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**THE QUALITY OF INSTITUTIONS AND THE
RELATIONSHIP BETWEEN
INTERNATIONAL TRADE AND INEQUALITY**

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ABSTRACT

This paper investigates the relationship between international trade and inequality in Brazilian municipalities, distinguishing them by the quality of local institutions. It departs from the theoretical hypothesis of a reinforcing relationship between inequality and quality of institutions. The related literature shows that initial conditions of inequality shape the gradual evolution of institutions over time, while institutions also determine current inequality. I apply micro data from the 2000 and 2010 Brazilian censuses combined with data on international trade at the municipal level. Focusing on a unique political regime facilitates analysis of the direct influence of institutional quality on the international trade-inequality nexus. The empirical analysis regresses municipal Gini index on municipal exports and imports for two subsamples of the available data, representing municipalities with weak institutions and municipalities with strong institutions, according to two specific institutional variables. The first variable measures the distance to a labor court of a given municipality, and the second variable measures the municipal concentration of resources, represented by land Gini. I find that only municipal exports robustly reduce inequality and the magnitude of reduction is higher in municipalities with strong institutions than in those with weak institutions, which is in line with a redistributive aptitude associated with the quality of institutions. If exports increase 10%, Gini reduces by 0.00756 points in municipalities with low distance to justice, while the effect of exports on Gini is not significantly different from zero in municipalities with high distance to justice. An increase of 10% in exports reduces the Gini index in 0.00548 point in municipalities with high concentration of land, and reduces the Gini index in 0.00905 point in municipalities with low concentration of land. The empirical results show that exports reduce inequality to a greater extent in places with relatively strong institutions, predominantly located in the south, that already present a lower level of inequality than northern municipalities. Thus, exports exacerbate inequality between regions. For this reason, policy implications of exports-inequality nexus are quite limited regarding the reduction of inequality between regions. For this proposal, it would be desirable a factor that could reduce inequality in regions with higher levels of inequality.

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INTRODUCTION

The relationship between international trade and inequality is particularly important in developing countries. Distinctive institutional characteristics of these countries, as the concentration of *de facto* power through the concentration of economic resources (ACEMOGLU and ROBINSON, 2006) and the lack of access to justice for disadvantaged individuals (SANDEFUR, 2008), may intensify the vulnerability of people at the bottom of the income distribution and their access to the gains of international trade. These characteristics translate informal and formal norms, indicating institutional aspects that mediate the relationship between international trade

and inequality. Nevertheless, institutional differences across countries may reflect deeper differences (e.g. differences in the political regime), what would misinform any redistributive impact of institutions.

This paper departs from the theoretical hypothesis of a reinforcing relationship between inequality and quality of institutions (ACEMOGLU *et al.* 2014; ACEMOGLU and ROBINSON, 2009; ENGERMAN and SOLOKOFF, 2002; GRADSTEIN, 2007; GRADSTEIN and MILANOVIC, 2004). It empirically estimates the relationship between international trade and inequality in Brazilian municipalities, divided in two subsamples according to measures of institutional quality regarding land concentration and access to justice (eventually the applied variable will measure the opposite, the distance to justice). I apply data from the Brazilian censuses of 2000 and 2010 combined with data on municipal international trade (exports and imports). Results show that only exports significantly reduce inequality in the half of municipalities with more access to justice and with less land concentration, while the impact of international trade on inequality is not significant in the half of municipalities with less access to justice and with more land concentration.

There is no consensus in the literature regarding the impact of international trade on inequality *per se*. Although different theories agree international trade leads to economic improvement, the distribution of gains depends on the underlying economic mechanisms. If the country is abundant in labor, as is the case in several developing countries, then the Stolper-Samuelson theorem predicts a reduction in inequality. However, other theories suggest an increase in inequality in both skilled and unskilled labor abundant countries; examples include trade in intermediate goods combined with FDI (Feenstra and Hanson, 1996), and skill-biased technical change (Rattso and Stokke, 2013; Lee and Wie, 2015).¹

Recent studies indicate that the impact of international trade on inequality may be influenced by the quality of institutions, as they distinguish countries either by the factor intensity of their industries (LEVCHENKO, 2007) or by their political regime (LIN and FU, 2016) and determine different effects of international trade on inequality. These studies are detailed below, but it is worth noting that the mediation of institutions in the international trade-inequality nexus in these cases is indirect: institutions do not modify the effect of international trade on inequality, rather they distinguish countries by categories in which different economic mechanisms take place.

