

# NEIGHBORING INSTITUTIONS MATTER FOR THE COMPETITIVENESS OF YOUR VALUE CHAIN.<sup>1</sup>

**Rodrigo Wagner<sup>2</sup> and Rodrigo Miranda<sup>3</sup>**

**PRELIMINARY AND INCOMPLETE VERSION AS OF MARCH 1<sup>ST</sup>, 2016**

## **Abstract**

There is broad consensus among economists, legal and business scholars that the ability to enforce contracts matter for the productivity of a country, in part because it helps to credibly link together the portions of a value chain. But sometimes the natural size of the market for nearby procurement and customers in Business-to-Business relations is larger than the size of a country. If that is the case the ability to sign credible contracts with another firm in nearby countries could be important for competitiveness. In this paper we summarize recent academic evidence on how neighbors' institutions matter for comparative advantage, especially in products that require more customized inputs. We later map a space of policies that firms and countries may use to mitigate the effect of a poor contractual environment among neighbors.

**Keywords:** Make-vs.-buy, relationship specific investments, incomplete contracts, supply chain disruptions.

**JEL Classification:** D23; D51; F11; L14; O11

---

<sup>1</sup> Preliminary Version for presentation in the Global Value Chain Conference in Beijing , March 17-18 2016. The authors are indebted with Juan Blyde for extremely valuable comments. Section 2 of this paper heavily draws on previous work (Miranda and Wagner, 2015). This project received support from the Inter American Development Bank – Integration and Trade Division. All opinions, errors and omissions are only authors' responsibility.

Corresponding Email Rodrigo\_Wagner [at] post.harvard.edu

<sup>2</sup> University of Chile Business School and Center for International Development.

<sup>3</sup> University of Chile.

## 1. INTRODUCTION

In a context of global value chains dominating world trade any barrier that distortions offshoring and outsourcing could make a potential damage for the local comparative advantage pattern; a 100% local supply chain may not be optimal to improve competitiveness in some industries, this is because some neighboring country supplier could have a comparative advantage in providing some inputs.

In this paper we explore the challenge when there cannot be proper contract enforcement between firms located in two neighboring countries, for example, because of the weak rule of law in that neighboring nation.

The global sourcing of suppliers could change according the type of inputs required by each industry. When looking at standardized inputs companies search lower cost suppliers and tend to care less about disruptions, because they can find many substitute suppliers. In short, there is a market enforcement mechanism. However, for some critical, differentiated and customized inputs firms care much more about the ability of sustaining an enforceable contract with suppliers. For example when Boeing outsources the Boeing 747 engines to a third company, there is various types of mutual holdup. It can also be a challenge when some infrastructure that the company does not control can limits trade between few actors, like in gas pipelines.

For differentiated supply chains, market enforcement mechanisms are not available because is hard to get substitutes at least in the short term, and requires legal security to enforce contracts. Advanced economies have a good institutional framework (rule of law) to contract enforcement, but for developing countries contract enforcement institutions are weak. Therefore a differentiated input is hard to outsource to a developing country, despite lower production costs, because is hard to enforce contracts and the possibility of disruptions is higher.

Suppliers that are geographically proximate, even if in neighboring countries, could be important for some differentiated inputs. This is what is called *nearsourcing*.

As illustration Laursone and Domeij (2012) show how Swedish companies outsource standardized inputs to China or India because low labor costs. Nonetheless, differentiated inputs were outsourced to Eastern Europe for arguably various reasons: (i) logistic and obsolescence, since it is easier to update inputs manufactured in nearby countries; (ii) cultural and linguistic proximity, because this relationship is management intensive, and headquarters must set up input characteristics; (iii) ease to visit and monitor the company that is manufacturing these critical inputs.<sup>4</sup>

The natural candidates to establish outsourcing relationship in differentiated inputs are neighboring countries. In particular, Miranda and Wagner (2015) show that besides own country's institutions, neighboring countries' institutions also matter for comparative advantage in these industries that require more customized inputs. In other words, the building of a trustable<sup>5</sup> regional supply chain for differentiated inputs could be key for the success of these industries.

The challenge for a country, though, is how to deal with neighboring institutional problems, because this issue is in fact a matter of another sovereign state. Despite this difference with standard policy making, in this paper we show that there is a relevant policy space to potentially reduce the problems of neighbors with weak rule of law.

The rest of the paper is structured as follows. Section 2 summarizes recent empirical evidence by Miranda and Wagner (2015) showing how neighbors institutions matter for comparative advantage. Section 3 extends the previous results showing some heterogeneity across regions of the world regarding the sensitivity to bordering country's institutions, especially benchmarking Asia and Latina America. Section 4 discusses the policy space,

---

<sup>4</sup> Lerner (2009) remarks the relevance of distance for Venture Capital investments, in the sense that Venture Capital firms have to frequently visit companies to monitor and add value to the process.

<sup>5</sup> With an appropriate contract enforcement environment.

exploring examples of different strategies for dealing with neighbors that have weak institutions, both from the point of view of the firms and from the point of view of a country's policy. Section 5 ends by remarking some conclusions.

## 2. GVC AND NEIGHBORING COUNTRIES' INSTITUTIONS: SUMMARIZING EMPIRICAL EVIDENCE

This section summarizes empirical evidence regarding how neighboring institutions could matter for a global value chain (GVC). In particular, it shows that neighboring institutions may impact more the efficiency of business-to-business linkages in industries that tend to be more intensive in contracts.

As a general observation, firms in Latin America are relatively less connected to GVCs, (Blyde, 2014); with fewer offshoring links respect to firms of North America, Europe and East Asia. Of course, only a part of this phenomenon is because institutions, since basic gravity factors like population, per-capita income and distance to world markets can also rationalize part of the low participation of Latin America on GVCs.

As pointed out by various authors, the contractual environment *within* a country would also be useful for getting more productive business to business (B2B) relations and therefore more efficient value chains. See for example Nunn (2007), Levchenko (2007) and Cowan and Neut (2007), among others.

These authors have used two types of measures to define whether an industrial sector is especially sensitive to contracts. Nunn (2007) focuses on the share of inputs of an industry that are differentiated. This is implemented using the input-output matrix of a sector and identifying which sectors tend to have more inputs that are traded on a bilateral B2B relation as opposed to an input that can be bought in an arms' length transaction in a formal exchange. The distinction among different goods comes from the classification by Rauch (1999) according to whether inputs are traded in open markets, with referenced prices or

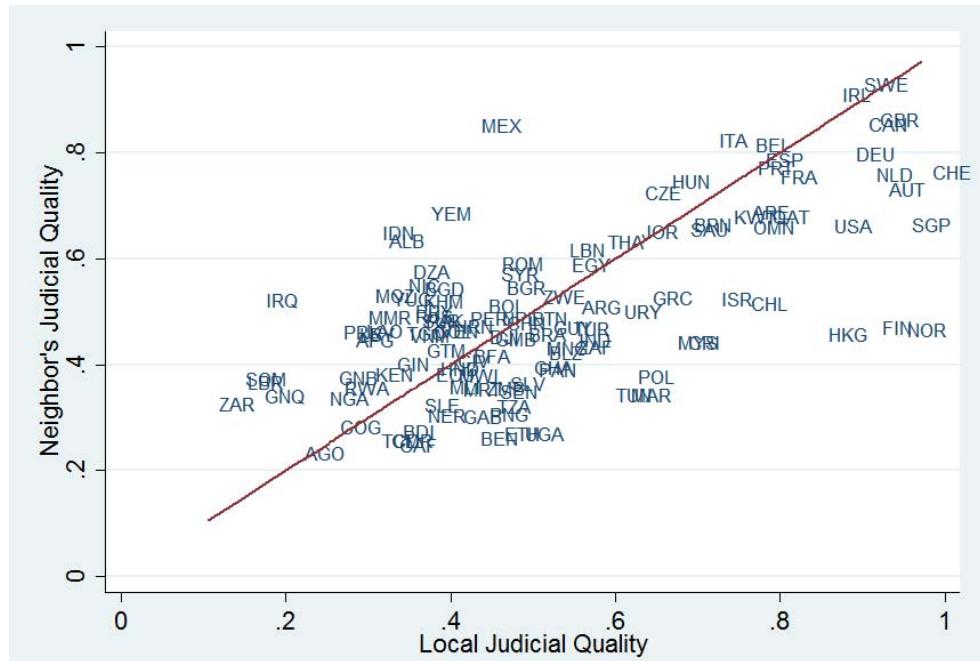
none of the above. Usually the last case is interpreted as a specific B2B transaction. For example for the manufacturing of Boeing's 747 passenger aircrafts, the firm uses reaction engines, not available in open markets and without reference prices established by its manufacturers like Rolls Royce or General Electric; the price, quantity and especially the characteristics are determined in a usually incomplete negotiation between Boeing and the engine supplier, because the engine is a differentiated good adapted to the model of aircraft. In the language of Williamson (1975), there is fundamental transformation that creates a specific relationship.

On top of the above channel, Miranda and Wagner (2015) show that neighbors' institutions could also matter, over and above the effect of own country institutions described before. These authors follow the original work by Nunn (2007), but include also the role of neighboring countries' institutions, which were previously neglected from the analysis.

Before jumping to the econometric evidence it is instructive to see that own and neighbors' institutions are related, but they can have meaningful differences. Figure 1 displays on the horizontal axis the local "rule of law" indicator in 1998 for each country according to Nunn (2007); while in the vertical axis of the graph it plots the rule of law of the same country's neighbors, in this case the neighbors are weighted by GDP. And in the vertical axis the neighboring (weighted average by GDP, for example for Chile, the neighboring rule of law is the average of rule of law of Argentina, Bolivia and Peru weighted by their respective GDP) rule of law for 1998. The red line is a 45 degree line signaling equality between the institutional quality in a country and in that country's neighbors. In fact the most of countries are near the 45 degree line, but there is variation. Some countries lie below the line, for example Honk Kong (HKG), Singapore (SGP), Norway (NOR), Finland (FIN), Israel (ISR) and Chile (CHL). These are countries that have neighbors with weaker rule of law than their own.

