

Can Bribes Buy Protection Against International Competition?

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Abstract

This paper explores the association between corruption and trade policy. A theoretical framework first examines the effects of corruption on non-tariff barriers at the political and bureaucratic level. I employ panel data on corruption and non-tariff barriers from 1995, 2000 and 2005, estimates show that corruption tends to lead to higher non-tariff barriers. The effectiveness of corruption in buying barriers varies with the degree of press freedom and GDP per capita.

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1. Introduction

Adam Smith was one of the first to recognize that domestic industries and politicians have an interest in policies that reduce competition, collaborating “in a conspiracy against the publick, or in some contrivance to raise prices” (Smith, 1776, 145). The reason for the interest of domestic industry is straightforward, as policies hindering competition allocate market power to domestic producers and in general allow them to take higher prices or supply a cheaper quality of goods. The reason for politicians engaging in such collaboration is similarly uncomplicated, as they can enter into a rent-seeking process with producers in which they seek support in exchange for giving producers protection; this process is outlined in Grossman and Helpman’s (1994) now classic contribution on special interest politics as well as Hillman’s (1982) earlier paper. Self-interested politicians may perceive such support as necessary when informed voters are not always likely to support their preferred policies, or may simply want to step onto ‘the gravy train’. Consequently, support can take many forms as all involved private agents can choose to make contributions to political parties. From the positive point of view of corporatist theories to the literary excesses of Hunter S. Thompson – who hardly had a positive view of politicians – the importance of special interest politics is well documented.

Corruption can be seen as the illegal part of a standard rent-seeking process where politicians and public servants are paid directly for using their influence in the benefit of the bribing party, yet the problem extends beyond legal politics. Klitgaard (1988, 75) famously characterized corruption as “equal to monopoly plus discretion minus accountability”, and as Rose-Ackerman (1997, 31) stresses, “whenever a public official has discretionary power over distribution to the private sector of a benefit or a cost,

incentives for bribery are created”. One of the most potent means for controlling distribution to the private sector is indeed trade policy, as it in most cases distributes benefits from consumers and foreign producers to domestic producers and the government while imposing deadweight losses on society as a whole (cf. Tullock, 1967).

From an intuitive perspective, we should therefore observe that corrupt behaviour is associated with barriers to trade, a causal association that could go both ways. The existing literature, however, has focussed on the link from trade to corruption, for example making make the theoretical point that more protection against international competition leads to more rent-seeking activity and thereby also to more corruption (Krueger, 1974; Ades and di Tella, 1999). One of the early studies in the field supported this proposition with empirical evidence from 31 countries, a finding that since has become almost a stylized fact in the corruption literature and has been replicated in the related literature on capital account restrictions (E.g. Dreher and Siemers, 2009; Le and Rishi, 2006; Sandholz and Gray, 2003). At a broader level, Gerring and Thacker (2005) found that ‘neoliberal’ policies, including openness to trade and investments – but not government consumption – are associated with substantially lower levels of political corruption.

Ades and di Tella (1999) nevertheless also mentioned the additional possibility that corrupt practices might affect trade policy or that bribes can buy protection. Their point is that if some sort of coordination mechanism exists between customs officers – those implementing trade policy, and politicians – those making the policy, the level of protection might be set to maximize the income from corrupt practises given the constraints imposed by politics and international rules.

Yet, two alternative potential mechanisms need not involve coordination. First, Rose-Ackerman (1997, 56) notes that “once a pattern of successful payoffs is institutionalized, corrupt officials have an incentive to raise the size of bribes demanded and to search for alternative ways to extract payments”. Hence, whenever firms have begun using bribes to lower costs associated with the regulatory framework, politicians and public servants are given an incentive to set the height of barriers in order to maximize their corrupt incomes. The causal chain between corruption and trade policy could therefore go the other way *without* the need of a coordination mechanism if customs officers have some discretionary power over the administration of tariff barriers and various trade regulations. Second, domestic producers are always interested in being sheltered from international competition. Single producers as well as their organizations could therefore rationally attempt to bribe policy-makers to raise tariffs and non-tariff barriers to trade. Such an increase would also be in the interest of corrupt customs officers although it would not require any action on their behalf.

Consequently, corruption can potentially influence the formation and implementation of trade policy, as in the specific context of trade reforms (e.g. Lee and Azfar, 2008). Yet, there are also internationally negotiated limits to such policy-making as well as its being illegal in virtually all countries. Even so, such inherently illegal behaviour was central in the case brought by the United States against the European Union arguing that the Union failed to live up to its obligation to apply uniform customs measures across its member states (WTO Dispute Settlement case DS315). As such, the corrupt formation of skewed trade policies needs to be concealed, which also puts limits on the effectiveness of corruption. This arguably leads to corruption being substantially stronger associated with less visible trade policies in the form of non-tariff barriers for

which the burden of proof is more difficult to lift and that can be more readily hidden from voters, while still conferring benefits on special interests.

The main question to be explored in this paper is therefore whether corruption leads to more protectionist *non-tariff* trade policy and under which political conditions. The rest of the paper is organized as follows. Section 2 outlines a set of theoretical considerations. Section 3 describes the data used in Section 4, which provides empirical results that are discussed and concluded upon in the final section.

2. A theoretical framework

It may be worth tracing the interests of the different agents in the economy, which I do within the following simple theoretical framework. The starting point is that logically, agents in two positions have discretion to decide upon actual trade barriers. This leads to what can be thought of as a linked game, consisting of two subgames.