Actually, economic inequality and the quality of institutions present a direct (although inverse) and reinforcing relationship as empirically verified by Muller (1998) and Chong and Gradstein (2007). Certain theoretical arguments may support this evidence. On the one hand, Engerman and Solokoff (2002) and Gradstein (2007) argue that initial conditions of inequality² shape the gradual evolution of institutions over time.³ On the other hand, Gradstein and Milanovic (2004), Acemoglu and Robinson (2009) and Acemoglu *et al.* (2014) show that institutions determine current inequality.

This paper focuses on a single developing democracy, which avoids cross-country differences that are so large that they may hinder the identification of the direct redistributive effects of institutions. Once such a study at municipal level leaves few mechanisms by which a municipality can reduce inequality⁴, I apply two institutional variables that may directly influence inequality *and* vary across Brazilian municipalities. The first institutional variable (*Distance to Justice*) measures the difficult of access to two categories of tribunals that are especially helpful for disadvantaged people: the Labor Court and the “Special Civil Tribunals” (Juizado Especial Cível), which are tribunals dedicated to civil law matters with low complexity

and low amount of money involved. The second institutional variable used in this paper reflects the concentration of economic resources measured by the concentration of land (*Land Gini*).

Unlike the fragmented Hispanic region in Latin America, Brazil has been unified since its discovery in 1500. While this has resulted in a unique centralized political regime, the country is large enough to provide some variability in the quality of local institutions. The least developed state (Maranhão⁵) has a GDP *per capita* comparable to that of India whereas that of the most developed state (São Paulo) is comparable to Eastern European countries. Maranhão presents 47% less institutional quality than São Paulo, according to the measures used in this paper, which illustrates the heterogeneity within the country, as previously highlighted by Naritomi *et al.* (2012): "...even within a constant *de jure* setting, different geographic characteristics may still be associated with different *de facto* institutional arrangements and distributions of economic and political power, which would then be relevant determinants of local development".

The effect of institutions in determining international trade patterns has been studied by Levchenko (2007), who proposes incorporating institutions as a factor in a Heckscher-Ohlin framework with incomplete contracts. In this model, the quality-institution-abundant North specializes in the high-paying institutionally dependent industries and the "good-jobs" disappear in the South. Although Levchenko (2007) does not focus on inequality, it is possible to foresee an increase in inequality where institutions are weak, as international trade reduces wages and increases the return on capital in the South. The current paper differs from Levchenko (2007), as the former intends to analyze the direct influence of institutions on the international trade-inequality relation, while the latter identifies the comparative advantage associated with the quality of institutions. Consequently, I use data on local institutions and aggregated data on the international trade of Brazilian municipalities, whereas Levchenko (2007) uses data on bilateral trade and institutional heterogeneity between countries. In contrast to Levchenko (2007), I find the effect of international trade in reducing inequality is larger in municipalities with strong institutions.

More recently, Lin and Fu (2016) point out those institutional aspects may determine the theoretical framework at play, and therefore, the distribution of the gains of international trade. Consistent with the Stolper-Samuelson theorem, they find international trade has a negative impact on inequality in autocracies, which are supposedly exporters of primary commodities. Consistent with Feenstra and Hanson (1996), they find international trade has a positive impact on inequality in democracies, which allegedly attract skilled labor-intensive activities through FDI, which increases the relative demand for skilled labor. One may notice that in the analysis by Lin and Fu (2016), good institutions do not change the influence of international trade on inequality; instead they distinguish democracies that attract FDI, and autocracies that are abundant in primary commodity factors.

Diverging from the related literature, I argue that if international trade generates gains, a first order effect of strong (weak) institutions is providing their more (less) egalitarian distribution. Although the objective of this paper is not the causal verification of the above international trade theories, their predicted results would still hold, but mediated by the quality of the institutions. To illustrate, based on Heckscher-Ohlin, North-South trade would reduce inequality in the southern countries as a whole and even more so in the southern countries with strong institutions. Conversely, skill-biased technical change (induced by international trade) would increase inequality in the southern countries as a whole, but to a lesser extent in southern countries with strong institutions.

This paper has similarities to those of Castilho *et al.* (2012) and Moreira and Najberg (2000) who use more aggregated Brazilian data from states and country, respectively. Nevertheless, only a fraction of Brazil engages in international trade⁶. In fact, Castilho *et al.* (2012) and Moreira and Najberg (2000) estimate the impact of the hypothetical international trade of some municipalities on the inequality of the entire country. By contrast, the current paper studies the effect of international trade on inequality at the municipal level.⁷

This paper is structured as follows. Section 2 presents the methodology and data. Section 3 reports on the findings and Section 4 presents the conclusion.

