Contractual Frictions and the Patterns of Trade: The Role of Generalized Trust

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Abstract

Extant studies on the relationship between "domestic institutions, comparative advantage and international specialization" have largely focused on formal institutions. This paper contributes to this literature by focusing on domestic informal contracting institution vis-á-vis generalized trust as a source of comparative advantage. Employing a bilateral industry trade data, the paper finds a robust evidence that countries with high generalized trust level export relatively more in industries that that are prone to contractual frictions. Results on export margins further suggest that countries with high generalized trust level enter more markets, ship more products to each destination, and have higher export per product and export intensities in those industries. On the one hand, the results reemphasizes the importance of trust for improved economic performance. On the other hand, it offers explanation as to why a country though poorly endowed with weak formal domestic institutions may still have a comparative cost advantage in industries that are more prone to contractual frictions due to having strong domestic informal institutions such as generalized trust.

Keywords: Generalized Trust, Contractual Frictions; Trade; Trade Margins

JEL: D70; F10; F14

Highlights

- Trust underlies virtually every economic activity.
- One of the ways trust affects economic activities is by reducing contractual frictions, i.e. uncertainties and opportunistic behaviors that may arise in contractual relations.
- The paper tests whether trust, by reducing contractual frictions, affects a country's international specialization pattern.
- Results show that industries that are more prone to contractual frictions experience relative better export performances in high trusting countries, which is indicative that trust reduces contractual friction and this shift a country's international specialization pattern towards industries that are more prone to contractual frictions.

"Efficient exchange relations are facilitated when the parties trust each other. This is particularly important when specific investments or unobserved efforts are important. The presence of trust transforms an exchange relation characterized by *ex post* bilateral monopoly by: reducing the costs of specification, monitoring and guarding against opportunistic behavior; encouraging better investment decisions; and ensuring rapid and flexible responses to unforeseen events"

------ (Lyons and Mehta, 1997 p.1)

1. Introduction

Although conventional trade theories emphasize technology and factor accumulation as sources of comparative advantage and international specialization, more recent research underlines the importance of domestic institutions in these regards (Levchenko, 2007; Nunn, 2007; Ma, Qu and Zhan, 2010; Broner, Bustos and Carvalho, 2012; Manova, 2013). Importantly, a strand of this literature argues that better domestic institutional quality and contract enforcement shift a country's comparative advantage towards industries that are more vulnerable to contractual frictions, say, due to holdup problems that often arise in relationship specific-investments (Levchenko, 2007; Nunn, 2007; Ma *et al*., 2010). However, this literature has largely focused on formal institutional quality and contract enforcement such as property rights, shareholders rights, and judicial quality. This paper extends this literature by focusing on informal institution vis-á-vis generalized trust which has been unduly ignored in the literature.

The theoretical underpinning for considering such a nexus builds on the well-established literature suggesting that trust induces self-enforcing contracts through reputation effects, norms of

reciprocity, peer monitoring and social pressure, flexibility and information exchange (Arnott and Stiglitz, 1991; Knack and Keefer, 1997; Lyons and Mehta, 1997; Dyer and Chu, 2003). Because high generalized trust level is associated with more effective and efficient contract enforcement, or reduces the need for (more expensive) formal contracting,[1] countries endowed with more trusting and trustworthy people will have a cost saving advantage in industries that are more prone to contractual frictions referred hereafter as "contract intensive industries". In line with this theoretical reasoning, this paper evaluates whether countries characterized by high generalized trust level specialize in contract intensive industries. I test this hypothesis using a bilateral export data of 76 countries' exports in 27 industries over the period spanning 1996-2008.

My empirical strategy builds on the factor proportion model developed by Rajan and Zingales (1998), which has been elevated in the trade literature on the determinants of international specialization (Romalis, 2004; Nunn, 2007; Levchenko, 2007; Manova, 2013). The model allows a flexible framework to test my hypothesis by simply examining how the interaction of country-specific indicator of generalized trust level and industry-specific indicator of contractual friction vulnerability affects exports. As an empirical measure of generalized trust, I use the trust indicator from the World Value Survey, measured as the proportion of a country's population that "agrees" with the statement, "Most people can be trusted". I identify industries' susceptibility to contractual frictions by using Nunn (2007) "contract intensity index" which measures, for each industry, the proportion of its intermediate inputs that are not traded on spot markets. Because these inputs are not traded on spot market, they require relationship specific-investments which make them prone to contractual frictions in the absence of high generalized trust level, or effective formal contracting institution which has been the focus of existing studies.

To forestall the results, I find that high generalized trust level, by reducing contractual frictions, leads to a disproportionately better export performances in contract intensive industries. This result holds after controlling for fixed effects at the country and industry levels, and after employing alternative estimation strategies including the Helpman, Melitz and Rubinstein (2008) 2-stage estimation procedure and Santos and Tenreyro (2006) Pseudo Poisson Maximum Likelihood to address zero trade observations. The result also remains robust after accounting for other sources of comparative advantage that have been identified in the literature such as human and physical capital endowment, financial development, natural resource endowment, and even formal contracting institution. Decomposing exports into the extensive and intensive margins to further underpin possible pathways generalized trust level affects exports, the results suggest that countries with high generalized trust level export relatively more in contract intensive industries because they enter more markets, ship wider range of goods to each destination, and have higher export per product and export intensities.

In addition to being related to the broader literature examining the effect of domestic institutions on the patterns of international trade specialization (Levchenko, 2007; Nunn, 2007; Manova, 2013), this paper contributes to a growing body of literature on the international trade effect of trust. Pioneer studies in this literature consider bilateral trust between exporter and importer to be "transaction cost reducing" and argue that enhancing bilateral trust between both parties will increase bilateral trade (Guiso, Sapienza and Zingales, 2009; Yu, Sjoerd and de Haan, 2015; Spring and Grossmann, 2016; Xing and Zhou, 2018; Melitz and Toubal, 2019). To test this hypothesis, available studies regress bilateral trade volume on bilateral trust.[2] Roy, Munasib and Chen (2014) make an important deviation from this literature by arguing that social trust, as an informal

institution, affects trade by facilitating access to informal financing in financially underdeveloped economies. To test their hypothesis, the authors interact social trust indicator with a dummy variable indicating whether or not a country is financially developed. My study deviates from these previous studies because it focuses on how generalized trust level, through its effect on contractual frictions, may lead to an international specialization. It further deviates from existing studies because it decomposes the export effect of generalized trust into the extensive and the intensive margins to underpin the channel(s) through which generalized trust affects export. Finally, this paper can be placed in the broader literature on trust and economic performances (Putnnam, 1993; Knack and Keefer, 1997; Zak and Knack, 2001)

The remainder of this paper is structured as follows. Section 2 presents a theoretical framework which informs the empirical analysis. Section 3 discusses the research methodology, specifying the empirical model and different data sources used in the analysis. Section 4 presents the empirical results, while Section 5 concludes.