We will argue this could constitute a weak link for value chains when some of the components of a productive process could be outsourced to nearby locations.

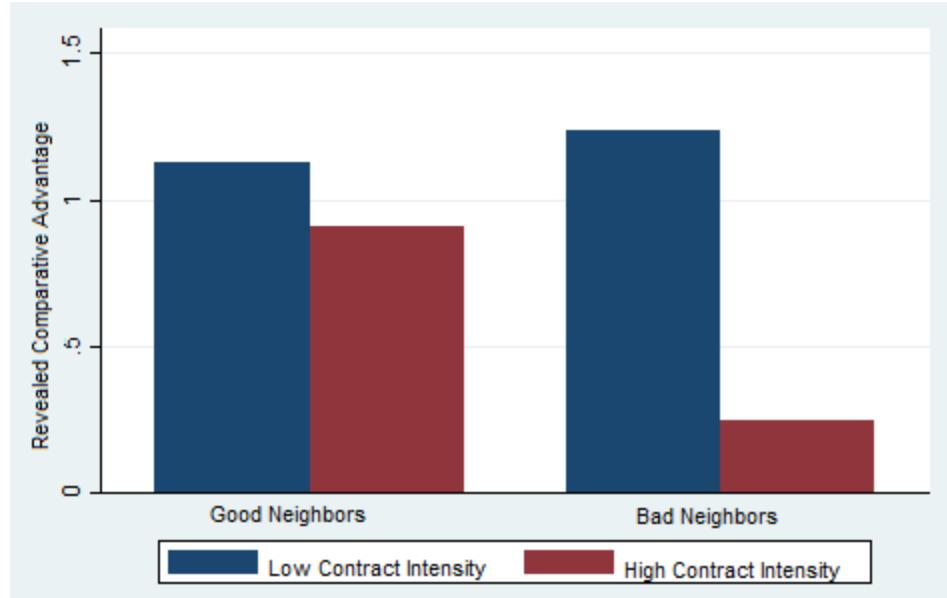
*Figure 1. Judicial quality (rule of law) – local countries and neighbors*



Notes: Figure from Miranda and Wagner (2015) on local and neighboring countries. The countries displayed in the graph are countries with neighbors with common land border. The red line represents a 45 degree line. The rule of law index are from 1998 World Governance Indicators, using Nunn (2007) data and CEPPII's GeoDist. Rule of law index of neighbors consists in a weighted average by GDP of common land border neighboring countries. The rule of law index, in raw data, is normalized between 0 to 1.

Using both local and neighbors' institutions Miranda and Wagner (2015) make the following econometric exercise. They calculate the average revealed comparative advantage by countries and industries, separating between high contract intensive industries (high share of differentiated inputs) and low contract intensive industries, and between countries with neighbors with high rule of law (as measure of contract institutional quality) and low rule of law. They do that with and without controlling by local institutional effects. In that exercise, displayed on Figure 2, having neighbors with weak contract enforcement negatively impacts exports in contract intensive industries.

*Figure 2. Average Revealed Comparative Advantage across industries and countries, controlling by local institutional effects*



Notes: data from Miranda and Wagner (2015), based in Nunn (2007) dataset and CEPPI's GeoDist dataset. The graph defines good neighbors if the neighboring rule of law (in weighted average by GDP) is equal or more than 0.75, and weak neighbors if the neighboring rule of law (also in weighted average by GDP) is equal or less than 0.25. Low contract intensity industries are which there share of differentiated inputs (classified as not traded in open markets or with references prices, according Rauch, 1999) is equal or less than 20%, and High contract intensity industries are which there share of differentiated inputs is equal or more than 80%. They are controlling by local institutional effects, using the residuals of the regression  $\ln rca_{ci} = \alpha + \beta z_i Q_c + \varepsilon_{ci}$  (where  $rca_{ci}$  is the revealed comparative advantage of industry  $i$  in country  $c$ ), as the share of revealed comparative advantage not explained by local judicial quality interaction (local rule of law interacting by contract intensity of industry), because these residuals are orthogonal to local judicial quality interaction. This is a consequence of OLS estimation.

Subsequently, that same paper makes use of more econometric tests in a country-industry panel estimation. They explain the exports of each industry in each country on a many covariates, but also including the interaction between the share of differentiated inputs in an industry with the rule of law of both its own country and the neighboring country. The results remained robust and significant, even after controlling for another sources of comparative advantage like human and physical capital, intra-industry trade, value added, productivity, access to finance and input concentration. Importantly, all results include country and industry fixed effects, so the variation comes from within a country and within

an industry. Table 1 displays the main econometric results of Miranda and Wagner (2015), remarking that industries with a higher share of differentiated inputs (more complex inputs) tend to be more sensitive to the institutions' in neighboring countries. They find an economically and statistically significant effect of neighboring institutions.

*Table 1: Summary of Miranda and Wagner (2015)'s main results*

Variable	Log of exports from country $c$ in industry $i$				
	(1)	(2)	(3)	(4)	(5)
Neighbor's Judicial quality ×	0.159***	0.206***	0.252***	0.140***	0.244***
Contract intensity ( $\mathbf{z}_i \mathbf{Q}_c^N$ )	(0.494)	(0.621)	(0.675)	(0.559)	(0.708)
Local Judicial quality ×	0.200***	0.212***	0.220***	0.161***	0.196***
Contract intensity ( $\mathbf{z}_i \mathbf{Q}_c$ )	(0.395)	(0.558)	(0.605)	(0.469)	(0.612)
Another Determinants of Comparative Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES
Constant	YES	YES	YES	YES	YES
Fixed effects (Country and Industry)	YES	YES	YES	YES	YES
Observations	18,383	8,148	8,148	12,934	7,988
<b>R<sup>2</sup></b>	0.736	0.770	0.772	0.776	0.774

Note: Dependent variable is  $\ln x_{ic}$  (natural log of exports in industry  $i$  by country  $c$  to all other countries). Standardized beta coefficients are reported, with robust standard errors in brackets. Also, \*, \*\* and \*\*\* indicate significance at 10%, 5% and 1% respectively. The estimated equation is  $\ln x_{ci} = \alpha_c + \alpha_i + \beta z_i Q_c + \beta^N z_i Q_c^N + \gamma X_{ci} + \gamma^N X_{ci}^N + \varepsilon_{ci}$ , with  $X_{ci}$  as a vector that includes another determinants of comp. adv. and skill and capital interaction for local country and neighbors (with superscript  $N$ ). All variables, excepting fixed effects, are interactions between at least one industry level variable and at least one country level variable. All neighboring variables (with superscript  $N$ ) consists in interactions with country level variables but referred to neighboring countries of country  $c$ , measured as a weighted average by neighbor's GDP. More details in appendix.

In terms of magnitudes, Miranda and Wagner (2015) find that local institutions explains more or less the same amount of variation that the sum of physical and human capital. This is different from the conclusions of Nunn (2007), since that analysis omitted the role of neighboring institutions and these institutions are correlated with local ones. More relevant for our purpose, neighboring institutional effects can be a relevant force, as shown in Table 2.

*Table 2: Economic Significance of coefficients*

Nunn (2007) results			Miranda and Wagner (2015) results		
Ranking	Variable	(1)	Ranking	Variable	(2)
1st	Intra-Industry Trade	0.546***	1st	Intra-Industry Trade	0.631***
2nd	Input Concentrations	0.522***	2nd	Input Concentrations	0.603***
3rd	Judicial Quality Int.	0.296***	3rd	Neighs Judicial Quality Int.	0.244***
4th	Value add Int.	-0.137**	4 <sup>th</sup>	Judicial Quality Int.	0.196***
5th	Capital Int.	0.0737*	5 <sup>th</sup>	Value add Int.	-0.192
6th	Skill Int.	0.0631***	6 <sup>th</sup>	Skill Int.: h i × H c	0.115***
7th	Log of credit banks	0.0210	7 <sup>th</sup>	Capital Int.	0.104*
	Int.				

Note: Dependent variable is  $\ln x_{ic}$  (natural log of exports in industry  $i$  by country  $c$  to all other countries). Standardized beta coefficients are reported, with robust standard errors in brackets. Also, \*, \*\* and \*\*\* indicate significance at 10%, 5% and 1% respectively. The estimated equation is  $\ln x_{ci} = \alpha_c + \alpha_i + \beta z_i Q_c + \beta^N z_i Q_c^N + \gamma X_{ci} + \gamma^N X_{ci}^N + \varepsilon_{ci}$ , with  $X_{ci}$  as a vector that includes another dets. of comp. adv. and skill and capital interaction for local country and neighbors (this with supraindex  $N$ ), therefore is the most complete specification. All variables, excepting fixed effects, are interactions between at least one industry level variable and at least one country level variable. All neighboring variables (with supraindex  $N$ ) consists in interactions with country level variables but referred to neighboring countries of country  $c$ , measured as a weighted average by neighbor's GDP. The ranking is based in the size, in absolute value, of standardized coefficient, don't considering if the variable is statistically significant. More details in appendix.

Miranda and Wagner (2015) explore a series of analysis trying to disentangle the channels that make neighbors' institutions more relevant. The analysis suggests that if countries share a common language and common colonial history then these countries should be doing more business together in these contract-intensive sectors; but precisely in that context the fact of having neighbors with weak institutions appears even more binding for

business, since otherwise firms would be connecting each other in a much more frequent and fertile way. In short the more similar the countries, then the more scope for “*nearsourcing*”, meaning outsourcing of tasks to nearby countries or regions. In fact, Table 3 shows that a high share of neighbors with common colonial history amplifies the coefficient of neighbors institutions. It also reduces, in relative terms, the estimate for local institutional effects.

