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Trade Openness and Corruption Revisited:
Do Institutions matter?

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ABSTRACT

There is a strand of literature that investigates the relationship between openness and levels of domestic corruption. In this paper this relationship is revisited, only this time the issue of heterogeneity of the institutional quality among different states is controlled for in the estimations. Furthermore panel data methods are used along with the more traditional approach as a further robustness check. The results suggest that the relationship is greatly influenced by the quality of domestic institutions; under a certain threshold of institutional quality the proposed relationship ceases to exist. The paper further discusses possible implications that trends in international openness and corruption might have for the interpretation of the results.

1. Introduction¹

In the World Economic Forum 2008 many scholars, politicians and CEO's of distinct importance got together in a 5-day series of sessions regarding many diverse topics of interest to the economic and political developments in the world today. In one of these sessions the topic discussed was the new emerging economies, such as Brazil, China and India, and what reforms of particular importance that they as well as other developing countries should undertake in order to be as successful as possible. The two most important arguments were related to "Openness" in the sense of free trade and non-protectionism, and "Good Governance". This paper's main purpose is to investigate the relationship between those two variables, more precisely not how they affect economic performance but how they affect *each other*.

There are a number of scholars that recognize the positive relationship between the openness of a country to international trade and lower levels of domestic corruption, which in turn is both normatively and empirically correlated with Good Governance. The higher the degree to which a country is open to International Trade the greater the gains will be in terms of lower corruption. The mechanisms causing lower corruption through openness work both through economic and social channels as the supporters of this view suggest. As we will see later more analytically, higher competition from foreign companies and investors, trade policies and institutional related changes as well as adoption of norms and ideas are some of the above mentioned mechanisms.

A different strand of economic research in trade theory tries to understand how the diverse institutional set-up between countries affect the volumes of trade that these countries experience, as well as the composition of trade. Again as we will see more analytically below, differences in institutional set-up can result in a diversification of trade or the increase of imports. So the ambition of this paper is to bring these insights from trade theory to the corruption-trade related empirical research. More accurately, the difference in the institutional quality among countries will be controlled while

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investigating the relation between corruption and trade. None of the influential papers, to our best knowledge, consider this variation in institutional set-up when conducting their analysis. Some papers, (Gatti 2004, Banaglia et al., 2001) control for whether the state is a democracy or not in the regressions. This may not be a sufficient control of the country specific institutional set-up because even though well correlated, Democratic Governance does not always imply stronger institutions. Therefore, I maintain given the proposed relationship between the institutional quality and trade openness that there hasn't been enough focus on domestic factors (i.e. institutional set-up) that could either facilitate or obstruct the incoming competition/norms that will lead to lower levels of corruption. It is on this aspect that this paper wants to contribute. As Anderson et al. (2002 p. 342) argue that “*empirical work that ignores the security of exchange suffers from an important omitted-variables bias.*”

Put in different words, the question asked in this paper is whether the negative relationship between corruption and openness is unconditionally true and as strong as it is argued by the scholars, or if other domestic factors matter and can change the outcomes of trade openness on corruption. The factor in focus here is the level of institutional quality at hand in a country and more precisely the protection of property rights and enforcement of contracts, which reflects the security of exchange. Finally, we will deal with trade openness and not social or political openness.

Econometric results presented below give a reasonable indication that the above indeed matters in terms of outcomes of corruption. In fact, once controlling for the interaction between trade openness and institutional quality, the overall effect of openness on corruption depends on the quality of the institutions. In section 2 I present an overview of the theory that supports the view that openness is unconditionally related with lower levels of corruption, along with different approaches to this subject. In section 3 the data used here as well as the empirical model are discussed while in Section 4 I present results using different estimation methods and check the sensitivity of these results. Section 5 discusses some further aspects and section 6 concludes.

2. Theory and previous research

As mentioned above, a number of scholars advocate trade liberalization policies in order to improve domestic Governance through reduction of corruption. In their paper “How Globalization Improves Governance” Bonaglia et al., (2001) argue that openness to trade acts as a constraint on corruption. The theory on which they base this indicates three mechanisms, namely trade policy, competition by foreign producers and international investors, and differences in costs and benefits, faced by countries when building good institutions that fight corruption. In all the above mechanisms, openness to international trade and capital flows may change the balance between costs and benefits of corruption.

As far as trade policy is concerned, Krueger (1974) argues that quantitative restrictions to imports generate economic rents because the legal importers maintain a monopolistic power. This could lead agents to participate in illegal, corrupt activities in order to appropriate the rents that come out of this power. Bhagwati and Srinivasan (1985) are among the scholars that are in favor of this view, taking it one step forward by generalizing it to include “*a whole array of Directly Unproductive, Profit-seeking (DUP) activities*” (Bonaglia et al., 2001 p.15). In the same reasoning, Gatti (2004) shows how non-liberal trade policies affect corruption levels, and divides the effects of these policies to the “direct policy distortion” and the “foreign competition effect”. The first effect stresses that non-friendly policy to international transactions encourages agents to engage in illegal practices like bribing public officials, in order to gain more favourable treatment. The second effect indicates that by reducing the competition between domestic and foreign firms (since imports are being restricted) the policy makers allow for high margins of rent-seeking.