2. Theoretical Background

Trust is a "particular level of subjective probability with which an agent assesses that another agent or group of agents will perform a particular action" (Gambetta, 1988). Two types of trust emerge from this definition: generalized and personalized trust. Generalized trust refers to the preconception an agent or a group of agent have on others while, personalized trust refers to the preconception an agent or group of agent have on a "known" agent or group of agents. My analytical setting views trust as an institution that underpins and enforces contractual relation. Williamson (1991) recognizes the importance of the "institutional environment" in this regards,

but argued that such an environment must apply equally to all actors in a given context or national culture. Accordingly, I focus on generalized trust also known as interpersonal or social trust, since it nests Williamson's notion on what constitutes an "institutional environment".

Together with social norm and networks, generalized trust forms part of social capital (Putnam, 1993). However, numerous studies have underscored it as the core of social capital, affecting different economic, social and political activities and outcomes (Bjørnskov, 2006). For example, Knack (2001, p.1) notes that the relative payoffs of production and predation are not only determined by formal mechanisms of contract enforcement and property right protection, but also by social norms and interpersonal trust. Among others, the latter is possible because it provide mutual assurance on compliance to a binding contract between implied parties thereby reducing uncertainties and opportunistic behaviors, i.e. contractual frictions, which are pervasive in contractual relations even in a country with strong contract enforcing institution.

High generalized trust level can reduce contractual frictions in so many ways, perhaps the most obvious is that in a high trusting society, being opportunistic even when the opportunity arises and the financial benefits are enormous would go contrary to the society's ingrained moral values and it usually attracts social sanctions and stigmas. Lyons and Mehta (1997) note that such social sanctions and stigmas are experienced both within and outside the boundaries of the exchange relation. In other words, it is costly being untrustworthy in a trustworthy society. High generalized trust level may also reduce contractual friction by lowering the amount of time and resources contracting parties devote to *ex post* bargaining and haggling over problems that arise in the course of exchange. This is due to mutual confidence among contracting parties that unanticipated events

will be fairly addressed and remedied (Dyer and Chu, 2003), and the expectation that the contracting partner will reciprocate in the future (Dore, 1983). But generalized trust do not only affect *ex post* contract inefficiencies as the forgoing arguments may suggest, it affects also *ex ante* investment incentives.

For example, the preponderance of trust can lead to the establishment of widespread network of social relations (Galardo, Lozzi and Mistulli, 2017). Supposing a contractual relation were to be entered by a producer and an input supplier wherein the implied parties are part of the said social network, this may help reduce information asymmetry about the input supplier since information are easily shared within a highly interconnected community. Such soft information could include whether a supplier can produce goods of a given quality, or can deliver the said goods on time (Lyons and Mehta, 1997). Generalized trust also promotes *ex ante* negotiating efficiency by allowing for greater flexibility to respond to changing market conditions and because contracting parties have greater confidence that information provided by each party is not misrepresented (Dyer and Chu, 2003). Along this line, Knack and Keefer (1997, p.1252), note that in societies characterized by high generalized trust level, "written contracts are less likely to be needed, and they do not have to specify every possible contingency. Finally, while the above discussions presuppose the existentiality of formal contract wherein generalized trust induces self-enforcing formal contracts, it may also be that higher generalized trust level lead to fewer formal contracts being made since parties believe they can create binding obligation by shaking hands (Lyons and Mehta, 1997; Adler, 2001).

How then does generalized trust lead to specialization in contract intensive industries, i.e. industries that are more vulnerable to contractual frictions? While the forgoing discussions on generalized trust and contractual frictions has been general, I assume that an industry's susceptibility to contractual frictions is an exogenous component that is technologically determined by the nature of production. A notable example of this would be a scenario wherein production in an industry do not rely on spot markets for inputs, but require relationship specific-investments to be made. Because this investment is unlikely to have much value outside the relationship and due to the irreversibility of investment once it is made, implied parties as rational agents are either more reluctant to enter into the proposed relationship or provide low level of relationship specific-investments when they enter into it. In either case, it introduces inefficiency or the well-known classical holdup problem which drives up production cost (Klein, Crawford and Alchian., 1978; Williamson, 1985). Possible ways of reducing this inefficiency include writing a binding long-term contracts or assigning property rights in a way that distributes the residual rights of control (Levcheko, 2007 p.795). This is the premise upon which prior studies evaluate how better domestic institutional quality and contract enforcement shift a country's comparative advantage towards contract intensive industries by reducing underinvestment and increasing efficient cost business contracting.

However, based on the contractual friction reducing effects of generalized trust divulged earlier, it is safe to aver that high generalized trust level offers investment and cost contracting gains similar to those of formal institutions. In fact, the prevailing wisdom within economics and social sciences as a whole is that informal institutions such as trust either complement or substitute formal contracting institutions where the government is either unable or unwilling to provide one (Knack

and Keefer, 1997; Mccannon, Asaad and Wilson, 2017). Other things equal, countries endowed with more trusting and trustworthy people are less likely to suffer from underinvestment and more likely to have cost advantages in those industries that produce final goods that intensively use inputs requiring relationship specific-investments. Therefore, the production of final goods and exports in those industries should experience a relative faster increase.

3. Research Methodology

3.1. Empirical Strategy

To test the hypothesis that countries with high generalized trust level experience relatively better export performances in contract intensive industries, I estimate the following baseline equation:

$$\rho_{sijt} = \chi_i + \chi_j + \chi_s + \chi_t + \beta_0 \boldsymbol{T}_{it-1} + \beta_1 z_s \boldsymbol{T}_{it-1} + otherControls + \varepsilon_{sijt} \quad (1)$$

where ρ_{sijt} is the export value in industry *s* from country *i* to *j* in period *t*. χ_t is year effect which is included to control for unobserved time-specific effects. Following Baldwin and Taglioni (2006), the term also controls for a deflation problem, with the trade data being expressed in current values. χ_i, χ_j and χ_s are exporter, importer, and industry fixed effects which account for both the panel unobserved heterogeneity and Multilateral Resistance Terms. $\boldsymbol{T}_{it-1}$ is a measure of country generalized trust which is lagged one period to further minimize any potential reverse causality running from comparative advantage to social trust.[3] z_s is a measure of contract intensity in industry *s*. I exclude the individual effect of z_s from equation (1) as it is already subsumed in the industry fixed effects. As a robustness check however, I report results with two alternative specifications in the baseline results. First, I remove the industry fixed effects and control for the

industry contract intensity. Second, I interact the industry contract intensity indicator with time dummies and see if the effect changes over time. As additional control variables, I account for conventional gravity model variables such as (log) exporter and importer gross domestic products per capita ($ln\,GDPpc$) and bilateral trade cost variables such as: bilateral distances ($\ln DIST$), common border ($Border$), and Common language ($COMLAN$), and Bilateral trade agreements (FTA). Finally, ε_{sijt} is the idiosyncratic error term. I estimate the baseline equation using OLS estimator.

Consistent to the theoretical framework in section 2, I am interested in the export effect of generalized trust through the *"contractual friction reducing channel"*. Equation (1) therefore explains bilateral industry export activity by interacting industry characteristic with country characteristic, $z_s T_{it-1}$. Therefore, β_1 is the coefficient of interest and it is expected be positive and statistically significant at all time, suggesting that countries characterized by high generalized trust level export relatively more in industries more prone to contractual frictions i.e. contract intensive industries. As indicated in the introduction, this empirical strategy builds on the seminal work of Rajan and Zingales (1998) that interacted industries' indicator of external finance dependence with a national indicator of financial development to study the impact of financial development on the output growth of credit constrained industries.