In the first subgame, taking place in the political sphere where trade policy is decided upon, import-competing firms have an interest in influencing politicians to pursue protectionist trade policy. Protectionist trade policy means that there will be a wider gap between the world market price and the domestic price. These firms may therefore rationally attempt to either lobby or bribe politicians to the extent that such activities are expected to increase profits through a wider gap between world market prices and domestic prices. Firms' willingness to pay for trade barriers, i.e. the size of bribes, is therefore limited by the size of adverse demand responses to higher prices, and by the risk of being convicted of corruption. This risk probably increases with their size and the size of effective bribes decreases with the price effect that follows from limiting competition.

On the receiving side, politicians in turn may be tempted to accept bribes to bias tariffs and administrative barriers by tightening discriminatory standards in favour of domestic producers or increasing the costs of loading goods (cf. Ades and di Tella, 1999). However, most countries need at the same time to conform to international rules and standards such as those set by the World Trade Organization. Hence, moves toward more protectionist trade policy may be constrained by international rules while moves in the other direction may likewise be limited by politicians' strategic interest in using existing trade policies for bargaining purposes in international negotiations.

Yet, many political economists have seen non-tariff barriers as a politically viable alternative to tariff barriers, at least since Ray's (1981) seminal work. To the extent that import-competing firms can lobby for influence in the political process, this influence is therefore more likely to have an effect on less visible elements of trade policy such as tariff structures and non-tariff barriers (Tavares, 2006). Likewise, to the extent that lobbying activities in the political sphere prove ineffective, import-competing firms might also have an incentive to adopt corrupt relations with those administering trade regulations with the aim of increasing the administrative burden on importers. Politicians are also constrained by their risk of being convicted on corruption charges, the potential effect on their chances of reelection, as well as voters' accept of trade restrictions. Hence, the ideology of governments might matter to the extent that it proxies for their core voters' accept of trade restrictions, which would imply that rightwing governments are more pro-trade (cf. Milner and Judkins, 2005; Djerjian, in press). However, if rightwing governments have closer connections to traditional industry and would therefore be more influenced by industrial special interests, such governments could be more prone to introduce protectionist policies. Regardless of their

ideology, governments would also be sensitive to the freedom of information flows from a more or less free press that report on corruption and special interest politics, which would threaten their re-election (e.g. Brunetti and Weder, 2003; Milner and Judkins, 2005).

In the second subgame, importing firms may have a similar incentive to lobby for less protection, which could to some extent counteract the lobbying activities of import-competing sectors. However, this influence is likely to be much smaller than that of the domestic industry because the import-competing sector is likely to have smaller concentration and will not directly and visibly generate the same employment than the domestic industry, carry the same political weight, or have sufficiently similar interests to form an effective lobby.¹ Importing firms, on the other hand, also clearly have a strong incentive to bypass costly barriers to trade that are the outcomes of trade policy making, and the more so the more profitable are goods that can imported *without* paying the official tariff and suffering the costs of official and regulatory barriers. The barriers to trade decided on in the political process thus create an incentive for corruption at a lower, ‘local’ level of the bureaucracy, partially by increasing domestic prices and thereby importers’ willingness to pay to get around trade barriers.

Knowing this, customs officers may have an incentive to erect additional barriers to trade through, for example, strategically delaying the bureaucratic handling of imports. Erecting additional barriers when importers are willing to pay would be one way to extract bribes in order to allow firms to circumvent the same official and administrative barriers to trade. The demand for such circumvention will thus in general

¹ For these insights into lobby group formation and efficacy, see the classical contribution of Olson (1965).

provide incentives for adopting a more cumbersome administration of trade regulations whenever there are potential corruption gains, which will increase the size and likelihood of bribes.²

As the number of customs offices is necessarily limited in most countries, customs officers are likely to work as an oligopoly in selling circumvention. The local level of corruption is thus limited not only by the risk of being detected but also by the negative effect on the demand for imports, which may not influence the size of the individual bribe but only their frequency. To the extent that individual importing firms do not have market power – i.e. the extent to which they can be characterized as being atomistic – each firm may not take the demand effects of its corrupt activities into account, which will tend to produce too large single bribes as firms are only concerned about their individual profits.

Hence, their degree of market power will potentially be associated with the share of corrupt offers being turned down. Political corruption is therefore likely to affect trade policy by leading to a more protectionist regime while a protectionist trade regime is likely to lead to more corruption at the local level when firms try to circumvent the regime. Knowing this, agents in the first subgame may link their decisions to the subsequent decisions in the bureaucratic subgame, which would imply that buying non-tariff barriers to trade at the political level would be additionally attractive, since it would result in a ‘downstream’ effect at the bureaucratic level that increased the effective protection. The only trade regime that would tend to remove all incentives to

² The Fraser Institute actually makes this point in their annual report, stating that administrative factors influencing trade are sometimes “the result of inefficiency while in other instances they reflect the actions of corrupt officials seeking to extract bribes (Gartzke et al., 2005, 8).

accept bribes would therefore probably be a free-trade regime with sufficiently strong legal deterrence to keep corruption from arising.

The implications of such intuitive theoretical considerations can be summarized in the testable hypotheses below. Yet, whether trade policy and corruption are in fact associated and under which specific conditions are empirical questions to be explored in the remainder of the paper.

Hypothesis 1: When combating corruption in customs, administrative barriers are effectively lowered.

Hypothesis 2: The effectiveness of bribes depends negatively on voters' acceptance of corruption and their acceptance of trade restrictions.