The second mechanism is due to Ades and Di Tella (1999) and it recognises the fact that in a low competition environment the margins for rents are high, and that society must increase the monitoring of the bureaucrats that are inticed by this chance to seek rents. Corruption then is determined by the interaction of three variables namely, the wages of the bureaucrats, the level of monitoring needed and the level of profits, which depends on the level of competition.

Countries that are less exposed to international trade have higher levels of corruption, pointing to the fact that competition is lower in these countries which results to larger rents.

The third mechanism comes from Wei (2000) that argues that a society will invest in the creation of good institutions that fight corruption taking into account the cost and benefit of doing so. This is where openness comes in, as some countries tend to be “naturally” more open than others, due to their location for example, that allows them to be in proximity to the main trading centres or access major sea ways. Hence the benefit from creating high quality institutions that can create a favourable and attractive environment for foreign investments, will be large enough to do so.

In Sandholtz et al., (2003) a different approach is being presented but with the same overall conclusions. They argue that openness leads to lower levels of corruption not only through the altering of economic incentives due to the cost-benefits balance changes, but also through a normative channel. The phrase that captures this is the very first one in their paper, “*Societies that are open to the rest of the world import not just goods and capital, but also ideas, information, and norms*” (Sandholtz et al., 2003 p. 761). These normative factors are those that “*establish standards of conduct*” (Sandholtz et al., 2003 p. 764) that condemn acts of corruption. They see actors or agents as both “utility-rational” and “norm-rational”, that is- agents do not wish only to have profitable transaction but also to transact in a normatively correct way. Due to that they tend to adhere to norms. These norms are communicated by several International Organisations (IO’s), so they argue that being open and integrated to the world through membership in these IO’s leads to the adoption of these anti-corruption norms. This is done through two mechanisms; the first is that since these IO’s are dominated by Democratic rich countries, the Democratic (anti-corruption) norms are also predominant in them as they are in the countries that constitute them. The second is that certain IO’s have explicitly adopted programs to fight corruption so “*the more a country is involved in international organizations, the more likely its elites are to have absorbed some of the anticorruption norms, and the lower the level of corruption should be*” (Sandholtz et al., 2003 p.767). They also take into account the area in which a country is located because, for example, the movement of people can carry norms to neighbouring countries.

The fact that openness reduces corruption is a plausible scenario. But the main question is the over-optimistic view that these papers share. Is openness really unconditionally related with low levels of corruption? Both the economic and the social approach that the papers presented above share a great deal of empirical confirmation, still the specifications of the models and the variables used might not always be the best proxies. For example, it is true that IO's do communicate norms and being a part of one can transfer these norms to a society. However it may not be the membership *per se*, but rather the volume of interactions among the members that transfers these norms, so the inclusion of a variable that indicates membership or not might not be the best proxy of social integration/interaction.

The economic mechanisms that fight corruption are in accordance with the microeconomic theory of competition. It is true in deed that higher competition will force companies to lower their costs (hence lower the margins for corruption) or perish, but as Rodrik (2000 p. 5) argues "*in the background there exist institutions that establish and protect property rights and enforce contracts. We must, in other words, have a system of laws and courts to make even "perfect" markets function.*" Is it then reasonable to assume that all countries can benefit equally from the positive effects of trade? Countries with an effective institutional organisation and quality, will have in place mechanisms that protect property rights, impose balances and checks and generally allow the economy to fully grasp the benefits of involvement in trade, while countries that lack these "prerequisites" might not perform better, corruption wise, after opening their market and allowing for increased competition, as presented in the main literature.

In addition to this a growing part of economic literature, for example Levchenko (2007), provides theoretical treatment on how differences in Institutional Quality can alter trade patterns. Some institution dependent sectors might be better off when producing in the North with its higher institutional quality, which implies that better institutions can provide a comparative advantage and can alter the exporting capacity of a country. Some of the earlier mentioned papers measure openness in terms of imports, relying mainly to the argument that more imports bring about higher competition that in turn leads to lesser corruption. However, this fails to take into account the proposed diversification of exports.

In this exercise the measurement of openness takes into account both imports and exports as percentage of GDP. In the same spirit Anderson et al., (2002) propose a different mechanism through which institutional quality may affect the *volume* of trade. They argue that hidden transactions costs related to the insecurity of international exchange reduce trade, and find that if a country's index of transparency and impartiality would increase by 10%, it would lead to a 5% increase in its import volumes, other things equal. This is a very striking result for the purposes of our paper. It could be the case according to this claim, that it is countries that have a better institutional set up (property rights protection, an independent judiciary etc.) that are more open, rather than open countries are less corrupted. This is not a simple question of the direction of causality but an argument in favour of the main hypothesis in this paper, that domestic factors can affect the proposed relation between openness and corruption.

In a different approach aimed mostly at economic outcomes of free trade involvement, Acemoglu et al., (2005) outline a theory on how colonialism affected the evolution of the Western world, the colonisers. The main argument is that the great economic divergence that took place in that era mostly between 1500 and 1850, can be attributed to the profits that the Atlantic trade generated for the countries that had access through the Atlantic to the New World and Asia. More precisely, along the lines of North and Weingast (1989) they argue that those profits gave rise to a new class of merchants that were able to enforce more checks and balances on the monarch, leading to the enactment of property rights that allowed for further and more profitable involvement in trade. Furthermore countries like England and The Netherlands that *already had in place* more balances and checks in comparison to the monarchy-controlled trade monopolies in Spain and Portugal, could benefit more by allowing for the "indirect effects" of trade, i.e. institutional set-up change, to take part to a greater extent. Thus, different government forms can result in different outcomes from trading, with the countries that offer a higher quality of institutions being better able to take advantage of the opportunities that emerge.