3.2. Data

As an empirical measure of generalized trust level, this study relies on the perception based trust indicator from the World Value Survey (WVS) which has become the standard trust indicator. It is measured as the proportion of a country's population that "agrees" with the statement, "Most

people can be trusted". Since this variable measures generalized trust, it meets the institutional environment. Different studies have employed this variable to evaluate the effect of informal institution on different socioeconomic outcomes (Zak and Knack, 2001; Roy, Munasib and Chen, 2014). This variable is directly extracted from the CANA Dataset (Castellacci and Natera, 2011) for a sample comprising 76 countries over the period spanning 1996-2008.[4] However, the original data comes from the WVS, a cross-country based survey data that is collected since the 1981 albeit countries enter the survey at different point in time. The values of the trust variable in the sample range from a low value of 0.028 in Brazil in 1997 to a high value of 0.742 percent in Norway in 2008. The mean value is 0.27 with a standard deviation of 0.132. Countries at the 75th percentile have a score value of 0.337 while those at the 25th percentile have a score value of 0.181.

Data on export is taken from the BACI-CEPII database at the 6-digit Harmonized System Classification (HSC) for which there are corresponding explanatory variables over the sample period. I then use a concordance table to map the 6-digit HSC products into the 3-digit category in the ISIC Revision 2 Industry Classification.[5] Because I am interested in how generalized trust level affects exports and the channels through which this effects come about, I derive 6 outcomes variables from the resulting trade data: (i) total export value (X_{sij}) in industry *s* in country *i's* export to country *j;* (ii) number of 6-digit HSC products (N_{sij}) in industry *s* in country *i's* export to country *j*; (iii) number of markets destinations (M_{si}) in industry *s* country *i* export to; (iv) average export per product ($\bar{x}_{sij}$) in industry *s* in country *i* to *j*; and (v) export intensity (k_{sij}) in industry *s* in country *i* to *j*. Following recent developments in the literature (Manova, 2013; Ndubuisi and Foster, 2019; Dutt, Mihov and van Zandt, 2013; etc.), I define (ii)-(iii) as the extensive export margin, while (iv)-(v) are defined as the intensive export margin.

X_{sij} is calculated as the sum of HSC product value in industry *s* from country *i* to *j*. Its values in my dataset range from a low value of 0 (for zero trade observations) or 1000 (for positive trade observations) to a high value of 32100000 (in thousands) in industry 383 (i.e. Transport Equipment) from Germany to France in 2008. I calculate N_{sij} and M_{si} as a simple count of the number of products and market destinations in industry *s*, respectively. The values of N_{sij} in my dataset range from a low value of 0 (for zero trade observations) or 1 product (for positive trade observations) to a high value of 657 products in industry 351 (i.e. Industrial Chemicals) from Germany to France in 1999. On the other hand, the values of M_{si} in the sample dataset range from a low value of 0 (for zero market destination) or 1 (for positive market destination observations) to a high value of 216 market destinations[6] in industry 382 (i.e. Machinery, exc. Electricals) from Germany in 2007 or 2008. I calculate the average value of export per product in industry *s* by country *i* to *j* as:

$$\bar{x}_{sij} = {X_{sij}}\Big/{N_{sij}} \qquad \dots (2)$$

The value of $\bar{x}_{sij}$ in the sample dataset range from a low value of 0 (for zero trade observation) or 1 (in for positive trade observations) to a high value of 2204581 (in thousands) in industry 353 (i.e. Petroleum Refineries) from Venezuela to Singapore in 2008. Finally, the export intensity in industry *s* by country *i* to *j* is calculated as:

$$k_{sij} = \frac{V_{sijt}}{V_{it}} \Big/ \frac{V_{swjt}}{V_{wt}} \qquad \dots (3)$$

Where V_{sijt} is the volume of export in industry *s* by country *i* to *j* in period *t*, while V_{it} is the total volume of export country *i* to the world. V_{swjt} is the volume of export in industry *s* by a reference country (all country in my sample) to country *j* in period *t*, while V_{wt} is the total volume of export by the reference country. The values of k_{sij} in my dataset range from a low value of 0 to a high value of 0.378 in industry 353 (i.e. Petroleum Refineries) from Indonesia to India in 1999.

For the industry measure of contractual friction, I use the industry contract intensity computed by Nunn (2007). Rauch (1999) classifies internationally traded goods into three: those traded on organized exchanges, those not traded on organized exchanges but are reference priced in trade publications, and all other commodities. Nunn (2007) combines this classification with the 1997 United States Input-Output Use Table to identify the types and shares of intermediate inputs used in the production of each final good. To ascertain whether the investments needed to produce an intermediate input require relationship specific-investment, the author used whether or not the intermediate input is quoted on an organized exchange, and whether or not it is reference priced in a trade publication (Nunn, 2007: p.575). He argued that products whose production relies more heavily on intermediate inputs that are neither quoted on organized exchange nor referenced priced in trade publications are more prone to the holdup problem. That is, the input supplier may either halt or threaten to halt its supply at any time, thereby requiring the producer to write a contract with input supplier. Accordingly, he constructs the first contract intensity Z_s^1 for each industry, as the share of intermediate inputs not traded on open market required to produce each final goods in that industry.

Nunn (2007) also developed a second index Z_s^2 which is measured as the share of intermediate goods not sold on open market together with those which are reference priced in trade publications required for production in each industry. He argued that inputs not sold on an exchange but referenced in trade publications can be thought of as having an intermediate level of relationship specificity, since trade publications are only produced if there is a sufficient number of purchasers of the publication. Since I am interested in contractual frictions in the least possible ways, I use Z_s^2 in all our analysis. As a robustness check, however, I report baseline results using Z_s^1. Table A2 in the appendix displays the industry contract intensity measures. The mean value for Z_s^2 is 0.865. The industry at the 75th percentile is 362 i.e. glass and glass products i.e. 362 (with a value of 0.967), while the industry at the 25th percentile is 321 i.e. Textile (with a value of 0.82).

Finally, all gravity model variables are also taken from the BACI-CEPII database. With the exception of Distance which is measured in kilometers per distance, the other bilateral trade costs variables are dummies which take the value of one if the country-pairs are common in those dimensions and zero otherwise.

<<Insert Table 1>>

4. Empirical Results

This section proceeds in three sub-sections. The first section presents the baseline regression results. The second section presents the robustness checks on the former. The third section presents the results on the differential impact of generalized trust level on export margins.

4.1. Bilateral Export Flows: Main Result

Table 1 shows the baseline regression results using generalized trust level and the Nunn (2007) industry contract intensity as an empirical measure of industry susceptibility to contractual friction. The dependent variable for each reported regression in Table 1 is bilateral industry exports (log) while the standard errors are all clustered at the country-pair level. I begin by reporting the result when I only regress bilateral industry export on generalized trust and its interaction with industry contract intensity in Column 1. As the result shows, there is a strong evidence of heterogeneity across industries in line with the hypothesis. The estimated coefficient of $z_s \boldsymbol{T}_{it-1}$ is positive and statistically significant at all conventional levels, suggesting that countries endowed with high generalized trust level export relatively more in contract intensive industries. Column 2 includes conventional gravity model variables as specified in the baseline equation (1) and the results show that my initial result holds in both qualitative and quantitative terms.