*Table 3: Interacting with  $Col^N$  (common colonial history)*

Variable	Log of exports from country $c$ in industry $i$				
	(1)	(2)	(3)	(4)	(5)
Neighbor's Judicial quality $\times$ Contract intensity ( $\mathbf{z}_i \mathbf{Q}_c^N$ )	0.0439 (1.430)	0.0642 (1.380)	0.0732 (1.383)	0.0566 (1.356)	0.0686 (1.390)
Local Judicial quality $\times$ Contract intensity ( $\mathbf{z}_i \mathbf{Q}_c$ )	0.477*** (1.489)	0.484*** (1.860)	0.496*** (1.862)	0.375*** (1.490)	0.487*** (1.851)
$Col^N \times$ Contract intensity	0.180** (1.039)	0.150 (1.396)	0.113 (1.402)	0.149** (1.044)	0.133 (1.403)
$Col^N \times$ Neighbor's Judicial quality $\times$ Contract intensity	0.129** (1.570)	0.173** (1.600)	0.222*** (1.596)	0.0937 (1.509)	0.216*** (1.574)
$Col^N \times$ Local Judicial quality $\times$ Contract intensity	-0.295*** (1.580)	-0.303*** (1.989)	-0.308*** (1.982)	-0.229*** (1.587)	-0.323*** (1.961)
Other Det of Comp Adv.	NO	NO	NO	YES	YES
Skill and Capital Interaction	NO	NO	YES	NO	YES
Constant	YES	YES	YES	YES	YES
Fixed Effects	YES	YES	YES	YES	YES

Observations	18,383	8,148	8,148	12,934	7,988
<b>R<sup>2</sup></b>	0.736	0.770	0.773	0.776	0.774

Note: Dependent variable is  $\ln x_{ic}$  (natural log of exports in industry  $i$  by country  $c$  to all other countries). Standardized beta coefficients are reported, with robust standard errors in brackets. Also, \*, \*\* and \*\*\* indicate significance at 10%, 5% and 1% respectively. The estimated equation is  $\ln x_{ci} = \alpha_c + \alpha_i + \beta z_i Q_c + \beta^N z_i Q_c^N + \rho z_i Col^N + \delta Col^N z_i Q_c + \delta^N Col^N z_i Q_c^N + \gamma X_{ci} + \gamma^N X_{ci}^N + \varepsilon_{ci}$ , with  $X_{ci}$  as a vector that includes another dets. of comp. adv. and skill and capital interaction for local country and neighbors (this with supraindex N). Also,  $Col^N$  represents the share of neighboring GDP with common colonial history with local country  $c$ , and it is available in CEPII's GeoDist database. All variables, excepting fixed effects, are interactions between at least one industry level variable and at least one country level variable. All neighboring variables (with supraindex N) consists in interactions with country level variables but referred to neighboring countries of country  $c$ , measured as a weighted average by neighbor's GDP. The ranking is based in the size, in absolute value, of standardized coefficient, don't considering if the variable is statistically significant. More details in Miranda and Wagner (2015).

Various tests show that the results by Miranda and Wagner (2015) remain robust after testing for many economic and econometric concerns like: correlation between local and neighboring institutions, upstream-ness of the sector and endogeneity of rule of law and exports.

In sum, there seems to be a systematic relationship between what a country produces and the ability of its neighbors to enforce contracts.

Note that the empirical analysis above focuses mostly on the lack of contract enforcement upstream, since it uses sectors that have contract-intensive procurement, so they are sensitive to suppliers with poor contract enforcement. Additionally, some tests show that downstream contract enforcement could also be important, this happens in sectors where the output is more contract intensive, for example because one needs to make a customization of the product before selling it, which requires certainty.

The next section extends some results of the original paper by Miranda and Wagner (2015), exploring the potential heterogeneity of results across world regions.

### 3. COMPARISONS ACROSS REGIONS OF THE WORLD

In this section we explore the differences on neighbor's institutional effects by regions of the world. We use the same definition of region as the World Bank in the World Governance Indicators, our main source of judicial quality measurement (1998 rule of law index). See also Appendix

An initial exercise is to establish the neighborhoods with stronger and weaker institutions. Unsurprisingly, Table 4 shows how relatively more advanced regions (North America and Europe & Central Asia) tend to have stronger institutions. But we know from Figure 1 that there is a high correlation between local and neighboring judicial quality. To avoid a confounding effect, we calculate the "surprising" neighbor's judicial quality, which consists of the residual of the linear regression between neighboring judicial quality and local judicial quality (so, all correlation is attributed to local institutions). This analysis in the second column of confirms that the neighborhoods with better contract enforcement are also located in advanced economic regions. In sum, rich countries also tend to have neighbors with better contractual environment.

*Table 4: Judicial Quality by Region*

Region	Mean Judicial Quality	Surprising Neighs. Judicial Quality
North America	0.875	0.0645
Europe & Central Asia	0.722	0.0691
Middle East & North Africa	0.593	0.0390
East Asia & Pacific	0.591	0.0046
Latin America & Caribbean	0.475	-0.0058
South Asia	0.421	0.0215
Sub-Saharan Africa	0.378	-0.0763

Notes: data from Miranda and Wagner (2015). Each number of second row represents the mean of local judicial quality, measured as normalized (between 0 to 1) rule of law index for 1998, of countries by each region. Each number of third row represents the mean of surprising neighboring judicial quality, measured as the residual of the regression between neighboring and local normalized rule of law (we call it as surprising because is orthogonal to local rule of law, and all correlation between local and neighboring rule of law is attributed to local rule of law). The countries that belongs to each region are showed in appendix. The countries considered are all available in Nunn (2007) dataset, no matter if they have common land border neighbors or not. More details in appendix.

Not only the neighborhoods are different across regions, but we also find that the effect of neighbors' institutions on own comparative advantage seems to be heterogeneous too.

Tables 5 and 6 display the same main regressions we had in the previous section but now estimated separately for each region. The difference between the two is that while Table 5 uses neighbors' institutions as right hand side variable, Table 6 uses the surprising part of neighbors' institutions, namely the part that is orthogonal to own country institutions.

In most regions the point estimate of interest, namely the interaction of neighbors' institutions with contract sensitivity of the product, cannot be statistically separated from zero. This could be because of the small sample size in each block. One relevant exception would be Latin America on column (3), which has a positive and statistically significant effect as in the results for the whole sample of countries in the previous Section. In other words, the estimated coefficient shows that in Latin America countries with weak neighboring institutions tend to be particularly poor at producing goods that require firm-specific inputs. Since most of the Region speaks a similar language than their neighbors, this is consistent with the view that the more culturally similar is your neighbor, the more binding could be the lack of a proper institutional setting in specialized industries.

The qualitative picture we get from Table 5 remains robust to the concern about co-linearity between own and neighbors' country institutions, as can be observed from Table 6.

Table 5: Institutional effects

Variable	Dependent Variable: Log of exports from country $c$ in industry $i$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	East	Europe &	Latin	Mid. East	North	South Asia	Sub-
	Asia &	Central	America &	& North	America		Saharan
Variable	Pacific	Asia	Caribbean	Africa			Africa
Neighbor's Judicial quality	0.0190	0.129	0.537***	-6.925***	0.239	-0.0362	-0.0997
× Contract intensity	(3.163)	(0.972)	(1.404)	(33.73)	(3.680)	(20.79)	(5.670)
Local Judicial quality ×	0.315***	0.648***	0.0425	-1.290***	0.250	-0.0335	0.0390
Contract intensity	(1.206)	(1.156)	(1.462)	(7.958)	(4.029)	(9.666)	(4.570)
Sample size	809	2,718	2,380	473	362	471	775

Note: Dependent variable is  $\ln x_{ic}$  (natural log of exports in industry  $i$  by country  $c$  to all other countries). Standardized beta coefficients are reported, with robust standard errors in brackets. Also, \*, \*\* and \*\*\* indicate significance at 10%, 5% and 1% respectively. The estimated equation is  $\ln x_{cl} = \alpha_c + \alpha_i + \beta z_i Q_c + \beta^N z_i Q_c^N + \gamma X_{cl} + \gamma^N X_{cl}^N + \epsilon_{cl}$ , with  $X_{cl}$  as a vector that includes another dets. of comp. adv. and skill and capital interaction for local country and neighbors. All variables, excepting fixed effects, are interactions between at least one industry level variable and at least one country level variable. All neighboring variables consists in interactions with country level variables but referred to neighboring countries of country  $c$ , measured as a weighted average by neighbor's GDP. The ranking is based in the size, in absolute value, of standardized coefficient, don't considering if the variable is statistically significant. Each estimation is by region and with the most complete specification, defined in the appendix. More details in the appendix.

Table 6: Institutional Effects using Surprising Neighboring Institutions

Variable	Log of exports from country $c$ in industry $i$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	East Asia	Europe &	Latin	Mid. East	North	South	Sub-
	& Pacific	Central Asia	America &	& North	America	Asia	Saharan
Variable		Caribbean	Africa				Africa
Neighbor's Judicial quality	0.0109	0.0575	0.291***	-2.423***	0.0596	-0.0142	-0.0378
× Contract intensity	(3.163)	(0.972)	(1.404)	(33.73)	(3.400)	(20.79)	(5.670)
Local Judicial quality ×	0.327***	0.716***	0.306***	-5.205***	0.464**	-0.0508	-0.0149
Contract intensity	(1.938)	(1.085)	(1.631)	(23.95)	(2.082)	(19.05)	(3.231)
Sample size	809	2,718	2,380	473	362	471	775

Note: Dependent variable is  $\ln x_{ic}$  (natural log of exports in industry  $i$  by country  $c$  to all other countries). Standardized beta coefficients are reported, with robust standard errors in brackets. Also, \*, \*\* and \*\*\* indicate significance at 10%, 5% and 1% respectively. The estimated equation is  $\ln x_{cl} = \alpha_c + \alpha_i + \beta z_i Q_c + \beta^N z_i Q_c^N + \gamma X_{cl} + \gamma^N X_{cl}^N + \epsilon_{cl}$ , with  $X_{cl}$  as a vector that includes another dets. of comp. adv. and skill and capital interaction for local country and neighbors. All variables, excepting fixed effects, are interactions between at least one industry level variable and at least one country level variable. All neighboring variables (with supraindex N) consists in interactions with country level variables but referred to neighboring countries of country  $c$ , measured as a weighted average by neighbor's GDP. The ranking is based in the size, in absolute value, of standardized coefficient, don't considering if the variable is statistically significant. Each estimation is by region and with the most complete specification, defined in the appendix. More details in appendix.