How could this way of reasoning, that is, taking under consideration the differences in the institutional quality between countries, apply to the case where we are interested not in the economic performance of a country involved in trade, or its volume of

trade, but rather the way that trade effects the domestic levels of corruption? Charron (2008), trying to investigate the interplay of openness and domestic institutions, finds that sometimes the openness-corruption relationship is influenced by domestic factors and using two non-trade forms of openness, namely social and political openness shows that a free press-a well known anti-corruption/domestic institution- can nuance the negative relationship between openness and corruption. Where press is not free both political and social openness do not affect the levels of corruption.

Congdon Fors (2007) finds that openness could be more relevant for economic rather than political institutions. By using a proxy she shows that the effect of openness on political institutions is insignificant and can even be negative when exports are made mostly of natural resources. Furthermore Knack and Azfar (2002) draw the attention to another important factor, the fact that most of the data sets used by the most influential papers on the subject (Sandholz et al., 2000; Wei, 2000) suffer from sample selection bias, because the corruption indicators are constructed by experts with an interest in large well governed countries, hence the smaller and not well governed countries are systematically under represented.

Somewhere along the same lines, the main hypothesis tested here is if there is any difference in the effects of openness on the levels of corruption in a country after controlling for the pre-existing institutional set-up. It is quite reasonable when trying to infer using international factors on domestic political outcomes, to take into account domestic factors, such as the quality of institutions at hand, or freedom of press as a proxy for accountability and information.

3. Data and Methodology

To test the above hypothesis I estimate a basic model that builds mostly on those of Bonaglia et al., (2001) and Gatti (2004), but include an interaction term between institutional quality and the log of Openness. Standard variables in the literature are included as controls to avoid omitted variable bias.

For the depended variable, i.e. corruption, I use the Transparency International Corruption Perception Index. It is a measure widely used in the literature and it is the main variable in the models mentioned above. As a measure, it has its drawbacks; for example, differences in the score of countries could be due to different samples and methodologies rather than differences in the corruption perceptions, or could be suffering from selection bias. In this version of the indicator 166 countries are included, for an average of 7 years with 105 countries average pre year from 1996 to 2006. The indicators that Knack and Azfar pointed out were previous editions that represented 41-99(TI index for1995 up to TI index for 1999 respectively) countries. In more recent years the selection bias would be much smaller, if any. The variable ranges in values varies from 0 (highly corrupted) to 10 (highly clean)

As a measure of the institutional quality, I use the Heritage Foundation Property Rights index. This index accounts for the level to which a country's laws guard private property rights and the degree to which those laws are enforced by the government. It also scores the possibility of expropriation of private property. In addition, it takes under account the independence of the judiciary, and the ability of both individuals and businesses to enforce contracts. The country's property rights score ranges from 0 to 100, where 100 correspond to the maximum degree of protection of property rights. This follows the same reasoning in Anderson et al., (2002) as well as others (see Knack Keefer 1995, Levchenko 2007)

It would be useful to discuss here the relationship between this variable and the dependent variable. There could be an argument that when including this variable as an independent variable we are actually using “institutions to measure institutions” that is, the high correlation between the Property rights index and the TI Corruption index could be worrying. It is not hard to see that the TI index's description is as follows:

“...[it]focuses on corruption in the public sector and defines corruption as the abuse of public office for private gain. The surveys used in compiling the CPI tend to ask questions in line with the misuse of public power for private benefit, with a focus, for example, on bribe-taking by public officials in public procurement. The sources do not distinguish between

administrative and political corruption.” (Teorell et al., 2008 p. 52)

On the other hand, the property rights index as described above is interested in the independence of the judiciary and the ability of individuals and businesses to enforce contracts among other things, hence by definition they measure different aspects of institutional set-ups and therefore the high correlation between them is desirable.

The measure of openness used in Bonaglia et al., (2001) and Gatti (2004) is the share of imports in GDP; however this does not take into consideration the full interaction of a country with the world. Openness to trade implies that a country is involved both in importing and exporting, moreover as mentioned before different institutional set-ups could lead to export diversification. A better variable for this is used in Sandholtz et al., (2003) where total trade is considered as a proxy for trade openness. Here I will use the Logarithm of the Openness to Trade indicator by Heston et al., (2002) where total trade is calculated as exports plus imports as a percentage of GDP in Constant prices with reference year 1996 (denoted as *Lopen*). In order to capture the Interaction between the openness of a country and the existing quality of institutions, I create a variable that is the product of two other ones. The property rights variable is multiplied with the indicator of openness in order to create the variable “Interaction”.

The level of development of a country is a crucial fact affecting the levels of domestic corruption. More developed countries face less corruption and also use trade taxation as an alternative to generate revenues (Gatti, 2004; Easterly and Rebelo, 1993). Both in the basic model and in the extended one I control for this by using the Log of real GDP per capital in constant US dollars at base year 1996 by Gleditsch (2002).