The result is also economically meaningful. Based on the coefficient estimates of 7.994 in column 2, the result suggests a one standard deviation expansion in generalized trust level contributes positively to bilateral export by 91.3 percentage points. In my sample, the average industry export value is 6.540 percentage point while the maximum industry export value is 17.284 percentage point. Therefore, the 91.3 percentage point increase is substantial in economic terms. To provide further context, when I consider how generalized trust level affects exports in industries with varying levels of contractual friction in my sample, bilateral export for an industry with a mean contractual friction of 0.865 increase by 107.9 percent in a country with generalized trust level at the 75th percentile compared to a country with generalized trust level at the 25th percentile.

The remaining columns in the table provide some initial robustness check on the baseline results. Column 3 reports the result when I replace the industry fixed effect with industry contract intensity indicator. The estimated coefficient of $z_s\boldsymbol{T}_{it-1}$ retains both the initial statistical significance level and the expected signs. As expected, the estimated coefficient of the industry contract intensity measure alone is negative, suggesting a trade reducing effect of contractual frictions. Column 4 emerges when I interact the industry contract intensity indicator with time dummies. Again, the result on the estimated coefficient of $z_s\boldsymbol{T}_{it-1}$ is consistent with those reported in previous columns. Although the preceding columns control for MRT by using importer and exporter fixed effects as suggested by Feenstra (2004), more recent research suggests using time-varying exporter and importer fixed effects to proxy MRT in a time-varying panel data because many of the trade cost factors could change over time (Baldwin and Taglioni, 2006). Therefore, Column 5 reports the result when I include time-varying importer and exporter fixed effects. The obtained result on the estimated coefficient of $z_s\boldsymbol{T}_{it-1}$ is generally consistent with those reported in the previous columns.

Next, Column 6 replaces the industry and year fixed effects with time-varying industry fixed effects to control for potential influences of time-varying industry factors on trade while Column 7 reports the result when I include country-pair fixed effects to account for the impact of unobserved heterogeneity at the country-pair level. In both cases, the results on the variable of interest is consistent with its previous estimates in suggesting that countries with high generalized trust level have comparative advantage in industries more prone to contractual frictions. Regarding the control variables, across each specified model in the Table, the estimated coefficients are all statistically significant at 1 percent and have the *a priori* expected signs. Finally, Table A3 in the

appendix replicates Table 1 using Nunn (2007)'s second industry contract intensity indicator. The results are consistent with those reported in Table 1 albeit the sizes of the estimated coefficients on the variables of interest are now smaller.

<<Insert Table 2>>

4.2. Bilateral Export Flows: Additional Robustness Checks

4.2.1. Potential Confounding Factors

Though my analysis focuses on generalized trust and how its interaction with industry contractual friction determine the composition of exports, the broader trade literature documents other country and industry characteristics that affect the composition of trade. Results reported in Table 1 would be biased if either generalized trust level (industry contract intensity) is correlated with these other country (industry) characteristics. To address this concern, Table 2 displays the results when I control for other country characteristics interacted with their respective industry characteristics. To conserve space, I report results only using industry, and time-varying exporter and importer fixed effects. The results are however robust to other specifications as in Table 1.[7] In Column 1–4, the estimated coefficient of $z_s T_{it-1}$ is positive and statistically significant at all conventional levels as expected. Importantly, introducing these variables individually in Column 1-4 and jointly in Column 5 only marginally affect the sizes of the estimated coefficients of variables of interest. These results indicate that the observed effect of generalized trust level on comparative advantage by reducing contractual frictions is independent of these other sources of comparative advantages.

In column 6, I control for formal contracting institution Q_{it} – rule of law – interacted with industry contract intensity.[8] The estimated coefficient of $z_s Q_{it}$ is positive and statistically significant. The result is therefore consistent with those reported in previous studies (Nunn, 2007; Levchenko, 2007; Ma *et al.,* 2010). For $z_s T_{it-1}$, the estimated coefficient falls from initial point estimate of 7.997 in Column 5 of Table 1 to 3.394, but retains both the statistical significance level and expected sign. In an unreported result, I find that this result is robust to using "contract enforcement" indicator from the heritage foundation indicators and when all variables are jointly included in Column 7. The consistent positive estimated coefficient for $z_s Q_{it}$ and $z_s T_{it-1}$ suggest that both are pathways of reducing contractual frictions.

Turning now to other sources of comparative advantage, the estimated coefficient of physical capital, human capital, and natural resources with industries' respective factor intensities in Column 1-3 are all statistically significant and have the expected signs.[9] These results are consistent with existing literature (Braun, 2003; Nunn, 2007; Levchenko, 2007). In Column 4, the estimated coefficient of financial development interacted with external finance dependence is consistent with Manova (2013), and suggests that financially developed economies export relatively more in financially constrained industries.[10] When these variables are jointly added in Column 5, the results are consistent with previous estimates with the exception been capital endowment interacted with capital intensity that turns statistically insignificant. In Column 8, I compare how the effect of generalized trust level fares in comparison with other sources of comparative advantage. For this, I rerun the model estimated in Column 7 with the standardized beta coefficients of traditional sources of comparative advantage together with trust, rule of law, and financial development. As can be seen in Column 8, human capital plays a much greater role.

This is followed by financial development and formal contracting institution. Generalized trust only outperforms natural resource endowment as a source of comparative advantage.

<<Insert Table 3>>

While results in Table 2 clearly indicate that generalized trust underlies successful contractual relation in contract intensive industries with or without formal contracting institutions, it may well be that the differential effect of generalized trust observed earlier is a proxy for some other feature of countries in those industries. To address this concern, I rerun my basic specification with full sets of interaction terms variables comprising the industry contract intensity indicator and country level endowment variables. The results are reported in column 1-4 of Table 3. In column 5, I interact (log) exporter GDP pc with industry contract intensity to isolate any effect due to the overall development of the country that generalized trust may be picking. In all cases, I find that my initial results remain virtually unchanged even when I jointly include these variables in column 6. This suggests that generalized trust exert an independent influence in contract intensive industries, an effect I argue is by reducing contraction frictions either by ensuring more effective and efficient contract enforcement, or by reducing the need for (expensive) formal contracting.

<<Insert Table 4>>

4.2.2. Dealing with Zero Trade

A potential source of selection bias while estimating gravity model is the omission of zero trade observations, which are common in gravity model. In my case this accounts for approximately

41.2 percent of the dyad trade links. Results displayed in Table 1 may therefore be susceptible to this bias since the estimation was achieved with only positive trade observations and excluded zero trade observations may not be random. To address this concern, I implement the Helpman *et al.* (2008) two-stage estimation procedure and Santos and Tenreyro (2006) Pseudo Poisson Maximum Likelihood (PPML) estimator. Although these approaches have become common in the trade literature in dealing with zero trade observations, the PPML has the added advantage of solving the problem with bias and inefficiency in the presence of heteroskedasticity that is pervasive in trade data which OLS and other estimators that require non-linear transformations fail to take care of.