METHODOLOGY AND DATA

METHODOLOGY

The econometric regressions estimate the relationship of the logarithm of international trade (the sum of exports and imports) of municipality i , in year t , with the inequality index $Gini$.

$$Gini_{it} = \beta_0 + \beta_1 Trade_{it} + \delta' \mathbf{X}_{it} + \lambda_i + \lambda_t \quad (1)$$

Equation (1) is estimated for two subsamples of the available data, representing municipalities with weak institutions and municipalities with strong institutions. Firstly, I use the median of the variable *Distance to Justice* as sample division. Those municipalities with *Distance to Justice* higher than the median are classified as municipalities with weak institutions, and those municipalities with *Distance to Justice* lower than the median are classified as municipalities with strong institutions. Secondly, I use the median of *Land Gini* as sample division. Those municipalities with *Land Gini* higher than the median are classified as municipalities with weak institutions, and vice-versa.

I use Castilho *et al.* (2012) to define the control variables in vector \mathbf{X}_{it} , which are the logarithm of *per capita* GDP, the variation of GDP, the proportion of people with 4 to 10 years of schooling, the proportion of people with 11 years or more of schooling, the proportion of population in the informal sector, the proportion of population living in rural areas and the proportion of the population that is white. Municipality fixed effects λ_i control for any effect specific to municipalities that are time invariant, thus only variations within municipalities, from 2000 to 2010, are taken into account in the regressions. The variables λ_t are dummy controls for year and international trade is lagged in one year. Data on inequality and on control variables at the municipal level were obtained from the 2000 and 2010 censuses, thus t is restricted to those years.

Variables of control and municipality fixed effects offer a substantial control for missing variables, while lagged international trade does not entirely treat the reversal causality issue. An instrument correlated with international trade and not correlated with inequality would solve this issue, but it is not available, to my knowledge. Thus, I acknowledge the descriptive nature of estimations, but it is worth to mention that the economic literature present little theory or evidence on the impact of inequality on international trade volumes.⁸

DATA

Instead of measuring access to justice, I propose a variable that measures the opposite, the *Distance to Justice*. This conception captures the difficulty of citizens in a municipality without a given tribunal, as they have to displace to another municipality for accessing this public service. It is based on the distance to a Labor Court and on the distance to a Special Civil Tribunal in 2000.

Physical distance to a court is a major determinant of the demand for justice, as “Due to distance costs, it might be too expensive to file cases for some victims with low expected awards.” (CHAPPE and OBIDZINSKI, 2014, p.121). The cost barrier should be more severe for poor people than for rich people, what exacerbates existing inequality. Espinosa et al. (2017) study the effects of a reform that reduced 20% of labor courts in France, in 2008. They empirically find that demand for litigation (as a measure of access to justice) decreased after the reduction in the number of courts. Moreover, the duration of the cases increases in remaining courts located close to those removed courts.

On the one hand, the access to a Labor Court is important to reduce inequality because of the difficulties of enforcement of labor regulations in the country, which presents a large informal sector. On the other hand, the “Special Civil Tribunals” treat civil occurrences with low complexity involving less than 40 minimum wages.⁹ These tribunals are especially helpful for disadvantaged people, since they do not require a lawyer or any monetary charge.

If a given municipality presents a Labor Court, then the distance to Labor Court is set to zero; otherwise, I take the distance to the closest municipality with a Labor Court in 2000. A Labor Court has geographical competence; it may serve municipalities in the neighborhood that do not have a Labor Court, besides the municipality in which the court is located. Data about geographical competence in 2000 are not currently available (in 2018), but the foundation year of each court is available.¹⁰ As geographical competence is allocated based on geographical proximity, for the municipalities that did not have a Labor Court in 2000, I calculated the distance to the closest municipality with a Labor Court in 2000.

The distance to Special Civil Tribunal is analogously calculated for 2001, as data is not available for 2000.¹¹ Finally, the variable *Distance to Justice* is constructed with the mean of the logarithm of the distance to Labor Court (plus one) and the logarithm of the distance to Special Civil Tribunal (plus one).

The second institutional variable used in this paper measures the concentration of land (*Land Gini*) calculated with data from the Brazilian Agricultural Census of 1996, this index is based on the *de facto* political power that land concentration may offer, despite official institutions. Acemoglu and Robinson (2006) distinguish “de jure” political power, which is allocated by political institutions; and “de facto” political power, which presents a reinforcing relationship with the concentration of economic resources. While the former is allocated by official channels, as elections; the latter is obtained through alternative channels as brute force, lobbying or bribery. Land concentration presents a second order effect increasing inequality, as “...the concentration of economic resources in the hands of the elite acts as a source of de facto political power.” (NARITOMI et al., 2012). In this context, I assume that the concentration of land in Brazilian municipalities reflects a larger bargaining power of employers and consequent vulnerability of disadvantaged workers in labor negotiations. If economic resources are concentrated, owners may impose unfavorable conditions to workers, as lower wages or irregular jobs.