In the previous analysis one may end up with too few observations in each region, which tends to explain why the coefficient for  $Q^N z$  is imprecisely estimated in most of the regressions. That is why, in an additional analysis we also interact local and neighboring institutional effects with a dummy by region. This allows us to have a larger sample size and a meaningful test of how a particular region is different from the rest of the world. Results on Table 5 show again that neighboring institutional effects are more important for Latin America and Caribbean region. It also shows positive effects for South Asia. We are still unsure why the coefficient for the Middle East is negative; but maybe it is because the neighbor with relatively stronger rule of law is Israel, or other countries with other barriers to nearsourcing.

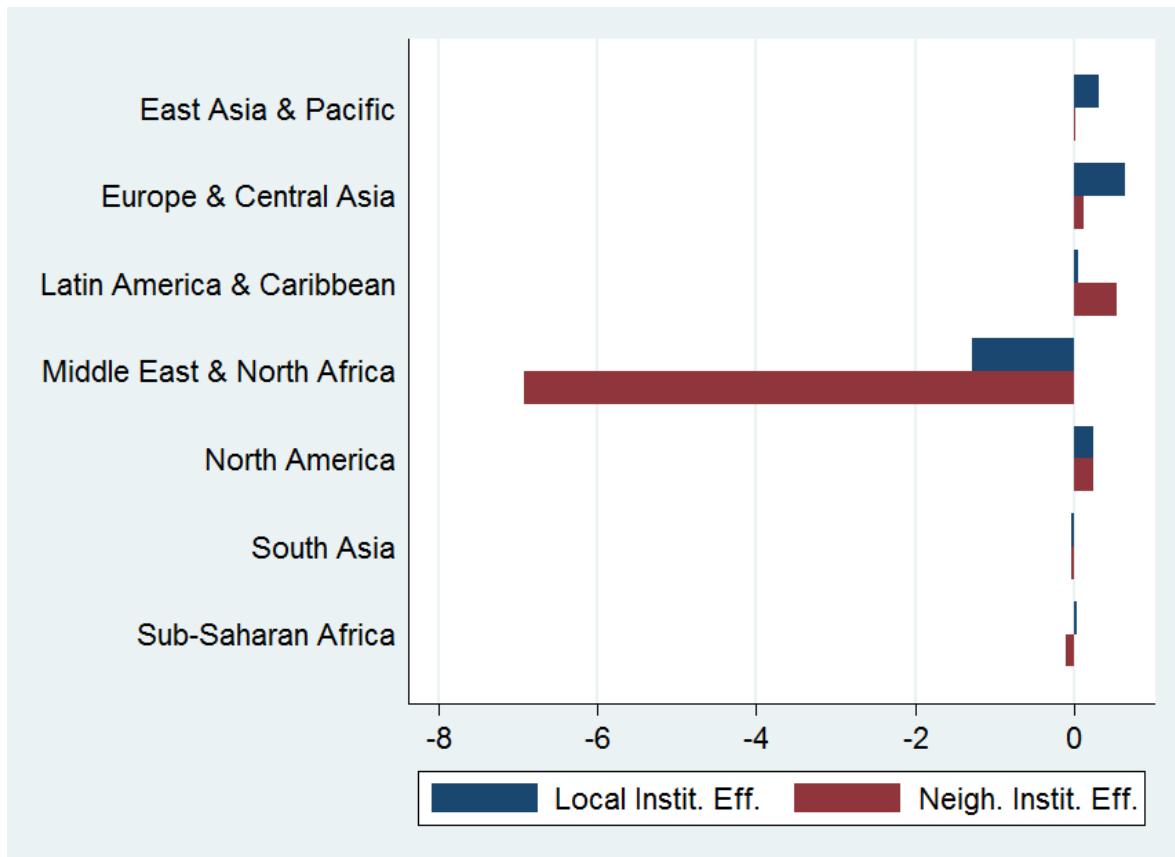
*Table 5: Regional Comparison of Institutional effects coefficients*

Interaction Between	Neighbor's Judicial quality × Contract intensity	Local Judicial quality × Contract intensity
East Asia & Pacific	0.108** (1.637)	0.215*** (1.187)
Europe & Central Asia	0.161*** (0.891)	0.363*** (0.929)
Latin America & Caribbean	0.363*** (1.143)	-0.0849* (1.198)
Middle East & North Africa	-0.181** (3.506)	0.351*** (3.179)
North America	-0.150* (3.415)	0.376*** (2.969)
South Asia	0.205*** (3.383)	-0.0171 (3.329)
Sub-Saharan Africa	0.187* (4.725)	-0.0209 (4.271)

Note: Dependent variable is  $\ln x_{ic}$  (natural log of exports in industry  $i$  by country  $c$  to all other countries). Standardized beta coefficients are reported, with robust standard errors in brackets. Also, \*, \*\* and \*\*\* indicate significance at 10%, 5% and 1% respectively.

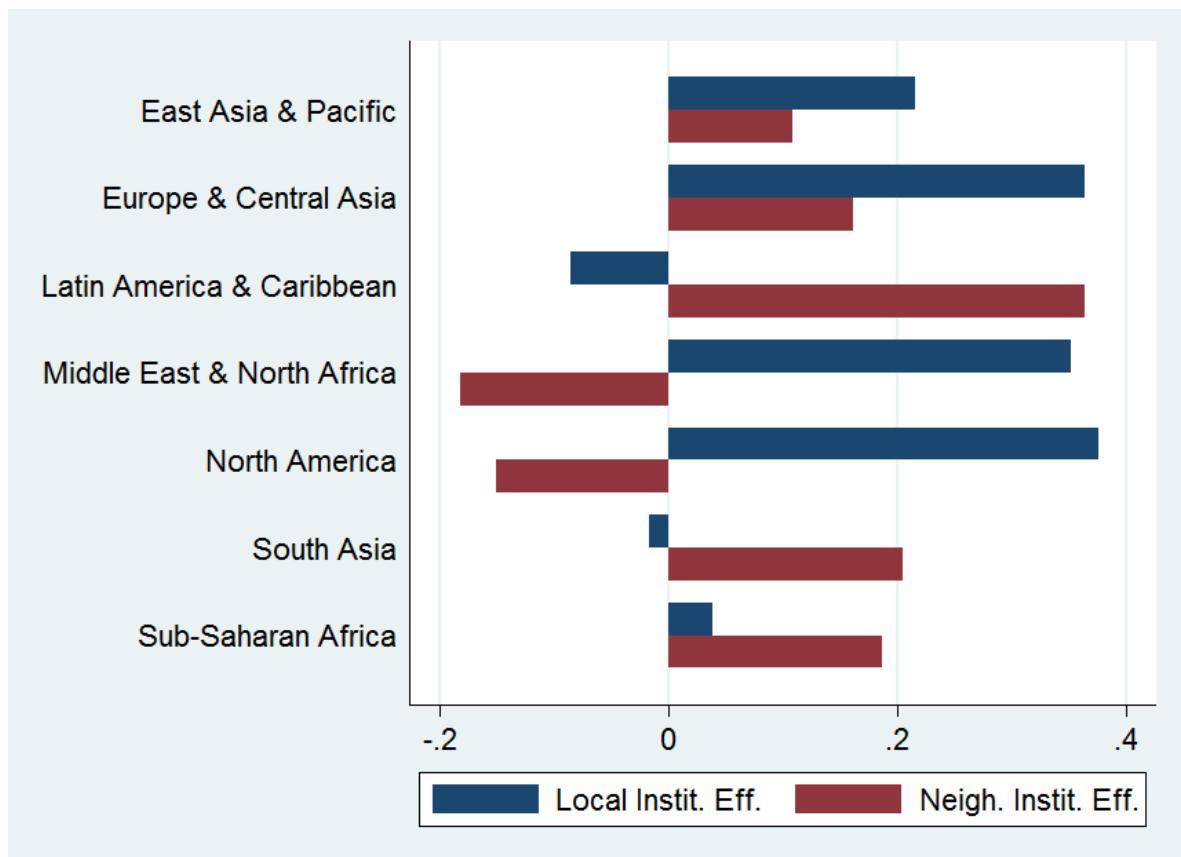
The estimated equation is  $\ln x_{ci} = \alpha_c + \alpha_i + \beta z_i Q_c + \beta^N z_i Q_c^N + \gamma X_{ci} + \gamma^N X_{ci}^N + \varepsilon_{ci}$ , with  $X_{ci}$  as a vector that includes another dets. of comp. adv. and skill and capital interaction for local country and neighbors (this with supraindex N). All variables, excepting fixed effects, are interactions between at least one industry level variable and at least one country level variable. All neighboring variables (with supraindex N) consists in interactions with country level variables but referred to neighboring countries of country c, measured as a weighted average by neighbor's GDP. The ranking is based in the size, in absolute value, of standardized coefficient, don't considering if the variable is statistically significant. Each estimation is with the full sample and with the most complete specification, interacting and controlling with a dummy by region of the local country, defined in the appendix. More details in appendix.

*Figure 4: Local and Neighboring institutional effects by region*



Note: Dependent variable is  $\ln x_{ic}$  (natural log of exports in industry  $i$  by country  $c$  to all other countries). Standardized beta coefficients are reported. The estimated equation is  $\ln x_{ci} = \alpha_c + \alpha_i + \beta z_i Q_c + \beta^N z_i Q_c^N + \gamma X_{ci} + \gamma^N X_{ci}^N + \epsilon_{ci}$ , with  $X_{ci}$  as a vector that includes another dets. of comp. adv. and skill and capital interaction for local country and neighbors (this with supraindex N). All variables, excepting fixed effects, are interactions between at least one industry level variable and at least one country level variable. All neighboring variables (with supraindex N) consists in interactions with country level variables but referred to neighboring countries of country  $c$ , measured as a weighted average by neighbor's GDP. The ranking is based in the size, in absolute value, of standardized coefficient, don't considering if the variable is statistically significant. Each estimation is by region and with the most complete specification, defined in the appendix. More details in appendix.