The first-stage equation of the Helpman *et al.* (2008) two-stage estimation procedure is a Probit selection equation with the dependent taking a value of one for positive exporter-industry-importer pairs and zero otherwise, while the second-stage is a trade flow equation. The dependent variable in the latter is the log bilateral industry exports value by destination. The implementation of the procedure requires the use of an empirical proxy for the fixed costs of international trade, which affects firm export status but not the level of their export. Following their study and Manova (2013), I consider two sets of excluded instruments associated with regulation costs of firm entry: number of days of days to register a business (cost1) and the number of legal procedures, and the relative cost to GDP per capita for an entrepreneur to start operating a business (cost2). Data on these variables are taking from the World Bank Development Indicators. For each of them, I take the log mean value for the exporting and importing countries and obtain two costs proxies that could be linked to export of each country pair. Using these variables as exclusion instrument is

informed by the fact that countries with regulatory barriers to start domestic business are likelier to face barriers to export.

As the result in Column 1 of Table 4 confirms, higher regulatory costs of doing business reduces the probability of export market participation. Interestingly, the estimated coefficient of $z_s \boldsymbol{T}_{it\_1}$ is positive and statistically significant at all conventional level. This suggests that countries endowed with more trusting and trustworthy people are likelier to enter a given market and form new trade relationship, and this effect is even stronger in industries more vulnerable to contractual frictions. This provides a first empirical evidence of a potential differential effect of trust on the extensive margin. Column 2 report the Helpman *et al.* (2008) second-stage regression result. The result is consistent with those reported in Table 1. Finally, Column 3 reports the result for the PPML. The dependent variable here is industry exports value by destination at levels. As can be seen, the result on the variable of interest is consistent with previous estimates in qualitative and quantitative terms. Overall, the result reported in Table 4 lend credence to the hypothesis that countries with high generalized trust level have comparative cost advantage in contract intensive industries.

<<Insert Table 5>>

4.3. Export Margins

In this section, I gauge the channel(s) through which generalized trust affects export by examining its impact on the extensive and intensive export margins. As indicated in section 3.2, the extensive margin is defined here as the (i) number of 6-digit HSC product in industry *s* in country *i's* export to country *j* in period *t*; and (ii) the number of market destinations in industry *s* country *i* exports

to in period *t*. These two definitions capture the idea of product and market diversification. Product diversification result either through the expansion of existing products or introduction of new products. High generalized trust level for example, by reducing contractual frictions especially for relationship specific-investments, firms become more productive in terms of production scale, time, and inventiveness. Accordingly, they are able to produce and ship wider range of goods, and enter more markets.

Columns 1 and 2 in Table 6 confirm that indeed countries endowed with high generalized trust level ship a wider range of goods per destination in contract intensive industries. I test the robustness of this result by accounting for other sources of comparative advantage (Column 1 in Table A3 in the appendix) and zero trade observations by using the Helpman (2008) 2-stage estimation procedure (Column 3 in Table A4 in the appendix) or the Santos and Tenreyro (2006) PPML method (Column 2 in Table A4 in the appendix). In all cases, I find that my initial result holds. The coefficient estimate of 2.467 in Column 1 suggest that a one standard deviation expansion in generalized trust level contributes positively to the number of traded products by 28.16 percentage points for an industry with an average contract intensity of score of 0.865. When I consider the distribution of generalized trust in my data, the result further indicates that the number of traded products for an industry with an average contractual friction score of 0.865 increase by 38.49 percent in a country with generalized trust level at the 75^{th} percentile compared to a country with generalized trust level at the 25^{th} percentile.

Next, Column 3 and 4 display the result on the number of market destinations in an industry. The number of observation falls to 24,506 since I collapse the importer dimension of the data in order

to count the number of market destinations. The estimated coefficient on the variable of interest is positive and statistically significant at all conventional levels, confirming that countries with high generalized trust level enters significantly more markets in contract intensive industries. I test the robustness of this result to accounting for other sources of comparative advantage (Column 4 in Table A3 in the appendix) and find my initial result holds. Here, although the zero observation accounts for less than 1 percent of the observation, I still control for zero observations using the Santos and Tenreyro (2006) PPML (Column 5 in Table A4 in the appendix) and the Helpman (2008) 2-stage estimation procedure (Column 6 in Table A4 in the appendix). I find that my initial result holds only in the case of PPML. For the Helpman *et al.* (2008) 2-stage procedure, the coefficient estimate of the variable turns statistically insignificant although still positive. The coefficient estimate of 0.772 in Column 3 suggest that a one standard deviation expansion in generalized trust level contributes positively to the number of traded products by 8.815 percentage points for an industry with an average contract intensity of score of 0.865. When I consider the distribution of generalized trust in my data, the result further indicates that the number of traded products for an industry with an average contractual friction score of 0.865 increase by 12.04 percent in a country with generalized trust level at the 75^{th} percentile compared to a country with generalized trust level at the 25^{th} percentile.

The subsequent four columns in the Table 5 focus on the intensive margin. As noted in section 3.2, I define it as the average value export per product and the intensity of exports in industry *s* in country *i* to *j* in period *t*. Because trust reduces contractual frictions, the marginal cost of production will fall while productivity rises. These will ultimately bear on the average value per product and intensity of exported products. Results displayed in Columns 5-8 are in support of my conjectures.

Specifically, the estimated coefficients of variables of interest in the Columns are consistently positive and statistically significant, suggesting that countries with high generalized trust level have higher average export per product and export intensities in contract intensive industries. In Columns 7-12 of Table A4 in the appendix, I document that these results are robust to accounting for other sources of comparative advantage and controlling for zero trade observations. In terms of economic importance, the reported estimated coefficient in Column 5 suggests that a one standard deviation expansion in generalized trust level contributes positively to average export per product by 62.925 percentage points for an industry with average contract intensity of 0.865. On the other hand, the result in Column 7 suggest a one standard deviation expansion in generalized trust level contributes positively to export intensities by 97.727 percentage points for an industry with average contract intensity of 0.865.

Finally, to assess the relative importance of both margins I focus on the estimates using number of products (Columns 1 and 2) and export per product (Columns 6 and 7). Essentially, both margins follow a linear decomposition such that if they are in logs, any linear operator such as OLS should give estimates which when summed will add-up to the corresponding estimate for total bilateral exports in Column 5 and 7 of Table 1. While this conjecture is easily confirmed, the sizes of the estimated coefficient suggests a higher differential impact of generalized trust level on the intensive margin. For example, when I compare sizes of the coefficient estimates of $z_s \boldsymbol{T}_{it-1}$ in Colum 1 and 6, the results indicate that the intensive export margins accounts for about 69 percent increase in the total bilateral export flows of contract intensive industries.