The Gini and other sociodemographic variables detailed at the municipal level were constructed with data from the Demographic Census sample microdata from 2000 and 2010, published by the Brazilian Institute of Geography and Statistics (IBGE).

Data on imports and exports at municipal level are available on the Secretariat of Foreign Trade from the Ministry of Development, Industry, and Foreign Trade (SECEX/MDIC). It is nevertheless advisable to place a caveat on these data, as they only reflect direct international trade of a municipality. They do not take into account redistributions of goods across municipalities made by wholesalers, retailers or suppliers of intermediate goods. For example, imports of a retail chain may be concentrated in the municipality of its central warehouse.

FIGURE 1: DISTANCE TO JUSTICE IN 2000

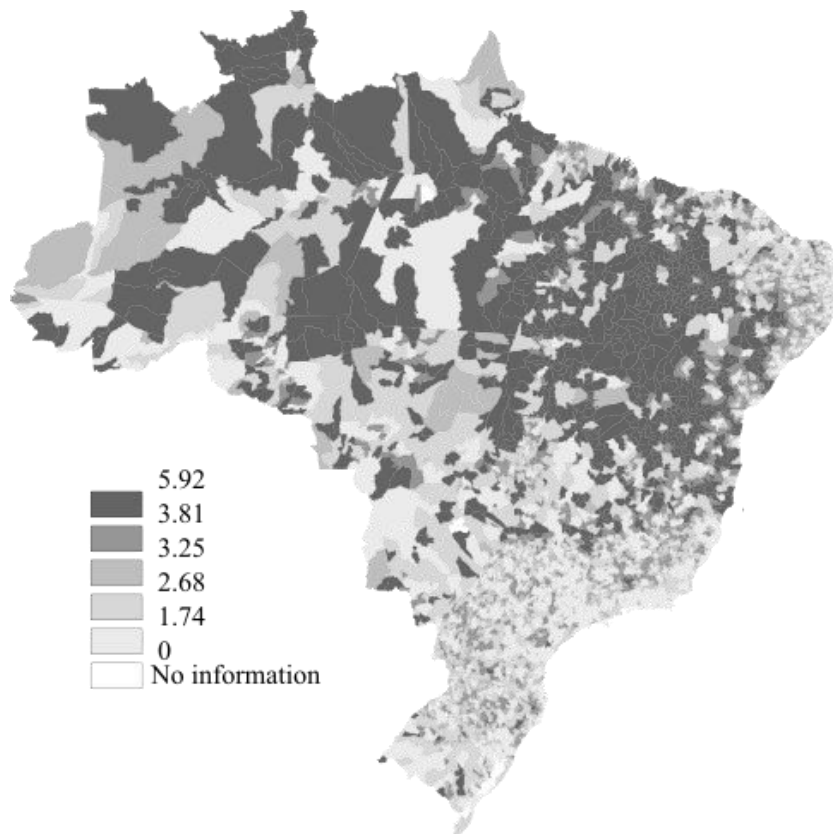
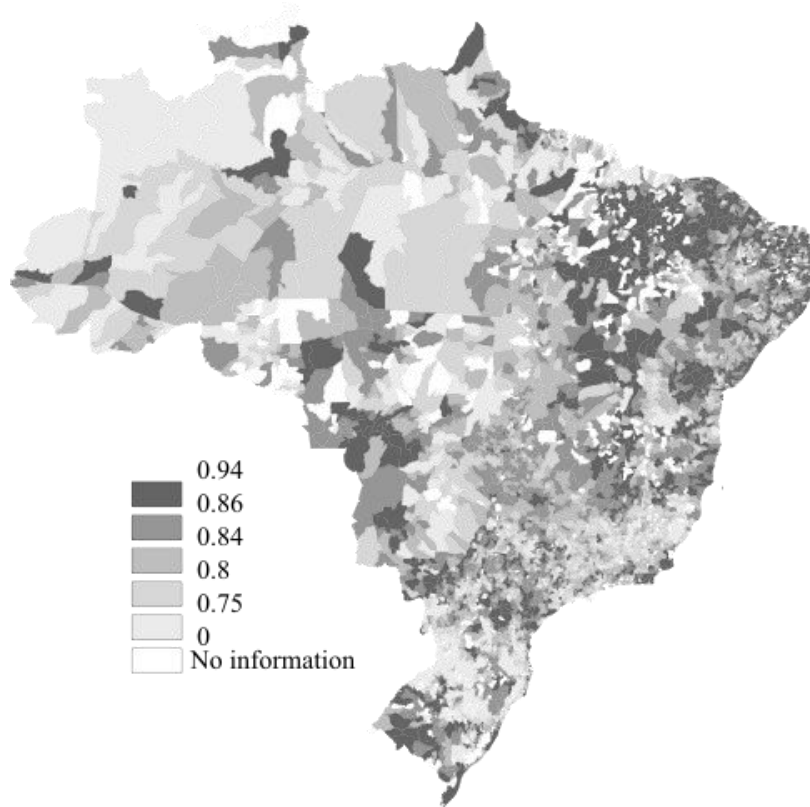
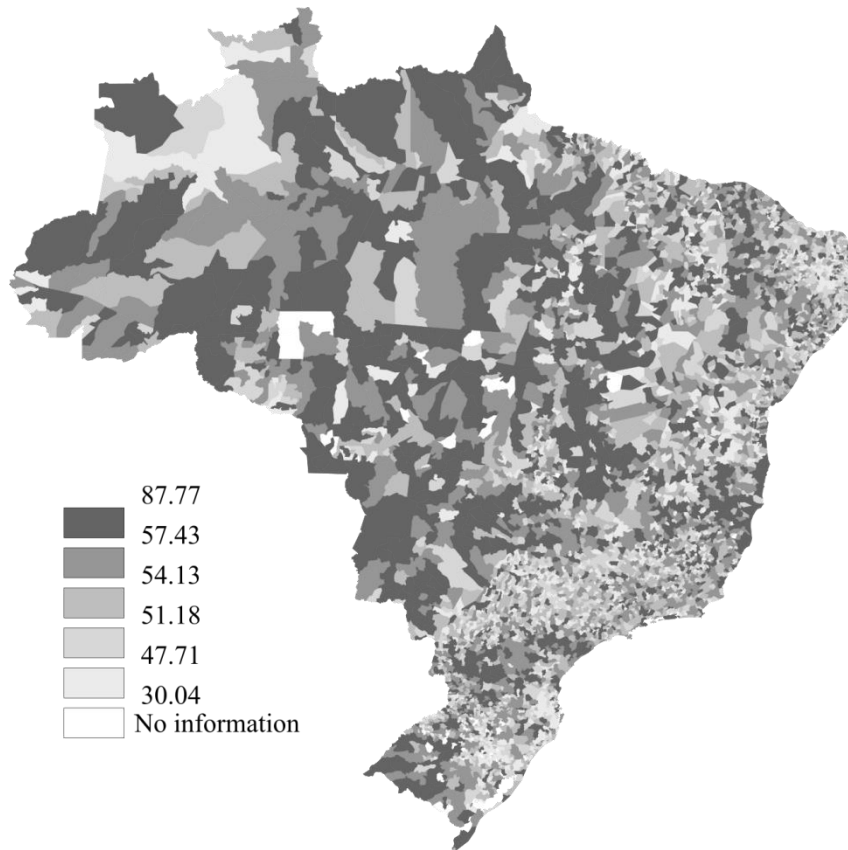