3. Data and empirical strategy

The data used in this section to estimate determinants of corruption derive from a number of sources. First, the data used to capture the extent of corruption in society is the Corruption Perceptions Index, developed by Johann Graf Lambsdorff and published annually since 1995 by the German NGO Transparency International. The index is the result of pooling information from a set of up to 17 primary indices, most of which cover the perceptions of business men operating in several countries and thus being able to assess the relative incidence of corruption in these countries, as well as other expert evaluations. By pooling the information from different sources, the index is arguably more precise by reducing the impact of white noise in the primary indices. The data used to compile the CPI index derive from a number of primary sources and are distributed between 1 (endemic corruption) and 10 (no corruption), accordingly

measuring the relative absence of corruption. I employ the data from 1995, 2000 and 2005, which means that the size of the period samples varies, as the country coverage has expanded considerably since the initial period (Transparency International, 2008).

The choice of corruption indicator is nevertheless debatable. While some social scientists remain sceptical of perceptions-based measures of corruption, others defend such measures.³ Perceptions-based measures such as the Corruption Perceptions Index may be vulnerable to information cascades, partly inherent in the primary indices in the form of red noise, and could simply capture the quality of the broader institutional environment.⁴ However, alternatives based on either corruption convictions or survey respondents' experience with corruption can be equally imprecise. Highly corrupt countries tend to have deficient legal institutions, implying relatively few actual legal cases and convictions, as institutions supposed to combat corruption are themselves corrupt. A further problem is that the less actual corruption there is in a country, the more is it likely that non-expert respondents stretch their concept of corruption to include nepotism and lobbying, and thereby come to infer 'corrupt' behaviour from non-corrupt outcomes. Knack furthermore argues that most broad perceptions-based indicators tend to measure administrative corruption instead of state capture and more specific incidences of corruption (Bjørnskov, 2011; Knack, 2007). As even pure perceptions may affect trade relations, and the relevant area of corruption in this paper

³ See Olken (2009) for a sceptical view and Kaufmann, Kraay and Mastruzzi (2006) for a passionate defense of perceptions-based indicators.

⁴ Knack (2007) criticizes perceptions-based measures. Knack and Langbein (2010) demonstrate that the much-used World Governance Indicators essentially measure the same underlying governance concept although the six measures are meant to capture conceptually distinct dimensions.

is public administration, I opt for using the standard type of measure instead of the non-perceptions proxies available.

The set of dependent variables derives from the Fraser Institute that publishes data on economic freedom of which trade policy is part (Gartzke et al., 2005). These data cover the average tariff on imports ('mean tariff'), and three indices of the lack of non-tariff barriers (NTB): 1) 'hidden barriers'; 2) 'costs of importing'; and 3) 'regulatory barriers', of which I use the hidden barriers and regulatory barriers indices. I refrain from using the costs measure, as this is likely to be substantially affected by the capacity and quality of, e.g., harbours, airports, and other physical facilities. The hidden barriers and regulatory barriers measures are based on questions in the World Economic Forum's annual competitiveness reports whether non-tariff barriers significantly reduce the competitiveness of imports and the extent to which there are other barriers to imports than official tariffs (Gwartney and Lawson, 2009, 196). As such, these measures are also based on the perceptions of experts with international business experience. They may therefore suffer from the same potential problems, but also have the same relevant, positive characteristics.

The advantage of using the Fraser Institute indices is that outcome measures such as openness, which has been used in previous literature, are also influenced by a number of other factors as, e.g., geography, common borders, language, and institutions (Andersson and Marcouiller, 2002; de Groot et al., 2004). Instead, the present indices are intended to capture 'pure' trade policy including both tariff barriers and three different aspects of non-tariff barriers that are also likely to be influenced by policy. These data cover a large array of developing and developed countries listed in the appendix. Table 1 gives descriptive statistics for all variables.

Insert Table 1 about here

The baseline in all regressions in the following consists of a set of measures of politically potentially relevant factors. The specification first includes government political ideology averaged over the entire five-year period to capture the effects of partisan political effects; to some extent, this measure also captures the view in the population of the acceptability of protectionist measures, as resistance to free trade is a traditional leftwing position. The specification further includes the logarithm of GDP per capita, political competition and press freedom to capture the potential political dangers for politicians in engaging in corrupt transactions, a measure of the extent to which the country has been involved in episodes of international violence, the mean tariff rate to account for official trade policy, and dummies for democracies and for Latin American countries.⁵ I also include a measure of the exposure to international violence, and the share of the workforce that is employed in agriculture, following the argument that non-tariff barriers are far more prevalent in manufacturing sectors.

The GDP data are denoted in purchasing power adjusted US dollars (prices in 2000) from the Penn World Tables (Heston et al., 2006). The ideology data is distributed from -1 (perfectly leftwing) to +1 (perfectly rightwing), and measures the ideological position of incumbent governments within a five-year period.⁶ The chosen

⁵ The Latin American dummy enters after tests with a full set of regional dummies in which only Latin America appeared different from other regions.

⁶ These data are from Bjørnskov (2008), calculated on the basis of the party categorizations in Beck et al. (2001); this source also provides the measure of political competition. It should be noted that political ideology is difficult to quantify, a problem that has been discussed in a long literature (e.g. Keman, 2007;

measure of political competition is the five-year average Herfindahl-Hirschman index of the legislature, which captures the relative influence of large political parties. The index of press freedom, distributed from 1 (full freedom) to 100 (no freedom) is from Freedom House (2008) database. In the following, it must therefore be kept in mind that the measures of political competition and press freedom as well as the corruption index are measured such that lower scores mean more competition/freedom/corruption. The democracy dummy is from the same source, where democracies are countries with a score of three or less on the Freedom House political rights index. The violence measure is the magnitude score of episodes of international violence involving a given state in a given five-year period (Marshall, 2008). Finally, the measure of agricultural employment (percent of total employment) is taken from World Bank's (2008) World Development Indicators.