One more control is the level of freedom of press. There is a great discussion in the literature that points out free press as a constraint on corruption assuring freedom of expression, enhancing accountability and responsiveness of the rulers to the people by acting as “watch dogs” and setting the political agenda for the rulers by bringing to their attention the public opinion (Pippa 2008). The press freedom index is computed by adding certain component ratings such as Laws and regulations, Political pressures

and controls, Economic Influences and Repressive actions and the scale ranges from 0 (Most free) to 100 (Least Free).

Apart from this benchmark model I run a more extensive one to have the robustness of the results checked. Ethnic Fractionalization is also included as a control variable because countries that are nationally fractionalized have higher levels of corruption (Gatti 2004; Shleifer and Vishny 1993) and also are more inefficient in the provision of public goods (Easterly and Levine 1998). I use the variable of Fearon (2003) that reflects the probability that two randomly selected people from a country will belong to a different ethnic group.

Additional variables used are: the log of GDP in order to capture the effect of size because small countries (in terms of GDP) may have to be more open, the variable is taken from Gleditsch (2002). A variable that takes under account the absolute Latitude of the country, the Regime of a country by Hadenius & Teorell (2007), this follows Acemoglu et al., (2005) that explain how different regimes affect the results of trade related changes in institutional set up leading to divergences. The variable used here distinguishes between different modes of political power maintenance such as monarchies, military regimes and electoral regimes as well as subtypes of these regimes such as Democracy, Multiparty Monarchy and others.

In Table 1, in the Appendix, correlations are presented among the central variables of the model. We see that in this pairwise correlation level the TI indicator is positively correlated with openness as suggested in the literature, as well as with the level of development of a country i.e. levels of GDP per capita. The measurement of press freedom used here indicates more freedom when the values are *lower*, in that sense the negative association between Press freedom and the TI indicator is justifiable.

The basic model estimated will be:

$$Corr_i = \beta_0 + \beta_1 Lopen_i + \beta_2 Institutions_i + \beta_3 Interaction_i + \beta_4 X_i + \varepsilon_i$$

Concerning the methodology, I will use an OLS based regression with *panel corrected standard errors* (PCSE) and allowing for a panel specific AR (1) process

for the residuals while correcting for heteroscedasticity. Another alternative that could have been used is a cross-sectional time-series FGLS, allowing for an efficient estimation in the presence of AR(1) autocorrelation within panels and heteroskedasticity across panels, but Beck and Katz (1995) demonstrate how the later method tends to overestimate the *t-values*, producing sometimes even three times smaller standard errors than the PCSEs². The β_1 coefficient and β_3 are of special interest, particularly their signs and of course their statistical significance.

4. Results

4.1 Panel Correlated Standard Errors OLS

In Table 2 below, the six specifications estimated are depicted. In the first column the model includes all the control variables except for the interaction in an effort to reproduce the results found in previous research. The results are as expected; openness has a positive coefficient and it is highly significant as suggested by the literature in section 2 of this paper. Furthermore the rest of the coefficients have a meaningful interpretation: institutional quality leads to lower levels of corruption, the coefficient of the freedom press is negative, but as mentioned before this index takes lower values when Press Freedom is higher so the resulting sign is as expected.

In column two, the Interaction term between openness and institutional quality is included. This is to test if the effects of openness on corruption are different when institutional quality is different in a given country. Mathematically, we rearrange the equation in order for the slope (i.e. marginal effect) of the variable under scrutiny (corruption) to depend upon the other variable included in the interaction term (Institutional Quality). To see that it is straightforward to take the partial derivative of Corruption w.r.t. Openness.

$$\frac{d(\text{Corruption})}{d(\text{Openness})} = \beta_1 + \beta_3(\times \text{Institutions})$$

² Even though not reported here, the results using a GLS method are almost identical as far as the main variables of this regression are concerned.

Table 2. Openness and Corruption

Variables	Corruption (1)	Corruption (2)	Corruption (3)	Corruption (4)	Corruption (5)	Corruption (6)
Log Openness	0.532** (2.47)	-.6911 (.472)	-.4865 (.402)	-.4428 (.359)	-.4947 (.400)	-0.254 (0.58)
Institutions	0.028*** (5.64)	-.056* (.031)	-.0157 (.0247)	-.0328 (.0247)	-.0484* (.0271)	-0.026 (0.86)
Interaction		.0269*** (.007)	.0129** (.0055)	.0150*** (.005)	.0179*** (.006)	0.013* (1.87)
Log GDP/pc	0.961*** (5.26)		1.143*** (.102)	.905*** (.0923)	.9892*** (.1283)	0.943*** (5.76)
Press Freedom	-0.028*** (6.06)			-.0232*** (.0033)	-.0282*** (.004)	-0.028*** (5.99)
Ethnic Frac.	0.579* (1.71)				.3626 (.330)	0.980*** (2.87)
Regime Type	-0.006*** (2.66)				-.0037** (.001)	-0.005** (2.52)
Latitude	0.209 (0.26)					0.875 (1.25)
Log GDP	-0.033 (0.37)					0.036 (0.43)
Constant	-6.274*** (3.76)	3.549* 2.02	-5.72*** (1.98)	-2.4 (1.81)	-2.5054 (-1.35)	-4.111** (2.14)
R sqr.	0.87	0.83	0.90	0.93	0.89	0.90
N	351	358	358	358	351	351

Note: z-values in parenthesis, ***=p<0.01, **=p<0.05, *=p<0.1

Prais-Winsten regression, heteroskedastic panels corrected standard errors

Hence the overall effect of openness depends on institutions which is the main question asked here. Back in Table 2, we see that the Interaction term is significant at the highest level and positive, on the other hand, we see that the coefficient for the Log of openness turns negative and loses its significance.