5. Conclusion

The literature on "domestic institutions, comparative advantage and international specialization" has largely focused on how better formal domestic institutional quality and contract enforcement shift a country's comparative advantage towards industries that are more prone to contractual frictions (Nunn, 2007; Levchenko, 2007; Ma *et al.,* 2010). This paper contributes to this literature by focusing on informal institution vis-á-vis generalized trust which has been unduly ignored. I argue that generalized trust as an informal contracting institution either complement or substitute formal contracting institutions. Therefore, high generalized trust should offer similar gains as in formal contracting institution, say, by reducing contractual frictions. I test this hypothesis using the factor proportion model developed by Rajan and Zingales (1998). Consistent with my expectation, the results are suggestive that countries endowed with high generalized trust level experience a relative better export performances in industries that are more prone to contractual frictions. This result holds even after controlling for formal domestic institutional quality and contract enforcement. On the one hand, my study reinforces the importance of generalized trust for improved economic performance. On the other hand, it offers explanation as to why a country though with weak formal domestic institutions may still specialize in industries that are more vulnerable to contractual frictions due to strong domestic informal institutions such as generalized trust. For what it is worth, trust is a more efficient and effective way of achieving compliance to a contract compared to formal institutions even where the latter is very strong. It is more cost effective because it can reduce the need for more expensive formal contracting with handshakes.

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Table 1 – Baseline Regressions: Generalized Trust and Bilateral Exports

This table evaluates the effect of generalized trust on (log) bilateral exports in contract intensive industries over the period spanning 1996-2008. Industry contract intensity is measured using Nunn (2007)'s contract intensity index which measures, for each industry, the proportion of its intermediate inputs that are not traded on open markets and those that are reference priced in trade journals. Industry is defined as the 3-digit ISIC Revision 2 industry classification. Generalized trust variable is taken from the World Value Survey and is measured as the proportion of a country's population that "agrees" with the statement, "Most people can be trusted".

	(log) Bilateral Export by Industry						
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
$\boldsymbol{T}_{it-1}$	-6.907 [0.331]***	-6.93 [0.327]***	-7.052 [0.335]***	-6.957 [0.327]***			-6.748 [0.327]***
$z_s\boldsymbol{T}_{it-1}$	**7.827** **[0.362]*** **	**7.994** **[0.359]*** **	**8.044** **[0.369]*** **	**8.012** **[0.359]*** **	**7.977** **[0.359]*** **	**7.996** **[0.360]*** **	**7.776** **[0.360]*** **
$LDist_{ijt}$		-1.418 [0.026]***	-1.307 [0.024]***	-1.418 [0.026]***	-1.419 [0.027]***	-1.419 [0.027]***	
$LGDPPc_{it}$		0.26 [0.022]***	0.244 [0.021]***	0.25 [0.022]***			0.289 [0.022]***
$LGDPPc_{jt}$		0.693 [0.021]***	0.643 [0.020]***	0.694 [0.021]***			0.723 [0.020]***
$Border_{ij}$		0.68 [0.095]***	0.664 [0.086]***	0.680 [0.095]***	0.681 [0.095]***	0.68 [0.095]***	
$ComLang_{ij}$		0.555 [0.055]***	0.483 [0.050]***	0.555 [0.055]***	0.559 [0.055]***	0.56 [0.055]***	
FTA_{ijt}		0.23 [0.044]***	0.244 [0.040]***	0.229 [0.044]***	0.231 [0.048]***	0.231 [0.048]***	0.117 [0.020]***
$Colony_{ij}$		0.735 [0.087]***	0.66 [0.080]***	0.735 [0.087]***	0.733 [0.087]***	0.732 [0.087]***	
z_s			-2.633 [0.133]***				
Exporter FE	YES	YES	YES	YES	NO	NO	NO
Importer FE	YES	YES	YES	YES	NO	NO	NO
Industry FE	YES	YES	NO	NO	YES	NO	YES
Year FE	YES	YES	YES	NO	NO	NO	YES
Country-Pair FE	NO	NO	NO	NO	NO	NO	YES
Exporter-Year FE	NO	NO	NO	NO	YES	YES	NO
Importer-Year FE	NO	NO	NO	NO	YES	YES	NO
Industry-Year FE	NO	NO	NO	NO	NO	YES	NO
R-Square	0.49	0.62	0.49	0.62	0.63	0.63	0.67
# Observations	1,094,412	1,094,412	1,094,412	1,094,412	1,094,412	1,094,412	1,094,360

* p<0.1; ** p<0.05; *** p<0.01. Standard errors clustered at the country-pair level in squared brackets.

Table 2 – Generalized Trust and Bilateral Exports: Confounding Factors

This table tests the robustness of the effect of generalized trust on (log) exports in contract intensive industries to controlling for other industry characteristics interacted with their respective country-level factor endowments. Indicators on factor industry intensities are taken from Braun (2003). Human capital intensity (*sk*) is the median from 1986-1995 of the industry's mean wage over that of the whole manufacturing industry in the U.S. Physical capital intensity is the median of the gross fixed capital formation to value added ratio in the U.S. for the 1986-1995 period in each industry. External finance dependence (*xf*) is the median of the share of capital expenditures not financed with cash flows from operations in the U.S. for the 1986-1995 period in each industry. Natural Resources Intensity (*ni*) is a dummy variable that takes a value of 1 for the following industries (and 0 otherwise): Wood products, except furniture; Paper and products; Petroleum refineries; Misc. petroleum and coal products; other non-metallic mineral products; Iron and steel; and Non-ferrous metals.

	(log) Bilateral Export by Industry							
	Human Capital (*H*)	Physical Capital (*P*)	Financial Development (*F*)	Natural Resources (*Nr*)	All	Rule of Law (Q)	All	Beta Coefficients
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
$z_s \boldsymbol{T}_{it-1}$	**7.937**	**7.021**	**6.051**	**7.831**	**5.39**	**3.394**	**3.609**	**0.475**
	[0.358]* **	**[0.359]*** **	**[0.355]*** **	**[0.345]*** **	**[0.342]*** **	**[0.465]*** **	**[0.430]*** **	**[0.057]*** **
$sk_s H_{it}$	1.473				1.277		1.275	0.836
	[0.056]***				[0.055]***		[0.055]***	[0.036]***
$ci_s P_{it}$		0.513			0.032		0.028	0.049
		[0.155]***			[0.156]		[0.156]	[0.276]
$xf_s F_{it}$			0.775		0.681		0.633	0.631
			[0.021]***		[0.022]***		[0.021]***	[0.021]***
$ni_s Nr_{it}$				0.060	0.059		0.055	0.434
				[0.003]***	[0.003]***		[0.003]***	[0.021]***
$z_s Q_{it}$						1.178	0.504	0.510
						[0.066]***	[0.068]***	[0.068]***
R-Square	0.63	0.64	0.63	0.63	0.65	0.63	0.65	0.65
# Observations	1,094,412	1,019,206	976,788	1,094,412	901,582	1,094,412	901,582	901,582

* p<0.1; ** p<0.05; *** p<0.01. Standard errors clustered at the country-pair level in squared brackets. All regression contain unreported gravity model variables coefficients on colony, border, common border and FTA. In addition, they contain unreported industry and time-varying exporter and importer fixed effects.

Table 3 – Generalized Trust and Bilateral Exports: Confounding Factors

This table isolates the differential effect of generalized trust on (log) bilateral exports in contract intensive industries from the effect of other country characteristics by interacting the industry contract intensity indicator with different country characteristics.