In the central set of analyses, I interact corruption with political ideology, political competition, press freedom, and GDP per capita in order to test whether the potential effects of corruption vary with the characteristics of voters and the political environment, as indicated by the theoretical considerations. Specifically, the ideology index proxies for voters' traditional preferences for protectionist policies, political competition proxies for the risks of not getting re-elected, and press freedom proxies for the elasticity of election chances relative to corruption, as voters most likely need credible information on such matters in order to form political opinions. GDP per

McDonald et al., 2007; Potrafke, 2008, 2009; Powell, 2009). Yet, most different coding schemes correlate highly with each other despite their different procedures and starting points, and tend to yield similar results (cf. Potrafke, 2010).

capita, in turn, proxies for broader changes that may include all of the above, as well as a move towards more postmodern values, as outlined in Inglehart and Baker (2000).

The direction of causality is a priori unclear. The standard strategy to deal with causality problems in this type of analysis is instrumental variables (IV) estimates, an approach I also take in the following. In an additional set of IV estimates, the instruments for corruption consist of the logarithm to population size (from the Penn World Tables), the share of Protestants in society (from CIA (2006), supplemented by USDS (2006)), a dummy for postcommunist countries, and Keefer's checks variable from the Database of Political Institutions, measuring the number of veto points in political decision processes.⁷ These or similar variables are often found to be significant explanations of corruption and could therefore confound any associations found in estimates based on simpler specifications (Treisman, 2000, 2007; Paldam, 2001; de Haan and Seldadyo, 2006; Dreher et al., 2007, 2009). As the set of instruments mainly consists of cultural variables and measures of particular characteristics of political institutions as instruments for corruption, there are no clear theoretical reasons why they ought to be associated with trade policy. They are thus likely to be theoretically valid, and also pass tests of the necessary exclusion restrictions in the following.

To supplement the main estimates that are based on a fairly parsimonious specification, I perform two sets of simple robustness analyses. First, I employ an alternative corruption indicator, the 'control of corruption' index from the Worldwide Governance Indicators dataset (Kaufmann et al., 2009). Second, I use the 'freedom of speech' variable from the Cingranelli and Richards database of human rights as an

⁷ The database is described in Beck et al. (2001). The specific variable on 'checks' is outlined in Keefer and Stasavage (2002).

alternative to the Freedom House press freedom index.⁸ While institutional indicators correlate highly across countries, this exercise tests whether the main findings can be replicated using slightly different measures constructed from partially different information.

Most estimates in the following are obtained by a feasible generalized least squares estimator with random effects; these estimates are supplemented by pooled OLS with panel-corrected standard errors. Both estimators allow including both short-term and longer-term relations and are supported by Breusch-Pagan tests for the existence of random effects and Hausmann tests for the consistency of random effects as opposed to a fixed effects estimator. All tests are reported for all regressions; with the IV estimates, I also report the first stage F statistic in order to test for the strength of the instruments and Hansen's J statistic for overidentification.

4. Results

4.1. The bivariate association

⁸ The human rights database is outlined in CIRI (2007). An earlier version of this paper also included a small extreme bounds analysis. This analysis included government expenditures, legal quality, the average years of school and the secondary schooling completion ratio, the number of veto players in politics, population size, a dummy for the Nordic countries, the Fraser Institute measure of regulatory freedom, the KOF index of political globalization, and a dummy for presidential systems. These variables were chosen based on existing literature on corruption and on concerns that specific variables might confound NTBs and corruption (Treisman, 2000, 2007; Aidt, 2003; Glaeser and Saks, 2006). Likewise, I performed a set of country jackknife exercises. However, all findings proved to be robust in an extreme bounds sense and robust to in the jackknife. In order to save space, I do not report these analyses.

Before proceeding to the regression results, it may be worth noting that indications already catch the eye in the raw data. The least corrupt countries – Denmark, Finland, Iceland and New Zealand – have fairly low tariff rates and non-tariff barriers while countries with the least protectionist policies – Hong Kong (before the Chinese takeover), Luxembourg and Singapore – all have very little corruption. At the bottom, the most corrupt countries in the sample – Bangladesh, Chad, Nigeria and Ukraine – are all characterized by relatively protectionist overall trade regimes while the most protectionist regimes – Congo, Iran and Syria – all have corruption scores below three and are thereby among the most corrupt regimes in the world. The simple correlations between hidden barriers, regulatory barriers, and corruption are .81 and .78, respectively. The simple plot in Figure 1 also rather clearly points to a connection, as the association between the trade protection measure (regulatory barriers) and corruption is obvious and only few outliers are clearly visible.

Insert Figure 1 about here

This picture is also apparent within the European Union. Although the EU is a customs union and as such has a common tariff structure and common official trade policy, the ratings on non-tariff barriers vary by approximately 1.5 standard deviations between the EU-15 countries. The highest ratings, corresponding to the lowest barriers, are to be found in Finland, Sweden and Denmark, all of which rate at the absolute top of the corruption list as being virtually corruption-free. At the other end of the scale, Greece and Italy have the highest NTBs in the EU and are also among the most corrupt European countries. Within the EU, the correlations between hidden barriers, regulatory

barriers, and corruption are .76 and .6, respectively. The EU examples thus serve to stress the necessity of separating official trade policy – tariff rates and quotas – from unofficial policy in the form of various non-tariff barriers.

4.2. Basic results

Moving from the indications in the raw data to more formal empirical results, Table 2 first of all reports the determinants of non-tariff barriers as measured by the indices on hidden and regulatory barriers to trade. The specification explains the bulk of the between-country variation while, as is usual, explaining a relatively smaller part of the within-country variation across the three periods. The specification tests support the use of random effects as the Hausmann tests are insignificant.