To try and avoid omitted variable bias and check for the robustness of the results, the other control variables are included in the model. What is important to notice is that through the exercise the Interaction term remains significant and positive, while on the other hand, openness retains its negative sign and never becomes significant at a reasonable level. This is an indication that the hypothesis stated in the beginning, namely that the possible gains of a country when being open as far as domestic political outcomes are concerned (better Governance lower Corruption etc.), could be conditioned upon the already existing levels of institutional quality.

Moreover, the variable for institutions also becomes insignificant in almost all cases. This result gives evidence to the close relation of this variable and openness, and implies that both “constraints” have to be changed in order to affect corruption.

What is also interesting to notice, is the high level of significance of the Press Freedom indicator, which is another domestic institution working against corruption. Its robustness can only be compared with the one of the Log of GDP per capita.

As an alternative specification in Table 3, I use as a measure of openness, namely the total Imports and Exports variables by Glendish (2002). These variables amount to the total import and export of a country, respectively, in millions of current year US dollars. This is interesting because the theory as described in section 2 suggested that the increase of imports would decrease the margins for corruption therefore decrease corruption. This mechanism doesn't seem to be operating here. Omitting the presentation of the intermediate stages and the full mention of the estimated coefficients for the control variables, Table 3 presents a very similar picture with that of Table 2.

Openness, as it is captured by total imports is again not statistically significant and the coefficient is negative whereas the interaction term is still positive and highly significant and points out once more to the main hypothesis of this paper. On the other hand, when we turn to total exports as a measure of openness it has a positive sign but it is not significant as well.

Table 3. Openness and Corruption

Variables	Corruption	Variables	Corruption
Log Imports	-0.104 (0.60)	Log Exports	0.130 (0.68)
Institutions	-0.053** (2.54)	Institutions	-0.053*** (2.65)
Interaction	0.008*** (3.89)	Interaction	0.008*** (4.01)
Controls	Yes	Controls	Yes
R sqr.	0.87	R sqr.	0.88
N	363	N	370

Note: z-values in parenthesis, ***=p<0.01, **=p<0.05, *=p<0.1
Prais-Winsten regression, heteroskedastic panels corrected standard errors

One final comment to be made here is that we could not argue that openness has a negative impact on the levels of corruption just by referring to the coefficient of this variable in these regressions. That is because since an interaction term is included and openness is one of the components, the coefficient of openness it self can only have a

practical interpretation when the institutional quality is 0 and that is practically impossible³. No country has a 0 score on institutional quality.

4.2 Using Panel Data Estimation Methods

Since the data at hand are cross-sectional time series, one could find it tempting to use the full information of the data set by utilizing an appropriate technique. After performing the Lagrange multiplier test for random effects, their presence is detected and Random Effect estimation is applied. The story told here questions the proposed association between openness and corruption before the interaction is even included and at the same time corroborates the results presented in tables 2 and 3.

In Table 4 estimation 1, an effort is made to reproduce results suggested in section 2 of this paper that claimed openness to be beneficial for corruption. The outcome is not the one expected though, openness has a negative sign and it is not significant at a reasonable level. All other main variables are as expected; the Log of GDP and institutional quality as well as a free press are all associated with lower corruption. Including the interaction term from estimation 2 and on the picture we get is very similar with the one in the PCSE Least Squares regression. Openness has a negative sign and this time it is significant at the 5% (in the full specification #6), the interaction term between institutional quality and openness is again positive and significant. Table 5, draws a parallel to Table 3 that we saw before, again total Import and Export are used as a measure of openness and results are the same.

An overall summary of the results for all proxies used for openness and different estimation methods is that there is a good indication that the relationship between the trade openness of a country and the levels of domestic corruption are conditioned upon the level of the institutional quality of the country. Where institutional quality is higher, that is-property rights are protected, judiciary is independent, individuals and businesses can enforce their contracts, trade is expected to lead to lower levels of corruption, while where there is a lack of laws and state, trade could have the opposite effects.

³ See Braumoeller, B. F. (2004) for an analytical presentation of this.