	(log) Bilateral Export by Industry					
	Human Capital	Physical Capital	Financial Development	Natural Resources	Economic Development	All
	[1]	[2]	[3]	[4]	[5]	[6]
$z_s \boldsymbol{T}_{it-1}$	**6.092** **[0.403]*** **	**4.867** **[0.350]*** **	**3.684** **[0.372]*** **	**7.617** **[0.343]*** **	**4.404** **[0.425]*** **	**3.611** **[0.379]*** **
$z_s H_{it}$	1.029 [0.096]***					-0.472 [0.141]***
$sk_s H_{it}$	1.435 [0.056]***					1.214 [0.056]***
$z_s P_{it}$		0.9 [0.035]***				0.934 [0.038]***
$ci_s P_{it}$		0.915 [0.151]***				0.63 [0.157]***
$z_s F_{it}$			0.902 [0.061]***			-0.279 [0.074]***
$xf_s F_{it}$			0.644 [0.019]***			0.594 [0.020]***
$z_s Nr_{it}$				-0.125 [0.007]***		-0.112 [0.007]***
$ni_s Nr_{it}$				0.042 [0.002]***		0.046 [0.002]***
$z_s LGDPPc_{it}$					0.747 [0.040]***	0.338 [0.059]***
R-Square	0.61	0.62	0.61	0.61	0.61	0.63
# Observations	1,094,412	1,019,206	976,788	1,094,412	1,094,412	901,582

* p<0.1; ** p<0.05; *** p<0.01. Standard errors clustered at the country-pair level in squared brackets. All regression in the columns contain unreported gravity model variables coefficients on colony, border, common border and FTA. In addition, they contain unreported industry and time-varying exporter and importer fixed effects.

Table 4 - Generalized Trust and Bilateral Export: Zero Trade Observations

This table tests the robustness of the baseline result on the differential effect of generalized trust on exports in contract intensive industries to controlling for zero trade observations using the Helpman *et al.* (2008) 2-stage estimation procedure and Santos and Tenreyro (2006) PPML estimator

	Helpman et al. (2008)		PPML
	Pr(Bilateral Industry Export > 0)	(log) Bilateral Industry Export	(unlog) Bilateral Industry Export
	[1]	[2]	[3]
$\boldsymbol{T}_{it-1}$	-2.697		
	[0.165]***		
$z_s\boldsymbol{T}_{it-1}$	**3.515**	**3.100**	**2.856**
	[0.168]* **	**[0.546]*** **	**[0.930]*** **
$Cost1_{ijt}$	-0.171		
	[0.026]***		
$Cost2_{ijt}$	-0.483		
	[0.177]***		
R-Square		0.61	
# Observation	1,846,800	1,067,964	1,846,800

* p<0.1; ** p<0.05; *** p<0.01. Standard errors clustered at the country-pair level in squared brackets. Column 1 contains unreported gravity model variables coefficient on importer and exporter (log) GDP pc, bilateral distance, colony, common border, colony, and FTA. They also contain unreported industry, year, exporter and importer fixed effects. Column 2 and 3 contain unreported gravity model variables coefficients on bilateral distance, colony, common border, colony, and FTA. They also contain unreported industry and time-varying exporter and importer fixed effects.

Table 5 - Generalized Trust and Export Margins

This table evaluates the differential effect of generalized trust level on the extensive and intensive exports margin of contract intensive industries. The extensive margin is defined as the (i) number of 6-digit HSC product exported in industry *s* by country *i* to *j* in period *t*; and (ii) the number of market destinations in industry *s* country *i* export to in period *t*. The intensive margin is defined as the (i) average value export per product in industry s by country *i* to *j* in period *t*; and (ii) the intensity of export in industry s by country *i* to *j* in period *t*.

	Extensive Margin				Intensive Margin			
	(log) # of Products		(log) # of Markets		(log) Export Per Product		(log) Export Intensity	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
$\boldsymbol{T}_{it-1}$		-1.985		-0.409		-4.763		-7.387
		[0.109]***		[0.337]***		[0.256]***		[0.449]***
$z_s\boldsymbol{T}_{it-1}$	**2.467**	**2.400**	**0.772**	**0.776**	**5.511**	**5.376**	**8.559**	**8.295**
	[0.111]* **	**[0.112]*** **	**[0.391]*** **	**[0.382]** **	**[0.284]*** **	**[0.284]*** **	**[0.497]*** **	**[0.498]*** **
R-Square	0.73	0.8	0.88	0.86	0.45	0.49	0.73	0.76
# Observation	1,094,412	1,094,360	24,504	24,506	1,094,412	1,094,360	1,089,158	1,089,101

* p<0.1; ** p<0.05; *** p<0.01. Standard errors clustered at the country-pair level in squared brackets. Column 1, 3, 5 and 7 contain unreported industry, and time-varying exporter and importer fixed effects. They also contain unreported variables' coefficients on bilateral distance, colony, common border, colony, and FTA. Column 2, 4, 6 and 8 contain unreported industry, year and country-pair fixed effects. They also contain unreported variables' coefficients on importer and exporter (log) GDP pc and FTA.

Appendix

Table A1 - Summary Statistics

This table shows basic descriptive statistics of variables employed in the empirical analysis.

Variabe	# Observation	Mean	Std. Dev.	Min	Max
(log) Bilateral Export	1,175,874	6.540	3.201	0.000	17.284
(log) # Products	1,175,874	2.318	1.589	0.000	6.488
(log) # Markets	26,542	4.094	1.012	0.000	5.375
(log) Export Per Product	1,175,874	4.221	2.058	0.000	14.606
(log) Export Intensity	1,168,884	-21.082	5.049	-43.183	-0.973
(log) GDPpc exporter	2,000,700	8.325	1.634	4.721	11.464
(log) GDP pc importer	2,000,700	8.325	1.634	4.721	11.464
Generalized Trust	2,000,700	0.271	0.132	0.028	0.742
(log) Distance	2,000,700	8.617	0.856	5.195	9.881
Border	2,000,700	0.029	0.169	0.000	1.000
Common Language	2,000,700	0.094	0.292	0.000	1.000
FTA	2,000,700	0.161	0.368	0.000	1.000
Colony	2,000,700	0.022	0.146	0.000	1.000
Human Capital	2,000,700	2.572	0.656	1.053	3.664
(log) Physical Capital	1,711,125	-4.286	1.771	-8.683	-0.548
Natural Resource	2,000,700	5.003	7.823	0.000	55.312
(log) Finance	1,798,200	3.527	0.997	-1.683	5.733

Table A2 – Industry Characteristics

This table describes the industry characteristics used in this paper. Contract intensity (z1) measures for each industry, the proportion of its intermediate inputs that are not traded on organized exchange while contract intensity (z2) measures for each industry, the proportion of its intermediate inputs that are not traded on organized exchanged and those that are reference priced in trade journals. Skill (*sk*) is the median from 1986-1995 of the industry's mean wage over that of the whole manufacturing industry in the U.S. Physical capital intensity is the median of the gross fixed capital formation to value added ratio in the U.S. for the 1986-1995 period in each industry. External finance dependence (*xf*) is the median of the share of capital expenditures not financed with cash flows from operations in the U.S. for the 1986-1995 period in each industry. Natural Resources Intensity (*ni*) is a dummy variable that takes a value of 1 for the following industries (and 0 otherwise): Wood products, except furniture; Paper and products; Petroleum refineries; Misc. petroleum and coal products; other non-metallic mineral products; Iron and steel; and Non-ferrous metals.