The results first of all indicate that rightwing governments within this period have been significantly more prone to supporting the use of hidden barriers, while ideology is insignificant for regulatory barriers. As going from a purely leftwing to a purely rightwing tradition is associated with an increase of the hidden barriers index of roughly 30 percent of a standard deviation, government ideology is also of economic significance. Second, Latin American countries appear to be substantially more protectionist, all other things being equal, consistent with the historical popularity of import substitution strategies on this continent. Third, richer countries do not have significantly lower hidden barriers to trade whereas the regulatory barriers are significantly lower in richer countries. Fourth, political competition is negatively associated with the incidence of hidden trade barriers, but not with regulatory barriers. Hidden barriers, by being associated with political ideology and competition, thus appear more politicized than regulatory barriers. Neither press freedom, agricultural

employment, international violence nor formal trade protection, as measured by the mean tariff rate, are associated with the height of non-tariff barriers.

Insert Table 2 about here

Turning to the potential association between corruption and the two types of non-tariff barriers, the estimates in Table 2 indicate that corruption is significantly and quite strongly associated with the extent of hidden and regulatory barriers, a result which survives regardless of whether it is estimated with panel-corrected standard errors (columns 1 and 4) or random effects (remaining columns).

Furthermore, the instrumental variables estimates suggest that the effect is not only causal, but also that the simpler estimates are unbiased, as the instrumented estimates are equally significant and only slightly and insignificantly smaller. This is not likely to reflect a weak instrument bias, as the instrumental variables are both relatively strong predictors in the first stage, passing the intuitive test of an F-statistic above ten (Staiger and Stock, 1997); the instruments also yield insignificant Hansen J-statistics. The coefficients indicate that a one standard deviation (one point) improvement in the corruption index is associated with an improvement of the non-tariff barriers indices of between 30 to 40 percent of a standard deviation (.3 to .4 points). As such, the estimates support the theoretical notion of a clear and causal connection between corruption and non-tariff barriers to trade. Since the simple, uninstrumented estimates therefore appear unbiased, I proceed without instrumenting the estimates in the following.

4.3. The effectiveness of corruption

The theoretical perspective in section 2 nevertheless indicates that corruption may be substantially more effective in buying non-tariff protection under specific political circumstances. The theoretical considerations point to the possibility that the effects of corruption may vary with the characteristics of the political environment, captured by the ideological convictions of the government, political competition and press freedom, the latter two capturing the effects of corruption on politicians re-election chances. It may also vary with overall development, since voters' information and acceptance of corruption arguably increases with their average income. The specification in Table 3 therefore consecutively includes interaction terms between corruption and political ideology, political competition, press freedom, and GDP per capita.

The results show that while the control variables remain unchanged, there is evidence for heterogeneous effects of corruption on the incidence of NTBs. For both the hidden and regulatory barriers indices, the interactions with ideology and political competition fail to be significant, in the sense that the effect of corruption does not change significantly across the distribution of the interacting variable. As such, there is no support for the theoretical notion that corruption is more effective in less competitive political environments or under specific ideological governments.⁹

Insert Table 3 about here

⁹ It is well known that actual political competition can be difficult to measure. Although not shown, it should therefore be noted that the findings are robust to using a measure of party aggregation (the share of seats in parliament held by the largest party) instead of the Herfindahl-Hirschman index reported in the tables.

On the other hand, the results provide some support for the notion that increased press freedom reduces the effectiveness of corruption in buying non-tariff protection from international competition. The estimates indicate that moving from the average press freedom to a situation comparable to that in Northern Europe and North America reduces the marginal effectiveness of a given level of corruption by roughly a third while the conditional estimate remains significant throughout. Focussing only on the part of the sample with a below-average press freedom index (not shown) – corresponding to above-average freedom of the press – yields a coefficient of corruption of two-thirds of the coefficient obtained in the full sample, which supports the result pertaining to the simple interaction term in Table 3. However, the interaction between corruption and GDP per capita is equally strong, indicating that corruption may be almost twice as effective in buying NTB protection in the poorest third of the sample as in the richest third. Following Brambor et al. (2006) in using the delta method to calculate the significance of interacted effects shows that the effect of corruption on both measures of non-tariff barriers remains significant across the distributions of press freedom and GDP (bottom panel of Table 3).

The effects of corruption on hidden and regulatory barriers, conditional on press freedom and GDP per capita, are depicted in Figures 2a, 2b, 3a and 3b. As these estimates remain strongly significant, the interactions could be interpreted as a reflection of a heterogeneous effect of corruption, and not evidence of having no or very small problems in countries with a free press or considerable wealth. However, estimating the interacted effect in four categories of press freedom, thereby allowing for a non-linear interaction, suggests that the effects of corruption are small and insignificant at levels of press freedom similar to those in Scandinavia, Belgium and the

Netherlands. The very low levels of corruption observed in most of these countries nevertheless questions whether one can identify any potential moderating effects of press freedom in such societies.

Insert Figure 2a about here

Insert Figure 2b about here

Insert Figure 3a about here

Insert Figure 3b about here

4.4. Robustness of estimates

As final questions, I explore the degree to which the results are robust to the inclusion of alternative institutional variables and whether the heterogeneous effects of corruption in press freedom and GDP measure the same underlying phenomenon or can be separated. Table 4 explores whether the results in Table 3 can be replicated with different indicators of corruption and press freedom. The specific alternative indicators are the Worldwide Governance Indicators ‘control of corruption’ index, replacing the index from Transparency International, and an alternative measure of press freedom capturing the freedom of speech from the Cingranelli and Richards database on human rights. As observations for 1995 and 2005 are not available in the Kaufmann data, the observations from 1996 and 2004 are used instead.