Table 4. Openness and Corruption

Variables	Corruption (1)	Corruption (2)	Corruption (3)	Corruption (4)	Corruption (5)	Corruption (6)	Corruption (7)	Corruption (8)
Log Openness	-0.208 (1.05)	-1.086** (-2.23)	-.7734* (-1.79)	-.8638** (-2.03)	-.798* (-1.84)	-0.855** (1.96)	-3.635*** (3.27)	-3.219*** (2.75)
Instituitons	0.012*** (2.59)	-.060** (-2.01)	-.035 (-1.33)	-.041 (-1.59)	-.037 (-1.38)	-0.033 (1.21)	-0.176*** (2.95)	-0.175*** (2.90)
Interaction		.022*** (3.08)	.0114* (1.78)	.0129** (2.04)	.0118* (1.80)	0.011* (1.66)	0.042*** (2.79)	0.041*** (2.64)
Log GDP/pc	1.473*** (6.98)		1.428*** (10.12)	1.217*** (8.30)	1.259*** (7.39)	1.392*** (6.44)	1.451* (1.68)	1.501* (1.69)
Press Freedom	-0.017*** (3.77)			-.017*** (-4.05)	-.017*** (-3.93)	-0.018*** (3.84)	-0.011 (0.93)	-0.014 (1.21)
Ethnik Frac.	0.735 (1.22)				.441 (0.74)	0.614 (1.01)	(1.54)	-0.742 (0.70)
Regime Type	-0.001 (0.88)					-0.001 (0.78)	-0.003 (0.74)	-0.004 (0.95)
Latitude	0.454 (0.54)					0.552 (0.66)	2.48 (1.54)	2.44 (1.48)
Log GDP	-0.180* (1.85)					-0.165* (1.70)	0.313 (0.42)	0.377 (0.50)
Govern Expen.							-0.006 (0.30)	-0.011 (0.54)
Log Popul.							-0.737 (1.01)	-0.726 (0.97)
Legal Origin							-0.003 (0.02)	0.005 (0.02)
Religion Fract.							1.474 (1.59)	1.382 (1.45)
Colonial Past							0.022 (0.16)	0.036 (0.25)
Year 1996								0.011 (0.02)
Year 1997								-0.054 (0.11)
Year 1998								-0.164 (0.35)
Year 1999								-0.190 (0.41)
Constant	-5.752*** (3.31)	7.172*** (3.55)	-5.37** (-2.48)	-2.462 (-1.10)	-3.29 (-1.29)	-2.572 (1.00)	10.052 (1.23)	7.855 (0.92)
N	351	358	358	358	351	351	143	143

Note: z-values are in parenthesis, ***=p<0.01, **=p<0.05, *=p<0.1

Random-effects GLS regression for cross-section time series data

Table 5. Openness and Corruption

Variables	Corruption	Variables	Corruption
Log Imports	-0.014 (0.08)	Log Exports	0.018 (0.08)
Instituitons	-0.035* (1.67)	Instituitons	-0.031 (1.37)
Interaction	0.005** (2.37)	Interaction	0.005* (1.93)
Controls	Yes	Controls	Yes
N	363	N	363

Note: z-values are in parenthesis, ***=p<0.01, **=p<0.05, *=p<0.1

Random-effects GLS regression for cross-section time series data

One could go a step ahead and try to find the certain threshold of institutional quality over which a country is able to grasp the benefits of trade openness. Using the values from estimation 8 in Table 4, which will be discussed further below, we get:

$$\frac{d(\text{Corruption})}{d(\text{Openness})} = -3.219 + 0.041 \times (\text{Institutions})$$

In order for the result to be positive the institutions variable must be larger than 78⁴, the average score in the sample is roughly equal to 50 (with the lower score being 10 and maximum 90) and the median is as well equal to 50 indicating that more than half of the countries fall under this threshold. Countries like Cameroon, Chad, Angola and many Arabic nations are examples.

Regarding the mechanisms proposed, one is directly challenged, namely the increased competition through increased imports in view of the fact that in Tables 3 and 5 there is no evidence that higher imports lead to lower corruption. The other mechanisms are not directly concerned with trade openness rather they look at other forms of openness, for example social and political or openness to foreign investment, consequently results from this study that deals with trade openness should not be generalized.

Yet, one conclusion that comes out is in agreement with the view of Wei (2000), that there is nothing automatic between the curbing of corruption and the involvement or the exposure of the economy to the world market, rather there is a connection between the institutional quality and the finer governance that open countries are thought to demonstrate and this results through the process of building the right institutions that will result in this allegedly better governance. This building does not rely on market reforms and the increase of competition alone but rather on political will and legislation. This connection is in agreement with the view of Anderson et al., (2002) that found countries with better institutions to be more open since the risks of trading with these countries are lower, but casts new questions regarding the direction of causality: is it the case that open countries are better governed or is it that better governed countries tend to be more open?

⁴ This is calculated as the division of 3.219/0.041

4.3 Reversed Causality Issues

Theory does not provide a clear view on whether openness is determined in an exogenous manner from corruption. For Wei (2000) openness is exogenously determined and not affected by the levels of corruption, this means that the degree of openness is not solely determined by economic policy. He separates openness into “natural openness”, determined by geographical measures such as the distance from economic centres, and “residual openness” that includes -potentially- policy, in this view corruption cannot alter the natural openness of a country and by using this proxy he deals with the problem of reversed causality. On the other hand, in the Ades and Di Tella (1999) study, competition affects corruption but after a certain threshold of intolerable corruption actions will be taken to alter the competitive environment. Another view in Weil (2005) is that corrupted governments might use import taxation as a source of revenue, increasing the prices of imported goods leading to less demand and consequently less imports, hence causality could be running both ways.