*Figure 5: Local and Neighboring institutional effects by region*



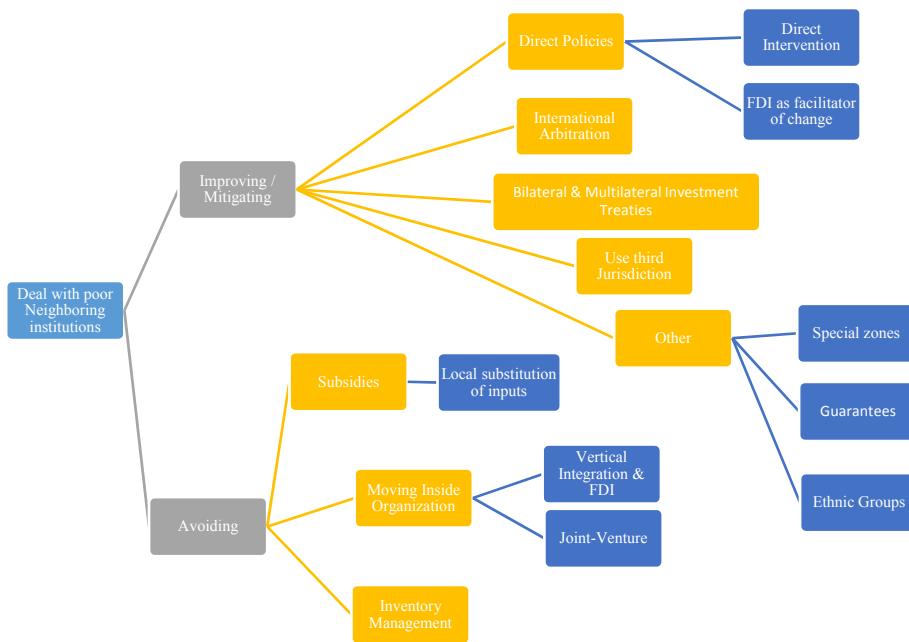
Note: Dependent variable is  $\ln x_{ic}$  (natural log of exports in industry  $i$  by country  $c$  to all other countries). Standardized beta coefficients are reported. The estimated equation is  $\ln x_{ci} = \alpha_c + \alpha_i + \beta z_i Q_c + \beta^N z_i Q_c^N + \gamma X_{ci} + \gamma^N X_{ci}^N + \varepsilon_{ci}$ , with  $X_{ci}$  as a vector that includes another dets. of comp. adv. and skill and capital interaction for local country and neighbors (this with supraindex N). All variables, excepting fixed effects, are interactions between at least one industry level variable and at least one country level variable. All neighboring variables (with supraindex N) consists in interactions with country level variables but referred to neighboring countries of country  $c$ , measured as a weighted average by neighbor's GDP. The ranking is based in the size, in absolute value, of standardized coefficient, don't considering if the variable is statistically significant. Each estimation is interacting and controlling by regional dummies, and with the most complete specification, defined in the appendix. More details in appendix.

Speculating a bit, this last analysis may suggest that improving neighboring institutions could be even more important for South Asia and Latin American & Caribbean, although maybe less so other regions of the world.

## 4. UNDERSTANDING THE POLICY SPACE

This section reviews cases from international supply chain looking for mechanisms to deal with neighbors with poor contracting institutions. In particular, the section discusses a wide range of options including their advantages, disadvantages and applicability. Rather than to present a clear winner from all them, the purpose is to identify lessons that may potentially be useful for policy design. We classify the suggested policies in two groups: on the one hand policies for improving and mitigating the challenges of neighboring institutions and, on the other hand, policies to avoid neighbors' institutions. This classification is made for analytical purposes only, since both groups of policies could in principle complement or substitute each other; also having a possible intersection. The rest of this section explains the boxes contained in Figure 6.

*Figure 6: Diagram of the Policy Space*




---

This diagram maps a set of policies for either improving neighboring institutions or avoiding them so they have a smaller effect on contract intensive B2B relationships. The details of each box will be explained in the main text below.

---

## 4.1. POLICIES FOR IMPROVING NEIGHBORING INSTITUTIONS

### 4.1.1. *DIRECT INTERVENTION, INCLUDING THE ONE MEDIATED BY INWARD FDI*

We cannot start this conversation about policies without thinking first at rather extreme historical cases, in a period in which interventionism was much more open. This is not what we think today as a feasible policy, but as a piece of history from which one can still learn. In the past there were important cases of direct intervention to change the institutions in a neighboring or nearby country which were part of the supply chain.

For example Noel Maurer (2013) reviews the different tactics used in the so called US imperialism abroad, in various cases involving nearby countries in Central America or The Caribbean. Some of these interventions were designed to enhance property rights for foreign investment hosted in these countries, and these firms were important for a subsequent value chain, although usually in natural resources (oil, bananas) instead of manufacturing. Interventions were sometimes successful and sometimes they were not. In some cases it was successful securing property rights for oil wells or a banana plantation abroad, but usually with US investments.

An extreme case of success of a crucial input for the US value chain is the Panama Canal, which was essentially built in a former province of Colombia that the US helped to detach from its original nationality and then, over many decades, imposed governments that may have had problems, but always kept fluent the operation of the Canal. From the perspective of keeping logistics going for the US this intervention could be considered successful.

One has to recognize that even with a military invasion it is not at all easy to improve rule of law or other institutions in a country. Maurer (2013) shows that when foreign powers attempted to help in a basic institution like the collection of taxes, there was little success. The case of Iraq in 2003, where US President George W. Bush tried to export democratic institutions, is also remembered, since it is now an unstable country into a state of almost civil war. Foreign direct intervention does not necessarily import “good” institutions as consequence.

But not all intervention is that extreme. There are cases of “**institutional entrepreneurs**”, who help changing the institutional environment as part of business or policy practices. For example in the 1930s the US facilitated missions to some Latin American countries, like Chile, that directly promoted the creation of some institutions that helped in the creation of a more stable rule of law, for example the creation of the Comptroller General, which helps the bureaucracy follow the rules under which it should work.

While there is a strong literature on how good institutions promote inward FDI, (e.g. Alfaro et al 2008; Busse and Hefeker; 2007),<sup>6</sup> the evidence in the opposite direction, namely that **FDI could be a way to improve local institutions**, is not that developed. Nonetheless there are still some relevant examples.

For the case of Vietnam in the last 15 years Dang (2013) shows how FDI inflows could catalyze institutional improvement. In particular, that paper argues that provinces with more FDI inflows tended to have more improvement in their institutional performance; for example through the provision of more technical policy-making, forcing reforms for example threatening to leave, or even investing in provinces making them more autonomous to experiment with policy reforms. For Chinese provinces, Long et al (2015) argues for a similar effect of FDI on institutional improvement. This work suggests that FDI’s effect on institutional improvement could be because of providing policy-makers with information about laws and regulations in other countries. Overall, these case studies of FDI changing institutions in a country seem interesting but it is not obvious this widespread phenomenon. Still, one can think of policies that use FDI as a foot-in-the door for institutional change.<sup>7</sup>

---

<sup>6</sup> As we will see later, also Bilateral Investment Treaties (BIT) could help to improve local institutional frameworks to attract FDI, (Ginsburg , 2005).

<sup>7</sup> The cross country evidence is not clear respect FDI effects in institutions. Ali et al (2011) shows positive effects of FDI in property rights of host country, but Demir (2016), using a more complete institutional index (political risk ranking from International Country Risk Guide), do not find significant effects, with the exception with South-South FDI, with negative consequences if the investment is in natural resources. Still, in this literature the direction of causality is not particularly clear.

#### *4.1.2. EXTRA-LEGAL MECHANISMS: INTERNATIONAL ARBITRATION*

A well known extra-legal mechanism to solve conflicts between two agents is arbitration. In case of contractual disputes, both parties could agree to solve controversies using a neutral third party as a judge (nominated under consensus of the parts), with specialized knowledge about the industry of the parts, basing their sentence in some pre-established rules. According Gessner (2009), “*arbitration is only taken into consideration when an amicable agreement could not be found*”. This mechanism, in general, is between private agents, so this doesn’t necessarily need State support.

In the case of international contract disputes, the rule of law applied is usually some type of international commercial law. In contrast with the rest of laws (with the application of a set of rules and punishments), international commercial law tries to search the better solution considering the best interests of the parts. An example of rules with this characteristic is the so called *lex mercatoria*, which is set of norms and principles for good trade relationships.

These principles have been promoted by international organizations for a better international commercial arbitration. The United Nations promoted a harmonized and unified framework of international commercial arbitration based in international commercial law through UNCITRAL, to promote better international trade flows. But arbitration is a private duty and in that sense they are free to choose any mix of international commercial law and some national legal rules, according to the situation.

The main advantage of arbitration mechanisms is that they could be adapted to the specific needs of an industry. Focusing on the timber industry, Gessner (2008) argues that international timber associations provide arbitration services for international contract disputes, with specialized judges. Business association and chambers of commerce are also private instances to provide adequate arbitration services to their affiliates. Importantly, though, many of these chambers of Commerce work within a country rather than between countries and that is an open challenge we will discuss later.

Back to Gessner (2008)'s example on timber, the importance of the networks for doing business in the timber industry, jointly with the fact that the commodity it is not completely standardized, contributes to the relevance of arbitration inside international timber organizations.

Another advantage of international arbitration in this context is when there are contractual disputes originated from different interpretations and different laws coming from countries with different legal systems. In that context, an international business association and the application of international commercial law help to find more universal criteria (according circumstances of each industry) to solve international contract disputes. This is key in the case of industries where the most trade is across borders as timber (see Gessner , 2008).