Insert Table 4 about here

The results in Table 4 again show support for the overall findings in Tables 2 and 3. Throughout the table I replace the Freedom House index of press freedom with that from the Cingranelli-Richards database but still find qualitatively analogous results. When using the Kaufmann index of corruption instead of that from Transparency International, the results are slightly weaker; this minor difference may be due to conceptual problems pertaining to the Kaufmann indices.¹⁰

Finally, the interaction between press freedom and corruption could, in principle, proxy for the interaction with GDP. If this were the case, the results with respect to either variable could be entirely spurious, as political institutions in richer countries tend to ensure that their governments do not impede press freedom. The correlation between press freedom and GDP per capita is -.60 in this sample, which is potentially sufficient to give rise to identification problems when including interaction terms. I consequently regress press freedom on the logarithm to GDP per capita and two period dummies, and thereafter treat the residuals from the regression as measures of press freedom, *given* the level of economic development. The results of either entering interactions with

¹⁰ The use of these indices have been criticized due to the very high correlations between the six components of institutional quality and capacity in the Kaufmann dataset, which may invalidate the use of any single index; see Knack and Langbein (2010). Moreover, Shah (2008) shows that the Kaufmann indices are probably not comparable over time. Instead, the data are more likely reflections of the overall institutional environment at one point in time instead of precise measures of corruption. In the present data, the simple correlation between the two corruption indices is above .9, yet the correlation between the Kaufmann control of corruption index and the Fraser Institute index of legal quality is virtually the same as that with corruption. In addition, running a fixed effects regression of the Kaufmann corruption index on the index from Transparency International reveals that it only explains about 20 percent of the within-country variation. Hence, it is unclear whether the Kaufmann data measure corruption or the rule of law.

corruption and both GDP and press freedom, or replacing the press freedom data with the residual measure, are reported in Table 5.

Insert Table 5 about here

However, this exercise leaves the inferences unchanged. Including both interactions at the same time only marginally reduces the heterogeneity of corruption effectiveness, indicating that economic development and press freedom interact independently with corruption. As the main results therefore appear to be reasonably robust and statistically interpretable, I discuss the findings in the final section.

5. Conclusions

This paper has examined the question if corruption leads to protectionist non-tariff trade policy. First, a set of theoretical considerations illustrated how corruption can affect not only the formation of trade policy, for which politicians are responsible, but also the implementation of such policy undertaken by customs officials. While trade barriers in customs administration can be set above some objectively necessary level to maximize corrupt incomes of customs officers and are thus only subject to the risk of being detected by the legal system, the theoretical considerations also included the official trade barriers set by politicians. For these barriers, additional constraints come from politicians' balancing their desires to be re-elected, meaning that they must also take into account voters' dislike of tariff barriers and their acceptance of corruption, and the influence of special interest groups.

A set of time-series cross-country regressions supported the broad implications by showing that non-tariff barriers are significantly affected by corruption. In so far as the use of instrumental variables can separate causality, the estimates indicate that corruption has a strong effect on both hidden barriers to trade and the regulatory barriers. As official tariff barriers, measured by the mean tariff, are most likely locked in by international trade agreements and are therefore not particularly subject to corrupt influences, the estimates show the existence of some de facto leeway around international agreements.

To gain a deeper understanding of the effects of corruption, it is nevertheless also necessary to explore its effectiveness in different political environments. Politicians less subject to the risk of losing their political positions due to events such as corruption scandals will probably be more prone to accepting bribes in return of biasing public policy such as, for example, trade barriers.¹¹ The same concern applies to voters' preferences for protectionist or free-trade policies. In the former case, politicians are already likely to support moves towards higher trade barriers, which could make bribes more effective in buying protection. By including interaction terms between corruption and political ideology, political competition and press freedom, respectively, some of these considerations are supported. The findings show that while certain non-tariff barriers may be influenced by the political situation in terms of competition and government ideology, corruption is substantially more effective in buying protectionist trade policy in countries characterized by weak press freedom and in relatively poorer countries. These findings therefore point to a set of policy implications that may not all

¹¹ For an estimate on the election costs of corruption charges, see Chang and Golden (2007).

correspond to traditional thinking in how to combat corruption and liberalize international trade.

First, corruption arises out of desires to gain protection from international competition but is also often found to be a cause of the lack of such competition. Therefore, following the founder of Transparency International Peter Eigen's suggestion to include strong administrative and bureaucratic measures in the international trade rules set by the WTO, as well as similar proposals from other NGOs, would be problematic for specific reasons (Eigen, 2004). To make such rules compatible with existing rules and the enforcement of those rules, it would be necessary to punish non-complying countries by letting other member countries discriminate against them. Yet the exclusion from international competition would obviously serve the aims of those using corrupt practices, and the proposal would in itself risk leading to more corruption by limiting the exposure of the most corrupt countries to international competition. Another reason relates to the problem of the capture of special interests of such well-meant rules. The inclusion of corruption prevention in a set of regulatory rules that is already difficult to enforce might well serve to open up for further non-tariff barriers, as documentation that exporters abide by 'anti-corruption rules' may easily be used as a regulatory barrier in protectionist countries. Working within international agreements, the way forward therefore does not seem likely to be one of exclusion but quite the opposite, and a viable strategy when working within international organizations is instead more likely to be one leading to more transparent rules of trade and trade barriers. Unfortunately, such moves towards international rules for trade facilitation have been strongly opposed by most developing countries in the most recent WTO negotiations (Panagariya, 2002).