In light of these views, reverse causality issues between the dependent variable and the proxy for openness could imply that our estimates are biased. In the literature this has been tackled in many ways. As we saw above, Wei uses the natural openness to make sure that causality runs only from openness to corruption. Ades and Di Tella consider as a proxy for openness the import capacity of a country as it is determined by its population and land size, thus corruption can not affect this characteristics. The best way to deal with this is to use a 2SLS approach where the right instruments would insure that causality would run solely from openness to corruption. Bonaglia et al., (2001) use this approach, using as instruments variables such as the time dummy variables, tropics and population. Their results support what was stated in Section 2. In our case there is a problem when it comes to this approach because the proxy for openness is a part of the interaction term as well and that complicates the procedure. Alternatively, we can analyse how this could create problems and consider the resulting bias.

If corruption can in deed affect openness then *higher* levels of corruption would lead to *lower* levels of openness and vice versa. That implies that a lower value for the dependent variable (higher corruption) leads to a lower value for openness, the variables would “move” towards the same directions, consequently the bias resulting

would be a positive up-wards bias or in other words our estimation for openness is higher than it should be. Since the results gave us a negative estimate for openness we could conclude that even if we had accounted for the bias the estimate would still be negative, hence the relationship between openness and corruption could be even negative and it depends on the institutional quality.

4.4 Sensitivity to Specification

The robustness of the results could always be challenged by the alteration of the specification used in an empirical study. In order to check the results presented in this paper for their sensitivity to specification I include several other variables. Firstly, population is said to have a negative impact for Governance and leads to higher level of corruption (Knack et al., 2003) for that I include this variable in the specification originally used in Table 4 (specification #7). Furthermore I include a control that identifies the legal origin of the Company Law or Commercial code of each country, a control for religious fractionalization, the government expenditure as a percentage of GDP to account for the size of the government and finally a control for the identity of the former colonial ruler of the country, all of these variables are used in different combinations in the empirical studies presented in Section 2.

The results are similar to those discussed so far, even in this extended estimation the signs of the coefficients of the three main variables, namely openness, institutional quality and their interaction are the same as in previous specifications, but now there significance is much higher than before. Lastly, in specification number eight, I include year dummies to account for any trends that might exist but the results do not change significantly, thus it is safe to conclude that even when using different specifications that include the main control variables used in the literature as well as different methods the results remain the same, supporting once more the results in this paper.

5. Further Discussion

This study looked specifically at the relationship between trade openness and levels of domestic corruption. As mentioned earlier in Section 2 and 4.2, there can be other channels as well through which a country can be exposed to the world. Globalization has reached today unprecedented levels, through the advances in technology and communications and constitutes a further challenge for the nation-state. As economic activity and the global character of finance surpass the national borders, so does governance, hence socio-economic and political relation between states dictate a multilateral approach when it comes to the carving of political decisions. These decisions consider among many other topics those of Openness and (anti)Corruption policies.

Some scholars (Sandholz et al., 2003), present the trends in the creation of an anticorruption regime created among trans-national actors that is constantly growing and has established world wide nets of corruption fighting (or “observing” in a moderate view) Councils and NGOs, while others (Charron 2008) describe the trends in Openness (in all of its forms) which has been increasing especially for the developing world. However, non of them considers the fact that these trends could both be a consequence of Globalization as this was mentioned above, this could imply that there is no causal relation between openness and corruption, rather both lower levels of corruptions and higher levels of openness are simultaneously (explicitly or implicitly) advanced by the dominant political regime, namely liberal democracy, hence the results in our studies could be spurious.

When it comes to trade openness one can mention the WTO as an example of the efforts made for an increase in the trade volumes. The WTO’s purpose can be summarized in the following sentences:

The system’s overriding purpose is to help trade flow as freely as possible — so long as there are no undesirable side-effects — because this is important for economic development and well-being. That partly means removing obstacles. It also means ensuring that individuals, companies and governments know what the trade rules are around the world, and giving them the

confidence that there will be no sudden changes of policy. In other words, the rules have to be “transparent” and predictable. (WTO webpage)⁵

Of all the members of WTO, three quarters are developing countries or countries in transition. These countries have been notably active since over 60 of them implement programs for the liberalization of trade. After the 1986-94 talks of the WTO the percentages of tariffs bound were 99, 73 and 98 for Developed, Developing and countries in transition indicating the effectiveness of this organization in promoting the proliferation of trade. Furthermore the “system” is also concerned with the transparency of the trade practices: *“One way is to discourage the use of quotas and other measures used to set limits on quantities of imports — administering quotas can lead to more red-tape and accusations of unfair play. Another is to make countries’ trade rules as clear and public (“transparent”) as possible.”* (WTO webpage)

As we saw earlier import quotas or taxation was one way that corruption could be affecting trade, therefore from this point of view, by insuring to the maximum possible degree that imports quotas are not imposed “irregularly” the WTO could affect to some degree the possibilities for corrupt practices. Additionally in the Uruguay Round, the creation of a Government Procurement Agreement on transparency, openness, and due process in procurement took place, but it was not binding and was not signed by all members.

However, other organizations are explicitly involved in the curbing of corruption, for example the World Bank, Transparency International (TI), the IMF and major countries and Unions such as the U.S. and the E.U and OECD. As Sandholz et al., (2003) describe in their paper, the World Bank actively promoted the combating of corruption after the mid-90s, rearranging its general guidelines to explicitly regard corruption as a reason for canceling a contract, especially in the cases where lending took the form of conditionality. The same goes for the IMF where corruption is a criterion again when money is loaned based on conditionality. The E.U. is also concerned with the political corruption of the candidate members even though corruption has not stopped any country from entering the Union.