But this mechanism has still relevant challenges. The first is the not neutrality of international commercial law. Because it tries to search the best solution for the parts, authors like Caravaca and Gonzalez (2015) argues that it is not neutral respect state laws (based on rules and punishments). This could be controversial in the case of the existence of Business to Government relationship (B2G), because states could feel that their judicial sovereignty is damaged when recurring to extra-legal arbitration. They may sometimes want that the State be both part and judge in a dispute, meaning that the conflict is set in State-sponsored courts. This is a controversial issue, because the effectiveness of arbitration when the government is involved depends also of a clear limit on the Executive regarding the decisions of the Judiciary, which is not always the case. Another challenge for arbitration mechanisms could be some fixed costs of having specialized referees for disputes. These fixed costs are relatively tougher for arbitration of relatively smaller transactions. For example, for Caribbean Arbitration Center, that covers disputes between private agents in some CARICOM islands, authors like Holden and Howell (2009) propose the existence of travel arbitrators, who could visit the countries in which are located the litigants. A third challenge is that sometimes a successful arbitration may require the existence of strong intra-industry networks that could later enforce. Gessner (2008) argues that for some African and Asian countries these timber industry international associations virtually do not exist. The importance of networks in timber industry makes arbitration a credible and enforceable mechanism.

A challenge would be to get this kind of internationally enforceable agreements in B2B relationships in other areas.

#### *4.1.3. BILATERAL INVESTMENT AGREEMENTS AND BUSINESS TO GOVERNMENT ARBITRATION*

When commercial disputes include another country's government, also known as B2G transaction, then things are different than in a B2B relationship which is usually the center of our discussion in our paper.

Still in these B2G relationships there are relevant families of policies helping in this setting, especially arbitration where governments could be sued and bilateral investment treaties (BITs).

For example, the International Centre for Settlement of Investment Disputes (ICSID), the World Bank's arbitration instance where governments could be sued, has 151 state members that accept this supra-national arbitration instance, that arbitrate conflicts on investments with national governments aiming for non discrimination, reaching a fair and equitable agreement, with ideally a fast, adequate and effective compensation in case of expropriation. According Ginsburg (2005), the ICSID acts more a substitute than a complement for local institutions.

The reason of massive membership of governments in international arbitration mechanisms are related with Foreign Direct Investment and its relationship with institutional quality, in particular property rights protection. Many developing economies with weak institutions sign bilateral or multilateral investment treaties, which considers the right to private agents to go to international arbitration mechanisms (like ICSID) in case of violation of contracts with governments and property rights. Governments sign these treaties as a form to attract foreign investment.

According Ginsburg (2005), their arbitration instances are related mostly with expropriation cases, but in general could also be related with contract with governments. To define the scope of arbitration with governments countries tend to sign Bilateral Investment Treaties (BIT).

It is important to finish this subsection remarking that these tools are usually thought only when the problem is a foreign government, rather than a problem of contract enforcement with a foreign firm that promised to supply or to buy some specific good. Therefore, BITs and multilateral investment treaties tend not to incorporate tools to deal with B2B relations across borders when neighbors have poor rule of law.

#### *4.1.4. USING A THIRD JURISDICTION*

In some cases, in order to guarantee legal security to international contracts, some parties can decide to establish forum selection clauses, meaning that any controversy must be solved under a third foreign jurisdiction. A classic example are Argentine sovereign bonds, which established that controversies will be solved in New York courts. This is rather normal in international financial transactions which usually involve some B2G relation.

For some international contracts between firms (B2B) there could be similar examples.

A particular example is found in some countries with past membership in British Empire. In colonial times, the local highest court of appeal was the Judicial Committee of the Privy Council (JCPC), and in the past the cases were viewed by one of the highest courts of appeal in the UK, even in some cases by the UK Supreme Court. After independence process, some countries remained the British JCPC as their local highest court of appeal, being an example of how countries could delegate some judicial sovereignty. The reason is the tradeoff with independence, since establishing a new sovereign judicial system implies uncertainty in credibility, according Voigt et al (2007).<sup>8</sup>

---

<sup>8</sup> There is also a dilemma in the construction of a strong state. On the one hand it can be used to effectively protect property rights and contract enforcement, but on the other hand it can be used to expropriate.

Voigt el al (2007) show that the countries that remained in the JCPC as the highest court of appeals had better access to finance in term of the yields in their Sovereign Debt, and also more foreign direct investment and productivity. They argue this is because of more judicial certainty in comparison to the countries that abandoned JCPC. This could be an extreme example of how a third jurisdiction (in this case the UK) is used to improve rule of law and create judicial certainty.

In general, firms in a value chain can agree to follow whichever third jurisdiction they want. In practice, though, the costs of doing so for relatively usual transactions may be very costly. The exceptions discussed here remark that for massive issuances of sovereign debt or for huge investment projects this is still an option because the transaction costs of suing in third jurisdictions is still a reasonably small fraction of the amount under dispute. This might not be the case for B2B relationships in a sophisticated and differentiated product that might be hard to defend in courts.

#### *4.1.5. POLICIES CREATING SPECIAL ZONES*

This subsection shows some other examples of cases in which there was an attempt to improve institutions at the margin. In some cases this involved a guarantee or a special zone.

**Kaesong Industrial Complex between South and North Korea. [Aca necesitamos poner todas las citas]** The Kaesong Industrial Complex is an industrial area located in the North Korean city of Kaesong, but where South Korean firms are allowed to manufacture goods. It is a very particular case of an export promotion zone. The creation of the complex was initiative of Hyundai and part of the “Sunshine Policy” in early 2000s, targeted to improve Inter-Korean relationships and create some economic integration between these two countries. The advantage for South Korean firms is to access to the cheap North Korean labor (at less than 10% of the labor cost in Seoul Metropolitan area), also including a payment of a share of the wage to the North Korean government, in foreign currency. The challenge is that firms were exposed to North Korean weak contract institutions: in fact, a

high share of the companies with contract problems that decided to solve them in North Korean courts did not get a satisfactory solution, as reported by Haggard and Noland (2012).

Importantly though, the South Korean government is socializing some of the costs of this limited contract enforcement. Its government guarantees the payment of contracts that could not be enforced under North Korean courts, giving some subsidies and cheap loans to firms to operate in the Kaesong complex.

The complex is a source of foreign currency for North Korea which has little access to them. This is a powerful deterrent to closing the complex or expropriating Southern Korean firms. As illustration, in the North-South Korean crisis of 2010, North Korean dictatorship cut almost all economic links with the South, except the Kaesong Industrial complex.

It is important to consider that North Korea ranks almost at the bottom in their index for rule of law. If this type of industrial complex works with North Korea, then one can conjecture that it might also work with another neighbor that has relatively stronger rule of law than North Korea.<sup>9</sup>

Beyond the great particularities of this case, having a government guarantee to promote a value chain between two neighboring nations could be a possible way to jumpstart a system. Of course, the contingent liabilities in these guarantees should be properly accounted. Still, there are some economic rationales to implicitly subsidize pioneers that facilitate the regional integration of value chains, up to a point

---

<sup>9</sup> This type if complex has some problems. The first, is the moral dilemma that South Korea is financing North Korean dictatorship. The second is the fee (share of wages) paid to North Korea government, that also acts as intermediate to pay wages to complex workers, jointly with semi-slavery relationship between North Korean workers respect government. And third is the closing risk, meaning that in case the complex is closed in a future crisis with North Korea, the government of South Korea would have to pay a considerable amount. In short, this guarantee is still a relevant contingent liability for the South Korean government.

Another difficulty of the complex is the Free Trade Agreement (FTA) of South Korea and the rule of origin treatment for the goods manufactured in the complex. In general, South Korea claimed rules of origin that consider goods from the complex as made in South Korea. This is not a problem for the rest of Asian countries (most of FTA between South Korea and other Asian countries considered this in their rules of origin), but it is a problem for the FTA with the United States for geopolitical reasons. According Manyin and Nanto (2011), initially the US refused to consider as South Korean the goods manufactured in the complex. Finally, however, the countries created a Committee on Outward Processing Zones, which established a maximum threshold of inputs that could be consider as South Korean.

**Charter Cities could also improve neighboring countries.** Since institutions have been remarked as so relevant for development, Paul Romer proposed that some countries with weak institutions could establish a city in which institutions work as in developed economies. This could include having a special legal code and enforcing these rules with judges and a bureaucracy similar to one in developed economies. In short if institutions matter, then why don't simply fertilize a city with good institutions. This proposal was called “charter cities”<sup>10</sup>

This is still a preliminary idea, with a few candidates to their implementation and all failed to follow up so far (Honduras and Madagascar). Sovereignty issues and political will are key to the successful of this idea.

Having said that, given the context of the current paper, we wanted to remark that the benefits of having a city with better institutions could go beyond the inhabitants of that city. If *nearsourcing* is constrained by institutions, then having a city with good institutions could make viable the existence of some regional value chains that today do not exist. As an hypothetical example, Costa Rica could create some regional processing links with a potential charter city in Honduras. Charter cities are just an idea so far, but it is still instructive to have a thought experiment that helps us clarify how we think neighboring institutions could impact a value chain.

---

<sup>10</sup> Paul Romer arguments that this idea is not a “neo-colonialism”, because is not coercive, but give options to citizens and governments. The joint-venture with a country with good institutions and could be available to participate with some responsibilities that guarantees goo rules is key for that, applying the Coase Theorem and countries without a colonial history, like Scandinavian countries, Finland or Canada, according Amavilah (2011). But the successful of this initiatives need political voluntary for local authorities: in the case of Madagascar in 2009, local president expressed their interest, but a coup of etat (for unrelated reasons) does the project a failure because coup was made before charter city were implemented. In the case of Honduras, left wing activist arguing “sovereignty” issues to repeal charter cities, jointly with the destruction of the idea (eliminating foreign controls in the charter city, including the transparency commission where one of this members was Paul Romer, transforming it in a simple special zone for trade) lead to Romer to repeal Honduran project. The compromise of authorities to generate appropriate rules is key for the successful, that Hong-Kong didn't requires because was a British colony.

