicial quality interaction: $z_i Q_c$	0.331*** (0.854)	0.375*** (1.903)	0.412*** (1.933)	0.324*** (1.043)	0.381*** (1.944)
Car theft Neighbor's triple int.: $z_i Q_c^N gta_c^N$	-0.188*** (1.356)	-0.246** (1.605)	-0.250*** (1.594)	-0.138** (1.366)	-0.246** (1.596)
Car theft Local triple int.: $z_i Q_c gta_c^N$	-0.119** (1.055)	-0.375*** (1.438)	-0.423*** (1.434)	-0.206*** (1.250)	-0.418*** (1.448)
Car theft Neighbor's triple int.: $z_i Q_c^N gta_c$	-0.208*** (0.994)	-0.186 (2.209)	-0.210 (2.223)	-0.220*** (1.230)	-0.204 (2.229)
Car theft Local triple int.: $z_i Q_c gta_c$	0.0491 (1.815)	-0.00365 (3.971)	0.0166 (3.997)	-0.0506 (2.122)	-0.0154 (4.036)
Observations	18,383	8,148	8,148	12,934	7,988
Another Determinants of Comparative Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Interpersonal Trust

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- Using interpersonal trust (share trusting by country and neighbors).
- From World Values Survey.
 - Horse race: Institutional interactions vs trust interactions (z_i interacted with trust).

Horse race: With Share of trusters	(1)	(2)	(3)	(4)	(5)
Neighbor's Judicial quality interaction: $z_i Q_C^N$	0.159*** (0.601)	0.128*** (0.751)	0.181*** (0.840)	0.142*** (0.670)	0.179 (0.860)
Judicial quality interaction: $z_i Q_C$	0.203*** (0.543)	0.212*** (0.758)	0.217*** (0.809)	0.151*** (0.610)	0.186 (0.815)
Neighbor's trust interaction: $z_i t_C^N$	0.0372* (0.0916)	0.152*** (0.139)	0.137*** (0.144)	0.0563** (0.111)	0.138 (0.146)
Local trust interaction: $z_i t_C$	0.0172 (0.0783)	-0.0149 (0.106)	-0.00396 (0.108)	0.0190 (0.0838)	0.00268 (0.108)
Observations	15,780	7,918	7,918	11,531	7,758
Another Determinants of Comparative Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.

Logistics Quality

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- Using Logistics Performance Index (LPI).
 - As measurement of transport infrastructure quality.
- From World Bank.
 - Interaction with dummies over world average.

Interacting with LPI	(1)	(2)	(3)	(4)	(5)
Neighbor's Judicial quality interaction: $z_i Q_c^N$	0.00531 (1.285)	0.0917 (2.941)	0.163 (3.017)	-0.0765 (1.536)	0.0936 (3.206)
Judicial quality interaction: $z_i Q_c$	0.0167 (0.946)	-0.118 (1.778)	-0.0995 (1.786)	-0.0839 (1.057)	-0.117 (1.790)
Neighs. Infrastructure-Neighs. triple int.: $z_i Q_c^N tr_c^N$	0.303*** (1.589)	0.378* (3.387)	0.351 (3.430)	0.422*** (1.832)	0.426* (3.574)
Local Infrastructure-Neighs. triple int.: $z_i Q_c^N tr_c$	-0.186*** (1.242)	-0.344*** (1.834)	-0.371*** (1.849)	-0.229*** (1.376)	-0.364*** (1.847)
Neighs. Infrastructure-Local triple int.: $z_i Q_c tr_c^N$	-0.141*** (0.845)	-0.195** (1.338)	-0.178** (1.324)	-0.122** (0.982)	-0.211** (1.343)
Local Infrastructure-Local triple int.: $z_i Q_c tr_c$	0.390*** (1.042)	0.604*** (1.985)	0.594*** (1.991)	0.463*** (1.250)	0.623*** (2.016)
Observations	18,383	8,148	8,148	12,934	7,988
Another Determinants of Comparative Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES

Standardized beta coefficients are reported.

Also, *, ** and *** indicate significance at 10%, 5% and 1% respectively.