Second, previous studies have suggested that an alternative way to combat corruption would be to ‘invest’ in press freedom. However, the evidence for this mechanism – either directly or through reducing the effectiveness of bribes – is scant. Some of the estimates in this paper instead suggest that corruption is simply less effective in buying protection when voters have access to uncontrolled information in a free press. In other words, similar levels of corruption could be relatively harmless in countries in which voters have full and free access to information, at least when looking at non-tariff barriers.

Naturally, democracy may be a precondition for such competition but even mature democracies can implement some limits on the press, not least when having traditionally strong political elites such as France or very specific systemic problems as in post-war Italy. Likewise, autocracies such as Singapore may allow even extensive press freedom. However, although a number of international organizations have set corruption high on their agenda, not all of them have a history of unambiguous support for a press above the influence of politics or special interests.

Finally, openness to trade and integration in the global economy are known to be some of the strongest determinants of economic growth. While there is much evidence that corruption in itself is growth retarding, one of its most costly effects could be that of limiting countries’ exposure to international competition and integration when bribes can buy protection (cf. Mauro, 1995; Mo 2001; Méon and Sekkat, 2005). That there is probably also a reverse causal effect in that openness to trade lowers corruption only serves to further emphasize the importance of global trade liberalization. To the extent that corruption is a factor in the formation of trade policy, the pressure from

international trade negotiations to liberalize developed and developing countries' trade policies alike only becomes more important.

Appendix

Insert Table A1 about here

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Table 1. Descriptive statistics

	Mean	Standard deviation	Observations
		Main variables	
Hidden barriers	6.272	1.646	240
Regulatory barriers	6.551	1.780	251
Agricultural employment	.167	.183	251
Corruption	4.985	2.411	239
Democracy	.793	.406	251
International violence	.187	.738	248
Latin America	.199	.400	251
Log GDP per capita	9.217	.989	251
Mean tariff	9.231	7.238	248
Political competition	.535	.247	245
Political ideology	.027	.671	245
Press freedom	37.016	21.290	251
		Additional variables	
Checks	3.503	1.521	246
Free speech	1.350	.559	248
Kaufmann corruption	.396	1.097	251
Log population size	9.592	1.597	251
Postcommunist country	.151	.359	251
Protestant share	19.677	30.475	221

Table 2. Determinants of non-tariff barriers to trade

Dependent variable	Hidden barriers			Regulatory barriers		
	1 PCSE	2 RE	3 IV	4 PCSE	5 RE	6 IV
Log GDP per capita	.222 (.153)	.215 (.201)	.323 (.209)	.675*** (.185)	.708*** (.203)	.517*** (.186)
Latin America	-.622*** (.177)	-.679*** (.221)	-.617*** (.186)	-.417*** (.159)	-.371 (.239)	-.545*** (.149)
Agricultural employment	.215 (.552)	.138 (.816)	.299 (.627)	1.082 (.717)	1.097 (.806)	.589 (.527)
International violence	.089 (.064)	.082 (.112)	.106 (.087)	-.153 (.171)	-.169* (.096)	-.078 (.213)
Democracy	.473** (.214)	.454* (.259)	.422* (.223)	.766*** (.281)	.766*** (.251)	.575** (.241)
Mean tariff rate	-.014 (.013)	-.014 (.013)	-.014 (.013)	-.016 (.012)	-.016 (.013)	-.013 (.013)
Political ideology	-.224** (.099)	-.168* (.097)	-.224** (.100)	-.104 (.087)	-.048 (.094)	-.119 (.080)
Political competition	.596** (.298)	.547* (.307)	.591** (.299)	-.003 (.289)	-.039 (.302)	.196 (.277)
Press freedom	-.001 (.005)	-.002 (.006)	-.002 (.006)	.001 (.005)	-.003 (.006)	.000 (.005)
Corruption	.369*** (.045)	.357*** (.059)	.329*** (.078)	.307*** (.047)	.299*** (.062)	.319*** (.076)
Observations	218	218	213	226	226	215
Countries	104	104	101	111	111	101
R squared between	.661	.711	.655	.718	.750	.724
R squared within	-	.095	-	-	.252	-
Wald Chi squared / F	435.15	283.07	29.95	561.36	355.22	56.26
Breusch-Pagan test		19.75***			9.87***	
Hausman, p<		.117			.590	
First stage F			40.94			39.87
Hansen J stat, p<			.404			.575

Note: standard errors in brackets; all regressions include a constant term, and period dummies; *** (**) [*] denote significance at p<.01 (p<0.5) [p<.10]. Instruments in columns 3 and 6 are a dummy for postcommunist countries, the logarithm to population size, Keefer's checks variable, measuring the number of veto points in political decision processes, and the share of Protestants in the population.