Figure 1 shows the geographical distribution of the *Distance to Justice* in 2000. There is a notable north-south¹² cleavage with stronger institutions in the south (represented by shorter distance to justice), which represents a characteristic division of development in Brazil between the poor north and the richer south that is often superposed by an inequality division, where the north is more unequal than the south. However, figure 2 plots the geographical distribution of *Land Gini* in 1996 and figure 3 plots the geographical distribution of the *Gini* in 2000 and shows that this division is less clear than that of the institutions, particularly with a low *Land Gini* in the north, in figure 2; and with a more egalitarian coastal region, even in the north of the country, in figure 3.

FIGURE 2: LAND GINI IN 1996



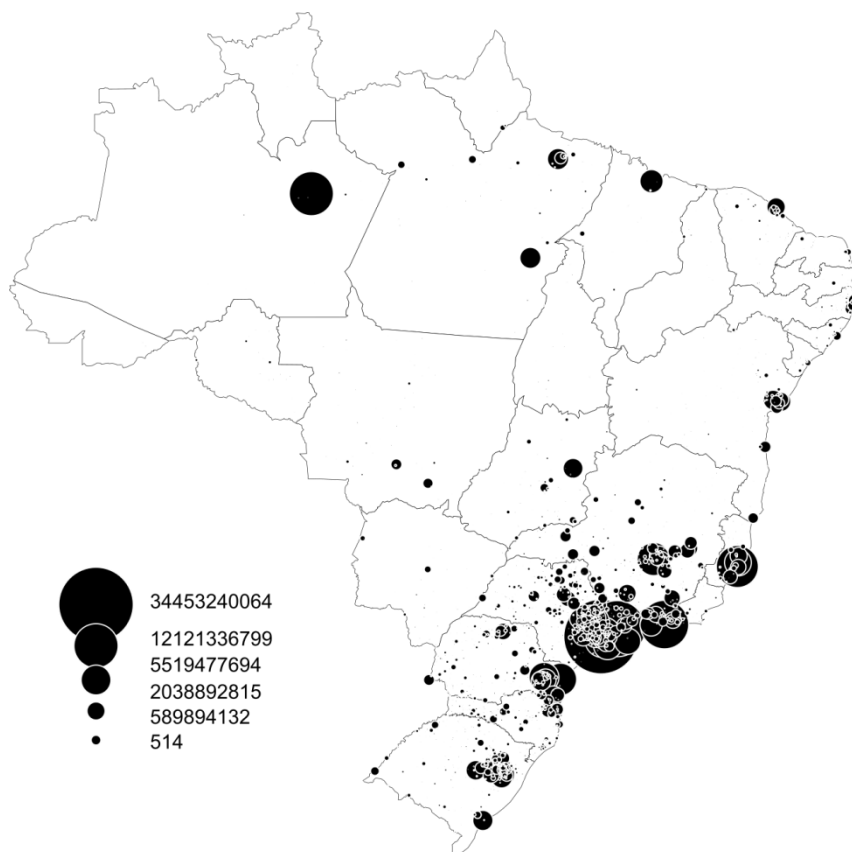
Note: Made with Philcarto <http://philcarto.free.fr/>

FIGURE 3: GEOGRAPHIC DISTRIBUTION OF GINI INDEX IN 2000

Note: Made with Philcarto <http://philcarto.free.fr/>

Figure 4 presents the geographical distribution of international trade (exports + imports) in 2000. Many municipalities do not present international trade at all (67%), which reinforces the importance of an analysis at the municipal level rather than the state or country level. The distribution is similar to that of institutions, because one can observe a concentration of international trade in the more developed southern municipalities.

**FIGURE 4: GEOGRAPHIC DISTRIBUTION OF INTERNATIONAL TRADE
IN 2000**



Note: Made with Philcarto <http://philcarto.free.fr/>

Table 1 presents the descriptive statistics of the main variables for 2000 and 2010. Data on institutional quality is only available for one year. The number of observations is limited to those municipalities with data on institutions and international trade in 2000. The average *Gini* index reduced between 2000 and 2010, from 52.74 to 48.67, the average exports log increased from 4.23 to 5.18 while the imports log increased from 3.84 to 4.31.

TABLE 1: DESCRIPTIVE STATISTICS

Variables	Observations		Mean		Std Error		Median
	2000	2010	2000	2010	2000	2010	All
Gini	5507	5565	52.74	48.67	6.21	6.10	50.67
Ln(1+Exports)	5507	5565	4.23	5.18	7.03	7.62	0.00
Ln(1+Imports)	5507	5565	3.84	4.31	6.64	6.96	0.00
Distance to Justice	5507	5565	2.75	-	1.25	-	3.00
Land Gini	4972	4972	0.80	-	0.09	-	0.82

Table 2 shows the correlations between the main variables. The *Gini* index is negatively correlated with exports, imports and *Distance to Justice*; and positively correlated with *Land Gini*. Thus, except by the *Distance to Justice*, international trade and strong institutions are associated with lower levels of inequality. The institutional variables consistently present a positive correlation with each other.

TABLE 2: CORRELATIONS

	Gini	Ln(1+Exports)	Ln(1+Imports)	Distance to Justice	Land Gini
Gini	1	-	-	-	-
Ln(1+Exports)	0.033	1	-	-	-
Ln(1+Imports)	0.024	0.7093	1	-	-
Distance to Justice	0.009	-0.5165	-0.5705	1	-
Land Gini	0.127	-0.0983	-0.1133	0.0833	1

RESULTS

Table 3 reports the results obtained from the estimation of equation (1). The relationship between imports and inequality is not significant in any specification, while the relationship of exports and inequality is negative and mostly significant. For this reason, the following analysis focuses only on the relationship of exports. The first regression presents a negative and significant relationship of exports and inequality at 1% level. An increase of 10% in exports, reduces the Gini index by 0.007 point.