isic	Contract Intensity (z1)	Contract Intensity (z2)	Skill Intensity (sk)	Physical Capital Intensity (ci)	Resource Intensity (ni)	External Finance Dependence (xf)
311	0.331	0.557	0.812	0.062	0	0.137
313	0.713	0.949	1.135	0.062	0	0.077
314	0.317	0.483	1.354	0.018	0	-0.450
321	0.376	0.820	0.688	0.073	0	0.401
322	0.745	0.975	0.502	0.019	0	0.029
323	0.571	0.848	0.687	0.032	0	-0.140
331	0.516	0.670	0.741	0.065	1	0.284
332	0.568	0.910	0.698	0.039	0	0.236
341	0.348	0.885	1.139	0.132	1	0.176
342	0.713	0.995	0.934	0.052	0	0.204
351	0.240	0.884	1.408	0.124	0	0.205
352	0.490	0.946	1.209	0.060	0	0.219
353	0.058	0.759	1.656	0.196	1	0.042
354	0.395	0.895	1.153	0.074	1	0.334
355	0.407	0.923	0.985	0.066	0	0.227
356	0.408	0.985	0.827	0.088	0	1.140
361	0.329	0.946	0.804	0.055	0	-0.150
362	0.557	0.967	1.012	0.090	0	0.529
369	0.377	0.963	0.952	0.068	1	0.062
371	0.242	0.816	1.251	0.102	1	0.087
372	0.160	0.460	1.098	0.101	1	0.006
381	0.435	0.945	0.914	0.053	0	0.237
382	0.764	0.975	1.119	0.058	0	0.445
383	0.740	0.960	1.064	0.077	0	0.768
384	0.859	0.985	1.322	0.071	0	0.307
385	0.785	0.981	1.234	0.053	0	0.961
390	0.547	0.863	0.755	0.039	0	0.470

Table A3 – Generalized Trust and Bilateral Exports

This table tests the robustness of the baseline regression result to using alternative Nunn (2007) contract intensity indicator measured for each industry as, the proportion of its intermediate inputs that are not traded on open markets.

	(log) Bilateral Industry Exports						
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
$\boldsymbol{T}_{it-1}$	-2.412	-2.065	-1.534	-2.08			-1.973
	[0.152]***	[0.146]***	[0.096]***	[0.147]***			[0.145]***
$z_s\boldsymbol{T}_{it-1}$	**4.807**	**4.353**	**3.123**	**4.361**	**4.338**	**4.347**	**4.148**
	[0.244]* **	**[0.238]*** **	**[0.101]*** **	**[0.239]*** **	**[0.238]*** **	**[0.239]*** **	**[0.239]*** **
z_s			-0.993				
			[0.061]***				
Exporter FE	YES	YES	YES	YES	NO	NO	NO
Importer FE	YES	YES	YES	YES	NO	NO	NO
Industry FE	YES	YES	NO	NO	YES	NO	YES
Year FE	YES	YES	YES	NO	NO	NO	YES
Country-Pair FE	NO	NO	NO	NO	NO	NO	YES
Exporter-Year FE	NO	NO	NO	NO	YES	YES	NO
Importer-Year FE	NO	NO	NO	NO	YES	YES	NO
Industry-Year FE	NO	NO	NO	NO	NO	YES	NO
R-Square	0.49	0.62	0.49	0.62	0.63	0.63	0.67
# Observation	1,094,412	1,094,412	1,094,412	1,094,412	1,094,412	1,094,412	1,094,360

* p<0.1; ** p<0.05; *** p<0.01. Standard errors clustered at the country-pair level in squared brackets. Colums 1-4 contain unreported gravity model variables coefficient on importer and exporter (log) GDP pc, bilateral distance, colony, common border, colony, and FTA. Column 5-6 contain unreported gravity model variables coefficient as in previous columns excluding importer and exporter (log) GDP pc. Column 7 contain unreported importer and exporter (log) GDP pc.

Table A4 - Generalized Trust and Export Margins

This table tests the robustness of my results on the effect of generalized trust level on the extensive and intensive exports margin of contract intensive industries to controlling for other country and industry characteristics that determine industry specialization (i.e. Columns 1, 4, 7 and 10) and to controlling for zero observations using the Helpman *et al.* (2008) 2-stage estimation procedure (i.e. Columns 3, 6, 9 and 12) and Santos and Tenreyro (2006) PPML estimator (i.e. Columns 2, 5, 8 and 11).

	Extensive Margin						Intensive Margin					
	# of Product			# of Markets			Export Per Product			Export Intensity		
	Other Characters	PPML	HMR	Other Characters	PPML	HMR	Other Characters	PPML	HMR	Other Characters	PPML	HMR
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
$z_s T_{it-1}$	**1.539**	**0.97**	**0.348**	**1.087**	**0.515**	**9.273**	**3.851**	**7.055**	**4.71**	**5.637**	**5.653**	**4.925**
	[0.105]* **	**[0.165]*** **	**[0.130]*** **	**[0.369]*** **	**[0.245]** **	**[7.642]**	**[0.276]*** **	**[1.188]*** **	**[0.302]*** **	**[0.491]*** **	**[2.218]** **	**[0.520]*** **
$sk_s H_{it}$	0.612			0.324			0.665			1.412		
	[0.025]***			[0.050]***			[0.040]***			[0.072]***		
$ci_s P_{it}$	0.569			0.302			-0.536			-0.502		
	[0.056]***			[0.165]*			[0.124]***			[0.221]**		
$xfd_s f_{it}$	0.305			-0.068			0.376			0.773		
	[0.008]***			[0.024]***			[0.016]***			[0.027]***		
$ni_s N_{it}$	0.016			0.006			0.043			0.061		
	[0.001]***			[0.002]**			[0.002]***			[0.004]***		
R-Square	0.75		0.76	0.88		0.78	0.47		0.46	0.75		0.74
#Observation	901,582	1,846,800	1,094,412	18,699	24,624	1,802	901,582	1,846,800	1,094,412	897,512	1,846,725	1,089,158

* p<0.1; ** p<0.05; *** p<0.01. Standard errors clustered at the country-pair level in squared brackets. Each Column contain unreported gravity model variables coefficient on bilateral distance, colony, common border, colony, and FTA.

[1]For example, Adler (2001) notes that trust reduces transaction costs by "replacing contracts with handshakes".

[2] This is based on survey question in EuroBarometer survey in 1996 which reads, "I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust or no trust all?"

[3] The results are however robust to using contemporaneous values of generalized trust indicator.

[4] Castellacci and Natera (2011) use imputation methods to fill-in missing observations for different countries. We kindly refer the reader to the article for more detailed description about the data.

[5] https://wits.worldbank.org/product_concordance.html

[6] This number exceeds the number of importers in my dataset because I use all observations in the original BACI-CEPII data to calculate it. Limiting my analysis to the number of importers in my data do not change my result in qualitative terms

[7] Results available upon request.

[8] Data on the rule of law is from the World Governance Indicator.

[9] Data on physical and human capital are taken from the version 9 of the PWT table. Data on natural resource is taken from the World Development Indicator and is measured as the "total natural resources rents (% of GDP)".

[10] Data on financial development is from the World Development indicator and is measured as "Domestic credit to private sector by banks (% of GDP)".