#### 4.1.6. TRUSTED ETHNIC GROUPS AS INTERMEDIARIES.

The sale of diamond jewelry is a transaction of a high differentiated good in which it is easy to cheat, because each piece of diamond (in contrast with diamonds extracted from mines) is unique, this activity is an art more than a science, and the valuation of each piece is hard for the final customer. Also, recur to state-sponsored courts is difficult in the retail diamonds market, because is easy to avoid legal effects. But the industry has been historically successful.

The standard case here is the historical monopoly of retail diamonds sale in hands of ultra-orthodox Jewish jewelers. They dominate the retail diamonds market through New York Diamond Dealers' Club (DDC)<sup>11</sup> that considers internal arbitration resolution. According to Richman (2006), "*in the 1960s managed the production and marketing of close to 100 percent of the world's uncut diamonds, and today controls approximately 65 Percent*". The punishment to the dealers that incur in contract disruptions, could be banning the dealers to make business with other members of DDC and other sanctions that are not enforced by courts. This type of informal institution tends to be slow to develop, though. Jewish jewelers in retail diamonds started some 500 year ago (see Richman (2006)).

Besides this canonical case there are various other examples. For example Fafchamps (2001) argues that tribal leaders could help to have "ethnical arbitral instances" in Sub-Saharan countries. More generally, the availability of a trustable ethnic group depends closely of local circumstances and it is not a valid option for all cases.

## 4.2. POLICIES FOR AVOIDING OR BY-PASSING NEIGHBORS WITH POOR RULE OF LAW.

---

<sup>11</sup>

#### 4.2.1. SUBSIDIES TO LOCAL CRITICAL INPUTS OR INFRASTRUCTURE NEARBY.

One alternative to by-pass weak institutions in neighboring countries is buying from other firm in the domestic economy. But sometimes these domestic firms may not exist, either because of lack of demand, synergies or economies of scale.

If these local producers did not exist, there might be an externality. For example immediately after World War II various countries in Latin America made important investment to have their own steel mills, despite the fact they were more inefficient than some producers in neighboring countries. Beyond the issue of accessing foreign currency to import – which was a challenge at the time – there were still valid concerns about the security of steel supply in case of a military conflict that can break the supply chain. For those reasons countries defined subsidies for these steel mills.<sup>12</sup> The idea was that without a reliable steel industry you could not have industrial development that was resilient to disruptions. Nowadays these extreme events of disruption seem less likely<sup>13</sup>, and the rationale for subsidies might be much weaker, but still in some situations one should at least consider the proper cost-benefit analysis of the supply chain externalities involved. Nowadays steel is unlikely to be a critical input, but there could be other critical inputs.

Infrastructure and logistics could also play a role in facilitating domestic transactions. According Kinkel and Maloca (2009) German manufacturers tell that the main reasons to backshore or reshore production that was previously outsourced far away are: (i) challenges to quality; (ii) coordination costs, (iii) quality of infrastructure on site and (iv) lack of qualified personnel in the country where they previously offshored production. Prevos and DiVito (2013) show that for Dutch firms the decision to reshore was made because the need of a reliable logistics.

Thinking about promoting the re-shoring of some activities to Europe Reemets (2015) argues that some “*effective regional subsidies should be given [...], in order to build the*

---

<sup>12</sup> See for example Gonzalez-Videla (1975).

<sup>13</sup> Various cases of industrial development in Israel come as a consequence of unreliable supply. Still, even if one want to display an “Israeli Program” or similar, it could be tougher to do in countries where politicians take R&D policy decisions, unlike Israel where scientist have a central role in R&D strategy (see Breznitz, 2006).

*required infrastructure, knowledge centers etc.*”. Some argue that some distant countries do have subsidies to promote offshoring to their economies (e.g. Cogne and Guyard, 2012). A “counter subsidy” could partially countervail this phenomenon. Nonetheless, these policies could be controversial and unproductive if not properly designed to effectively target a true externality.

#### 4.2.2. *MOVING PRODUCTION INSIDE THE ORGANIZATION*

##### **Vertical Integration.**

A way to deal with contractual problems between firms across borders is to vertically integrate. For example CORMECANICA in Chile is one of the few firms that export differentiated goods to neighboring Argentina, a country that ranks in the bottom quarter according to the World Bank rule of law index. This firm sells gearboxes, which are a crucial car component for the manufacturing of cars in Argentina. The key trick is that both the Chilean exporter and the Argentine buyer are subsidiaries of Renault, the French car manufacturer. This allows firms to have a more credible contractual environment within the firm.

Following Klein and Murphy (1997), vertical mergers are a way to self-enforce contracts within the organization. So, M&A with suppliers in neighboring countries could be a way to enforce contracts with suppliers and use potential neighboring comparative advantages. Macchiavello (2005) and Fernandez and Tang (2012) show how some industries tend to prefer vertical integration as a way to enforce input supply or other critical tasks when working in developing countries.<sup>14</sup>

There are many trade-offs of vertical integration, though. One is the financial resources needed for acquisitions. Other more fundamental is that excessive integration can lead to dysfunctional organizations in which holdup problems are solve, but moral hazard problems within the organization exacerbate (i.e. Grossman and Hart, 1983). Ideally one

---

<sup>14</sup> For evidence about Chinese companies see Fernandes and Tang (2012). For Disney’s acquisition of Capital Cities/ABC and Merck acquisition of Medco, see Murphy and Klein (1997).

would like that contract enforcement in neighboring nations is not a force that can alter the optimal make vs. buy decision. Of course vertical integration can also have its own limits when it comes to mitigate the problem of weak institutions in other countries. You can even have extreme cases in which multinationals end up suing their own subsidiaries because of contract enforcement problems inside the firm (see Blyde, 2014 on page 63 and footnote 28).

To be clear, there are two ways in which vertical integration can happen. One is, as mentioned, if the production or purchase of products is made by a subsidiary of the same firm in another country. The other alternative is that no production whatsoever takes place in the neighboring country and everything is made within the firm in the domestic market. This could also have costs because it could move the company too far from its core competence.

**Joint-ventures:** A softer version of vertical integration is a joint-venture or JV. A JV consists in the association of two or more companies in an alliance where the parts collaborate for a purpose, for example for offshoring of inputs, services, capital or final goods. It is a deeper integration than contract in the sense that there are usually some agreements about profit sharing. One party could for example contribute with knowledge and organizational capabilities, while the other could help to encourage compliance in a weak business environment.<sup>15</sup>

According Van Assche, A. & Schwartz, G. A. (2013) an International Joint Venture with a local company could be attractive if the local country has weak contract institutions, because there could be judicial favoritism to the local partner. This, however, can lead to rent-seeking activities.<sup>16</sup>

---

<sup>15</sup> See Folta (2005) for the case of offshoring to China. Formal and social controls could also complement contract enforcement into a joint-venture, as we can see in Li et al (2008).

<sup>16</sup> According Sanga (2015) the success of JV requires that "*joint venture entities, together with covenants not to compete, mitigate the intrinsic fiduciary conflict by organizing the venture's opportunities*". Roeslfsema et

#### *4.2.3. INVENTORY MANAGEMENT*

According to Raja and Schafer (2004) some firms could hold higher inventories to insulate themselves from the uncertainties of weak contract enforcement. In fact with more inventories a firm is less sensitive to an unreliable supplier. The problem, though, is that holding inventory has a cost. For example, in one particular case Shnaiderman and Ben-Baruch (2015) argue that the costs of under enforcement of contracts can be calculated as a 2% additional cost vis-à-vis a the situation with just-in-time supply that one would have with perfect contract enforcement in B2B relations.

Sometimes the unreliability of suppliers can come from poor management, poor planning and holdup problems. But for some other goods there can be renegotiation when goods have an outside price or when suppliers get a higher demand from a customer they value more. Macchiavello (2009) discusses the pecking order of customers when suppliers in Kenya faced a logistics disruption. In those cases, to avoid holdup one can keep higher inventory management

---

al (2010) argues that “*to overcome such a dual agency problem, the multinational leaves more local rents to the local partner than in the first-best, so as to provide stronger incentives for the government to supply public goods*”. Among cases one can cite the Coca-Cola IJV in China according Mok et al (2002). It shows the key role of trust to avoid opportunism and lower informational cost due to the the association with a local Chinese partner.

## 5. CONCLUDING REMARKS

This paper goal was twofold. On the one hand it reviewed academic literature showing that neighboring institutions matter for comparative advantage, also showing additional calculations about the relative relevance of neighboring country institutions across world regions. They seem to be very important in Latin America.

On the other hand, the paper maps and discusses various policies that can either improve the poor contractual environment of neighbors or by-pass that institutional constraint. The space of policies is rich. It could go from extra-legal procedures - like international arbitration, guarantees and self-regulation initiatives – to incentives for vertical integration or subsidies to critical inputs. Policy makers must not consider the policies in the menu as perfect substitutes of contract enforcement problems, but as a potential help in the process of fostering regional supply chains.