TABLE 3: INTERNATIONAL TRADE, INSTITUTIONS AND INEQUALITY

Dependent Variable: Gini	(1) All	(2) <i>Distance to Justice</i> Weak In. Strong In.	(3) <i>Distance to Justice</i> Weak In. Strong In.	(4) <i>Land Gini</i> Weak In. Strong In.	(5) <i>Land Gini</i> Weak In. Strong In.
Ln(Exports+1)	-0.0700*** (0.0261)	-0.0645 (0.0400)	-0.0756** (0.0328)	-0.0548* (0.0302)	-0.0905** (0.0429)
Ln(Imports+1)	-0.0227 (0.0284)	0.0436 (0.0476)	-0.0475 (0.0344)	-0.00945 (0.0334)	-0.0463 (0.0581)
Constant	57.48*** (17.62)	31.75*** (7.505)	66.29*** (21.85)	37.90*** (7.918)	67.91** (29.35)
Observations	11,072	5,523	5,549	4,966	4,968
R-squared	0.879	0.732	0.907	0.870	0.890

Note: All regressions are weighted by the population and include municipality and year fixed effects, the logarithm of GDP per capita, the variation of GDP, the proportion of people with 4 to 10 years of schooling (Semiskilled), the proportion of population in the informal sector, the proportion of population living in rural areas, the proportion of the population that is white and the social transfers. Robust standard errors clustered by municipality in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Columns (2) to (5) show results of regressions comparing municipalities with weak institutions to municipalities with strong institutions, according to the variables *Distance to Justice* and *Land Gini*. The sample is divided by the median value of those variables (see table 1).¹³ The coefficient of exports is not significant in municipalities with high distance to justice (municipalities with weak institutions) in column (2), but it is negative and significant at 5% in municipalities with low distance to justice (municipalities with strong institutions) in column (3). Although these coefficients do not present a statistically significant difference,¹⁴ there is an indication of larger impact of exports on municipalities with stronger institutions. If exports increase 10%, *Gini* reduces by 0.00756 points in municipalities with low distance to justice, while the effect of exports on *Gini* is not significantly different from zero in municipalities with high distance to justice.

The analysis is similar for the sample division according to *Land Gini*. The relationship between exports and inequality is negative and significant in both subsamples in columns (4) and (5), but the magnitude and significance are higher for municipalities with low concentration of land (strong institutions) in column (5) than in municipalities with high concentration of land (weak institutions) in column (4). An increase of 10% in exports reduces the Gini index in 0.00548 point in municipalities with high concentration of land, and reduces the Gini index in 0.00905 point in municipalities with low concentration of land.

My empiric results show that exports reduce inequality to a greater extent in places with relatively strong institutions. Figures 1, 2 and 3 indicate that those municipalities are located predominantly in the south, that they already present a lower level of inequality than northern municipalities, and that their international trade volumes are higher. Thus, from the inequality point of view, exports reduce inequality more within the most developed and egalitarian region of the country, exacerbating inequality between regions. Policy implications of exports-inequality nexus are quite limited regarding the reduction of inequality between regions. For this proposal, it

would be desirable a factor that could reduce inequality in less developed regions with higher levels of inequality.

Although region development and strong institutions are overlapping characteristics of many municipalities, I am confident that the latter is driving the reducing impact of exports on inequality, and not the former. I proceed to estimations by Brazilian regions in the appendix (results are reported in table A1) gathering least developed regions of North, Northeast and Center-West in a different sub sample of the most developed regions of Southeast and South. The coefficient of exports is similar in both groups and its significance is even higher for the first group.

Although I do not intend to formally verify international trade frameworks, from the theoretical point of view, the higher reduction of inequality in municipalities with strong institutions could be consistent with comparative advantage *à la* Levchenko, provided that institutional quality is scarcer in the international trade partners than in the Brazilian municipalities; which is possible, but unlikely given Brazil is a developing country.

Alternatively, the reduction in inequality is robust across regressions, which is consistent with the Stolper-Samuelson theorem, as Brazil is abundant in unskilled labor. This is no formal evidence of the theorem, because its identification requires data on the factor intensity of goods and the factor abundance of cities and countries, which are unavailable. However, some studies have found evidence of the Stolper-Samuelson theorem in the liberalization period from 1988 to 1995. Gonzaga *et al.* (2006) found that relative prices and earnings fell in skill-intensive sectors; Muriel and Terra (2009) determined that in that period Brazil presented comparative advantages in unskilled labor, capital and land, and a comparative disadvantage in skilled labor. Cruz and Ricker (2012, page 18) calculated the revealed comparative advantage for Brazil in 2008, and found that of the eight most largest export sectors with comparative advantage, five involve primary commodities,¹⁵ two consist of medium-skill intensive products and only one produces a high-skill intensive product.