⁵ www.wto.org, (accessed on January 10th 2009)

The real question here is whether these organizations affect corruption and openness *explicitly*. If that is the case then the causal relationship between those two variables could be proven spurious since they are both affected by this international shaping of policy, furthermore identifying a causal relationship between involvement in International Organizations and lower domestic corruption would be a tautology. A better investigation would require careful case studies of countries and especially developing ones that were involved in projects like the ones administered by the World Bank or the IMF, in order to appreciate the way that these programs affected the recipient countries policies regarding openness and corruption. However this is beyond the purpose of this paper, yet it is useful to keep this in mind when interpreting estimation as the ones in the previews sections of this paper.

6. Concluding Remarks

Some scholars argue that open countries have lower levels of corruption, hence better Governments. In this paper I presented some theoretical concerns as well as some empirical findings that provide some reasonable indications that the relationship between the degree of openness of a country and its corruption is conditioned by the already existing institutional set up. Previous research has not addressed the issue of heterogeneity of the institutions governing different states. Once this was taken under account the results changed and as we saw openness seems to have different results for countries with differences in institutional quality as this was captured by the interaction between the two variables.

If the results remain valid this brings up some important questions. The theoretical mechanisms suggested in the literature emphasize competition, which is introduced through imports and the desired foreign investments, as the driving force that alters the costs in the market and leaves no margins for corrupted activities. Two aspects that need attention here are whether a market can still function efficiently, and manage to grasp the benefits of this increased competition, even when it is not based on concrete foundations that can guarantee a favourable environment. In the words of Rodrik (2000 p. 4) “*..it became clear that incentives would not work or would generate perverse results in the absence of adequate institutions*”.

As we saw the increase of imports and consequently of competition did not seem to be efficient when the institutional quality was not high enough. Countries that lack this institutional set-up, should probably think twice before rushing into international trade and adopt trade liberal policies with the hope that this would improve their Governments performance. Policy in these countries should be more oriented towards the improvement of the institutional set up, rather than, or before, opening the country to trade.

The second aspect is that the relationship between openness and corruption could be a result of an international trend. A trend that promotes both higher political, social and trade openness and lower levels of corruption, consequently a better understanding of the shaping of the policy of the nation-states in the globalized world in a historical perspective and through case studies could be useful in order to clarify whether there is a real causal effect between openness and corruption or if the results are spurious.

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Appendix

Table 1. Correlations

Variables	TI_CPI	Log GDP/pc	Log Openness	Institutions	Interaction	Press Freedom
TI_CPI	1.000					
Log GDP/pc	0.7961	1.000				
Log Open.	0.1966	0.0471	1.000			
Institutions	0.8471	0.7037	0.1667	1.000		
Interaction	0.7756	0.6773	0.4430	0.9492	1.000	
Press Freedom	-0.669	-0.5135	-0.1796	-0.6842	-0.6658	1.000

All correlations are significant at 1% level

Table 6. Summary Statistics

Variables	Obs	Means	Std.Dev.	Min	Max
Corruption	1158	4.4553	2.33253	0.4	10
Log GDP/pc	7465	8.1681	1.05525	5.6392	10.7378
Log Openness	5765	3.9349	.81685	-19.262	6.08791
Institutional Quality	1949	50.6105	23.81454	10	90
Interaction	877	233.2816	101.7659	31.2874	524.877
Press Freedom	2439	45.9983	24.84071	0	100
Ethn. Fract.	9626	0.4782	.26142	.00199	1
Regime Type	5753	42.7154	45.3692	1	100
Latitude	11220	0.2828	.18812	0	.722222

Table 7. Description of Variables

Variables	Definition
Corruption	Corruption Perceptions Index, Source: http://www.transparency.org/
Log GDP/pc	The logarithm of GDP per Capita constant 1996 prices, Source: Gleditsch, K. S. 2002
Log Openness	The logarithm of Openness, Openness= (exports + imports) as a percentage of GDP. Constant prices, reference year 1996, Source: Heston et al., 2002
Institutional Quality	Property Rights, Source: Heritage Foundation http://www.heritage.org/index/
Interaction	The "Log of Openness" variable multiplied by the "Institutional Quality" variable, Source: Own assessment
Press Freedom	Freedom of Press, Source: Heritage Foundation http://www.heritage.org/index/
Ethn. Fract.	Ethnic Fractionalization, Source: Fearon 2003
Regime Type	Classification of possible regime types, Source: Hadenius & Teorell 2007
Latitude	The absolute latitude, Source: La Porta et al., 1999
Log of GDP Govern.	The logarithm of GDP, Source: Maddison 2003
Expen.	Government Expenditure Source: Easterly 2001
Log Popul.	The log of Population Source: Gleditsch, K. S. 2002
Legal Origin	Legal origin of the Company Law or Commercial code of each country Source: La Porta et al., 1999
Religion Fract.	Reflects probability that two randomly selected people from a given country will not belong to the same religious group, Source: Alesina et al., 2003
Colonial Past	A tenfold classification of the former colonial ruler of the country Source: Teorell and Hadenius 2005

Note: All data were taken from The Quality of Government Dataset version 7Jan08. <http://www.qog.pol.gu.se>