## 6. REFERENCES

- Beverelli, C.; Fiorini, M. & HOEKMAN, B. M. (2015), 'Services trade restrictiveness and manufacturing productivity: the role of institutions', .
- Blyde, J. S. (2014), *Synchronized Factories: Latin America and the Caribbean in the Era of Global Value Chains*, Springer. <http://rd.springer.com/content/pdf/10.1007%2F978-3-319-09991-0.pdf>
- Blyde, J. S. (2012), 'Contracting Institutions and the Insertion of LAC in International Production Networks', Technical report, Inter-American Development Bank.
- Brouthers, K. D. & Bamossy, G. J. (1997), 'The role of key stakeholders in international joint venture negotiations: Case studies from Eastern Europe', *Journal of International Business Studies*, 285--308.
- Carmel, E. & Tjia, P. (2005), *Offshoring information technology: Sourcing and outsourcing to a global workforce*, Cambridge University Press.
- Cedillo, G. (2015), 'Supply chain performance measurement in Latin America', .
- Cedillo-Campos, M. G. (), 'Supply chain clustering: The next logistics frontier?', .
- Clague, C.; Keefer, P.; Knack, S. & Olson, M. (1999), 'Contract-intensive money: contract enforcement, property rights, and economic performance', *Journal of Economic Growth* 4(2), 185--211.
- Cohen, A. (2014), 'Caspian Gas, TANAP and TAP in Europe's Energy Security', *Istituto Affari Internazionali, Roma* 14(6), 1--17.
- Den Butter, F. A. & Hayat, R. (2008), 'Trade between China and the Netherlands; A case study of globalization', .
- Dougherty, S. M. (2014), 'Legal reform, contract enforcement and firm size in Mexico', *Review of International Economics* 22(4), 825--844.
- Douglass, R. M. (), 'Designing Risk-Tolerant Cyber Supply Chain Communities', .
- Edwards, J. & Ogilvie, S. (2012), 'Contract enforcement, institutions, and social capital: the Maghribi traders reappraised1', *The Economic History Review* 65(2), 421--444.

Fumagalli, E.; Black, J. W.; Ilic, M. & Vogelsang, I. (2001), A reliability insurance scheme for the electricity distribution grid, in 'Power Engineering Society Summer Meeting, 2001', pp. 261--266.

Gennaioli, N.; Ponzetto, G. A. & others (2015), 'Legal Evolution and Contract Evolution under Imperfect Enforcement'.

Gessner, V. (2008), *Contractual certainty in international trade: empirical studies and theoretical debates on institutional support for global economic exchanges*, Bloomsbury Publishing.

Haggard, S. & Noland, M. (2012), 'The Microeconomics of North–South Korean Cross-border Integration', *International Economic Journal* **26**(3), 407--430.

He, X. (2012), 'A Tale of Two Chinese Courts: Economic Development and Contract Enforcement', *Journal of Law and Society* **39**(3), 384--409.

Kaplinsky, R. (2013), 'Global Value Chains: Where They Came From, Where They Are Going and Why This Is Important', *Innovation, Knowledge, Development Working Paper No 68*.

Kaplinsky, R.; Morris, A. & Kaplan, D. (2011), 'Commodities and Linkages: Industrialisation in Sub-Saharan Africa', .

Koch, C. & Bennett, D. (2014), Tkte a tkte? Nearshoring in Europe of Consulting Engineering, in 'Hosni Y (Ed)“Science, Technology and Innovation in the Age of Economic, Political and Security Issues”, Proceedings of 23rd International Conference of the International Association for Management of Technology, IAMOT, Miami FL, USA.'

Kukharskyy, B. (2012), 'Quality of Institutions, Global Sourcing, and the Make-or-Buy Decision', Technical report, BGPE Discussion Paper.

Laursone, G. & Domeij, E. (2012), 'Exploring the Trend of Near-Sourcing to Eastern-Europe: the Case of Swedish Manufacturers', .

Lee, C. W. & Park, S. (2015), 'Does Religious Similarity Matter in International Trade in Services?', *The World Economy*.

Luo, Y. (2002), 'Contract, cooperation, and performance in international joint ventures', *Strategic management journal* **23**(10), 903--919.

Miranda, R. & Wagner, R. (2015), 'Bad Neighbors: Border Countries' Institutions as Comparative (Dis) Advantage', .

Nordås, H. K. (2000), *Liberalization of trade in services and choice of technology in the Norwegian petroleum sector*, Chr. Michelsen Institute.

Nunn, N. (2007), 'Relationship-specificity, incomplete contracts, and the pattern of trade', *The Quarterly Journal of Economics*, 569--600.

Olsen, M. (2013), 'How Firms Overcome Weak International Contract Enforcement: Repeated Interaction, Collective Punishment and Trade Finance', *Collective Punishment and Trade Finance* (February 10, 2013).

Olsen, M. (2011), 'Banks in international trade: incomplete international contract enforcement and reputation', *Job Market Paper (15 January 2011 Version)*< [http://www.people.fas.harvard.edu/mgolsen/papers/Morten\\_Graugaard\\_Olsen\\_Trade%20Finace.pdf](http://www.people.fas.harvard.edu/mgolsen/papers/Morten_Graugaard_Olsen_Trade%20Finace.pdf)> accessed 20.

Ornelas, E. & Turner, J. L. (2012), 'Protection and International Sourcing\*', *The Economic Journal* **122**(559), 26--63.

Ornelas, E. & Turner, J. L. (2012), 'Protection and International Sourcing\*', *The Economic Journal* **122**(559), 26--63.

Rauch, J. (1999), 'Networks versus markets in international trade', *Journal of International Economics* **48**(1), 7--35.

Rauch, J. E. & Trindade, V. (2002), 'Ethnic Chinese networks in international trade', *Review of Economics and Statistics* **84**(1), 116--130.

Rodrik, D. (2008), 'Second-best institutions', Technical report, National Bureau of Economic Research.

Sahle, E. (2014), 'Quakers, coercion and pre-modern growth: why friends' formal institutions for contract enforcement did not matter for early Atlantic trade expansion', .

Scott, R. E. & Stephan, P. B. (2006), *The Limits of Leviathan: Contract Theory and the Enforcement of International Law*, Cambridge University Press.

Sheng, L. & Yang, D. T. (2014), 'Expanding Export Variety: The Role of Institutional Reforms in Developing Countries', Available at SSRN 2545799.

Stehrer, R.; Borowiecki, M.; Dachs, B.; Hanzl-Weiss, D.; Kinkel, S.; Pätzschl, J.; Sass, M.; Schmall, T. C. & Szalavetz, A. (2012), *Global value chains and the EU industry*, wiiw.

Sturgeon, T. J. (2007), 'How globalization drives institutional diversity: the Japanese electronics industry's response to value chain modularity', *Journal of East Asian Studies* 7(1), 1--34.

Tingvall, P. G. (2011), 'Dynamic Effects of Corruption on Offshoring', Technical report, The Ratio Institute.

## 7. APPENDIX

### ***ESTIMATIONS OF SECTION 2'S TABLES: MIRANDA AND WAGNER (2015)***

#### ***RESULTS***

The tables showed in sections 2 and Error! Reference source not found. are based in Miranda and Wagner (2015) results. This paper is, initially, an extension of Nunn (2007), and shows evidence that neighboring institutions, also with neighboring institutions, matters for local comparative advantage and exports in industries with a high share of differentiated inputs.

The empirical strategy is to estimate Equation 1. This is a panel estimation by industry ( $i$ ) and country ( $c$ ), for the year 1997, where considers fixed effects. And the institutional effects are measured with the interaction of the share (in value) of differentiated inputs of industry  $i$ ,  $z_i$ , and the local and neighboring rule of law (this last with supraindex N),  $Q_c$  and  $Q_c^N$ , respectively. Also Miranda and Wagner control this estimations with another comparative advantage determinants, with interactions of industry and country variables, called  $X_{ci}$  and  $X_{ci}^N$ . The dependent variable is the natural log of exports of industry I and country c,  $\ln x_{ci}$ .

*Equation 1: Miranda and Wagner (2015) Main Equation*

$$\ln x_{ci} = \alpha_c + \alpha_i + \beta z_i Q_c + \beta^N z_i Q_c^N + \gamma X_{ci} + \gamma^N X_{ci}^N + \varepsilon_{ci}$$

The data sources are UN-COMTRADE for exports, World Governance Indicators for rule of law, CEPII GeoDist to identify neighboring countries (defined as countries with common land border) and US Input-Output matrix with Rauch (1999) data to identify differentiated inputs and build  $z_i$  (contract intensity). Also they uses another additional data sources (i.e. GDP), for more details see Miranda and Wagner (2015).

An important issue is the definition used of neighbors and the building of neighboring variables. All neighboring variables, because they are interactions between industry and country variables, are interactions of industry variables with neighboring country variables, calculated ad weighted average by GDP.

Also, the interaction with variable “common colonial history” is a percentage of neighboring GDP with common colonial past. The results came from the interaction of institutional effects with this variable, controlling by the interaction between common colonial past and contract intensity.

### ***DEFINITION OF WORLD REGIONS***

In some tables we show the results of Miranda and Wagner (2015) estimations by region of world. The countries that are considered in this regions are the same used by World Governance Indictors (source of neighboring and local rule of law). This countries by each region are the following:

- East Asia & Pacific: Brunei, China, Hong Kong, Indonesia, Cambodia, South Korea, Laos, Myanmar, Macau, Mongolia, Malaysia, Papua New Guinea, Singapore, Thailand and Vietnam.
- North America: United States and Canada.
- Europe & Central Asia: Albania, Austria, Belgium, Bulgaria, Czech Republic, Cyprus, Switzerland, Denmark, Germany, Spain, Finland, France, United Kingdom, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Romania, Russia, Sweden, Turkey, and Yugoslavia.
- Latin American & Caribbean: Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Guyana, Honduras, Haiti, Mexico, Nicaragua, Panama, Peru, Paraguay, El Salvador, Suriname, Uruguay and Venezuela.
- Middle East & North Africa: United Arab Emirates, Bahrain, Djibouti, Algeria, Egypt, Iran, Iraq, Jordan, Kuwait, Israel, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunez and Yemen.
- South Asia: Afghanistan, Bangladesh, Bhutan, India, Nepal and Pakistan.

- Sub-Saharan Africa: Angola, Burundi, Benin, Burkina Faso, Central African Republic, Cote D'Ivoire, Cameroon, Congo, Ethiopia, Gabon, Ghana, Guinea, Gambia, Guinea-Bissau, Equatorial Guinea, Kenya, Liberia, Mali, Mozambique, Mauritania, Malawi, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, Chad, Togo, Tanzania, Uganda, South Africa, Republic Democratic of Congo, Zambia and Zimbabwe.