My general results are in line with the Stolper-Samuelson theorem, which predicts larger reductions of inequality by international trade in places with more abundant unskilled-labor, like Brazil. However, considering intra-country variation, one may expect unskilled-labor abundance to be locally associated with weak institutions, but my findings show higher and a more significant reduction in inequality in municipalities with strong institutions than in those with weak institutions, which is ultimately consistent with a more egalitarian distribution of gains provided by strong institutions. If international trade generates gains for unskilled-labor throughout the country, as Stolper-Samuelson predicts, the intensity of the distribution of those gains among disadvantaged groups depends on the strength of local institutions.

CONCLUSIONS

This paper studies the relationship between international trade and inequality distinguishing the institutional quality of Brazilian municipalities. The analysis uses Brazilian microdata from the 2000 and 2010 censuses and estimations are disaggregated at the municipal level. Only the relationship between exports and inequality is negative and significant, and its magnitude is higher in municipalities with strong institutions than in those with weak institutions.

Few papers have analysed the role of institutions in the relationship between international trade and inequality. Unlike previous studies (Levchenko, 2007 and Li and Fu, 2016), this study focuses on only one country with a centralized federal system, which mitigates deeper country differences in factor intensity of industries or political

regime. The intra-country variation in local institutional quality allows the identification of its direct influence on the international trade-inequality nexus, namely the inverse relationship between economic inequality and the quality of institutions. I find a larger reduction in inequality by exports in municipalities with strong institutions than in those with weak institutions, which is consistent with a greater redistributive capacity provided by the quality of institutions.

APPENDIX

TABLE A1: INTERNATIONAL TRADE, INSTITUTIONS AND INEQUALITY BY BRAZILIAN REGION

Dependent Variable: Gini	(1) North, Northeast and Center-West	(2) Southeast and South
Ln(Exports+1)	-0.0687** (0.0304)	-0.0809* (0.0462)
Ln(Imports+1)	0.0238 (0.0349)	-0.102* (0.0549)
Constant	53.67*** (10.04)	79.46*** (27.68)
Observations	5,391	5,681
R-squared	0.853	0.890

*Note: All regressions are weighted by the population and include municipality and year fixed effects, the logarithm of GDP per capita, the variation of GDP, the proportion of people with 4 to 10 years of schooling (Semiskilled), the proportion of population in the informal sector, the proportion of population living in rural areas, the proportion of the population that is white and the social transfers. Robust standard errors clustered by municipality in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

ENDNOTES

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¹ See Chusseau *et al.* (2008) and Kurokawa (2014) for surveys.

² The economic literature presents alternative origins of institutions including colonial origin (Hall and Jones, 1999) and settler mortality (Acemoglu *et al.*, 2001).

³ See Savoia *et al.* (2009) for a review of the literature.

⁴ Income taxes and redistribution programs are identically applied across municipalities.

⁵ According to micro data from the 2010 census.

⁶ In 2000, 33% of the municipalities presented exports or imports; the proportion in 2010 was 39%. See figure 3 for a geographical distribution of international trade in 2000.

⁷ Another distinction is the period studied, which is more recent in the current paper (2000 and 2010) than that of earlier studies, which focus on the liberalization period.

⁸ Mitra and Trindade (2005), Dalgin *et al.* (2008) and Fajgelbaum *et al.* (2011) indicates the impact of inequality on the international trade's composition.

⁹ It is equivalent to US\$9360.00 (R\$38100.00 converted at change rate of 11-september-2018).

¹⁰ The year of foundation year of each labor court is available at <http://www.tst.jus.br/web/aceso-a-informacao/varas-do-trabalho1>, consulted in September-2018.

¹¹ Data on municipalities with a Special Civil Tribunal in 2001 is available at <https://ww2.ibge.gov.br/home/estatistica/economia/perfilmunic/2001/default.shtm> (consulted in September-2018).

¹² I use north and south as a spatial division of Brazil, and not as Brazilian regions. Thus, “north” corresponds roughly to the regions North, Northeast and Center-West, while “south” corresponds roughly to the regions Southeast and South.

¹³ The two subsamples separated by the median may present a different number of observations because of repeated values.

¹⁴ The statistical test is available under request.

¹⁵ I follow the Unctad classification, available at: <http://unctadstat.unctad.org/EN/Classificatio ns.html>

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