Table 3. Non-tariff barriers, effectiveness of corruption

Dependent variable	Hidden barriers				Regulatory barriers			
	1	2	3	4	5	6	7	8
	Baseline included throughout							
Political ideology	-.176* (.096)	-.194* (.099)	-.111 (.235)	-.161* (.096)	-.061 (.092)	-.069 (.097)	-.186 (.229)	-.041 (.091)
Political competition	.481 (.301)	-.163 (.709)	.565* (.311)	.508* (.307)	-.108 (.294)	-.572 (.697)	-.079 (.309)	-.126 (.297)
Press freedom	-.024*** (.010)	-.003 (.006)	-.002 (.006)	-.002 (.006)	-.029*** (.010)	-.003 (.006)	-.003 (.006)	-.003 (.006)
Corruption	.232*** (.074)	.280*** (.091)	.358*** (.059)	1.349** (.529)	.142* (.077)	.240*** (.092)	.299*** (.062)	2.119*** (.537)
Corruption * press	.005*** (.002)				.006*** (.002)			
Corruption * competition		.154 (.139)				.117 (.138)		
Corruption * ideology			-.011 (.040)				.026 (.038)	
Corruption * GDP				-.099* (.053)				-.183*** (.054)
Observations	218	218	218	218	226	226	226	226
Countries	104	104	104	104	111	111	111	111
R squared between	.727	.713	.713	.709	.771	.749	.748	.759
R squared within	.099	.099	.092	.118	.256	.258	.259	.287
Wald Chi squared	310.73	284.26	287.77	277.78	397.22	353.10	352.91	381.49
Breusch-Pagan test	15.66	19.60***	19.35***	17.25***	6.87***	9.43***	9.91***	
Hausman, p<	.085*	.247	.000	.033	.669	.607	.480	
<i>Corruption effect at:</i>								
25th percentile	.318*** (.059)	.334*** (.063)	.363*** (.062)	.496*** (.096)	.249*** (.061)	.281*** (.065)	.286*** (.064)	.553*** (.096)
Sample mean	.405*** (.060)	.362*** (.059)	.357*** (.059)	.428*** (.071)	.358*** (.062)	.303*** (.062)	.299*** (.062)	.426*** (.071)
75th percentile	.451*** (.067)	.385*** (.064)	.351*** (.063)	.343*** (.059)	.417*** (.069)	.320*** (.067)	.313*** (.066)	.271*** (.061)

Note: standard errors in brackets; all regressions include a constant term, and period dummies; *** (**) [*] denote significance at p<.01 (p<0.5) [p<.10].

Table 4. Robustness, alternative indicators

	Hidden barriers			Regulatory barriers		
	1	2	3	4	5	6
Corruption	.367*** (.057)	.602*** (.120)		.303*** (.059)	.605*** (.119)	
Kaufmann corruption			1.022*** (.148)			.838*** (.160)
Free speech	-.035 (.194)	.699* (.385)	-.156 (.194)	.080 (.189)	1.026*** (.375)	-.025 (.194)
Corruption*speech		-.147** (.067)			-.190*** (.065)	
Observations	218	218	227	226	226	235
Countries	104	104	104	111	111	111
R squared between	.709	.719	.722	.751	.767	.747
R squared within	.097	.105	.073	.250	.257	.239
Wald Chi squared	280.36	295.25	295.94	355.35	387.45	348.24
Breusch-Pagan	19.54	16.53***	19.12	9.96***	7.28***	9.17
Hausman test	.124	.368	1.000	.584	.665	.135
<i>Corruption effect at:</i>						
25th percentile		.455*** (.068)			.415*** (.069)	
Sample mean		.401*** (.058)			.345*** (.059)	
75th percentile		.307*** (.062)			.224*** (.063)	

Note: all regressions include the full baseline; *** (**) [*] denote significance at $p < .01$ ($p < 0.5$) [$p < .10$]. Note that even while the Hausmann tests is close to being significant in column 1, the fixed effects estimates are of the same size and significant at $p < .05$.

Table 5. Robustness, adding two interactions

	Hidden barriers		Regulatory barriers	
	1	2	3	4
Press freedom	-.021* (.011)		-.020* (.011)	
Corruption	.701 (.613)	1.219** (.519)	1.491*** (.625)	1.996*** (.531)
Corruption * press	.004** (.002)		.004* (.002)	
Corruption * GDP	-.045 (.058)	-.085* (.052)	-.129** (.059)	-.169*** (.053)
Residual press freedom		-.026** (.011)		-.024** (.011)
Corruption * residual press		.005 (.002)		.005** (.002)
Observations	218	218	226	226
Countries	104	104	111	111
R squared between	.723	.725	.770	.770
R squared within	.109	.124	.280	.288
Wald Chi squared	297.04	301.84	396.93	400.92
Breusch-Pagan	15.01***	15.80***	5.81**	6.13**
Hausman test	.999	.144	.241	.360

Note: all regressions include the full baseline; *** (**) [*] denote significance at $p < .01$ ($p < 0.5$) [$p < .10$].

Table A1. Countries potentially included

Albania	Haiti	Oman
Argentina	Honduras	Pakistan
Armenia	Hong Kong	Panama
Australia	Hungary	Papua New Guinea
Austria	Iceland	Paraguay
Azerbaijan	India	Peru
Bangladesh	Indonesia	Philippines
Belgium	Iran	Poland
Benin	Ireland	Portugal
Bolivia	Israel	Romania
Botswana	Italy	Russia
Brazil	Jamaica	Senegal
Bulgaria	Japan	Sierra Leone
Cameroon	Jordan	Singapore
Canada	Kenya	Slovak Republic
Chad	Korea, Republic of	Slovenia
Chile	Kuwait	South Africa
Colombia	Latvia	Spain
Congo, Republic of	Lithuania	Sri Lanka
Costa Rica	Luxembourg	Sweden
Croatia	Macedonia	Switzerland
Cyprus	Madagascar	Syria
Czech Republic	Malawi	Taiwan
Denmark	Malaysia	Tanzania
Dominican Republic	Mali	Thailand
Ecuador	Malta	Trinidad and Tobago
Egypt	Mauritius	Tunisia
El Salvador	Mexico	Turkey
Estonia	Mongolia	Uganda
Fiji	Morocco	Ukraine
Finland	Mozambique	United Arab Emirates
France	Namibia	United Kingdom
Georgia	Nepal	United States
Germany	Netherlands	Uruguay
Ghana	New Zealand	Venezuela
Greece	Nicaragua	Vietnam
Guatemala	Nigeria	Zambia
Guyana	Norway	Zimbabwe

Figure 1. Corruption and regulatory barriers

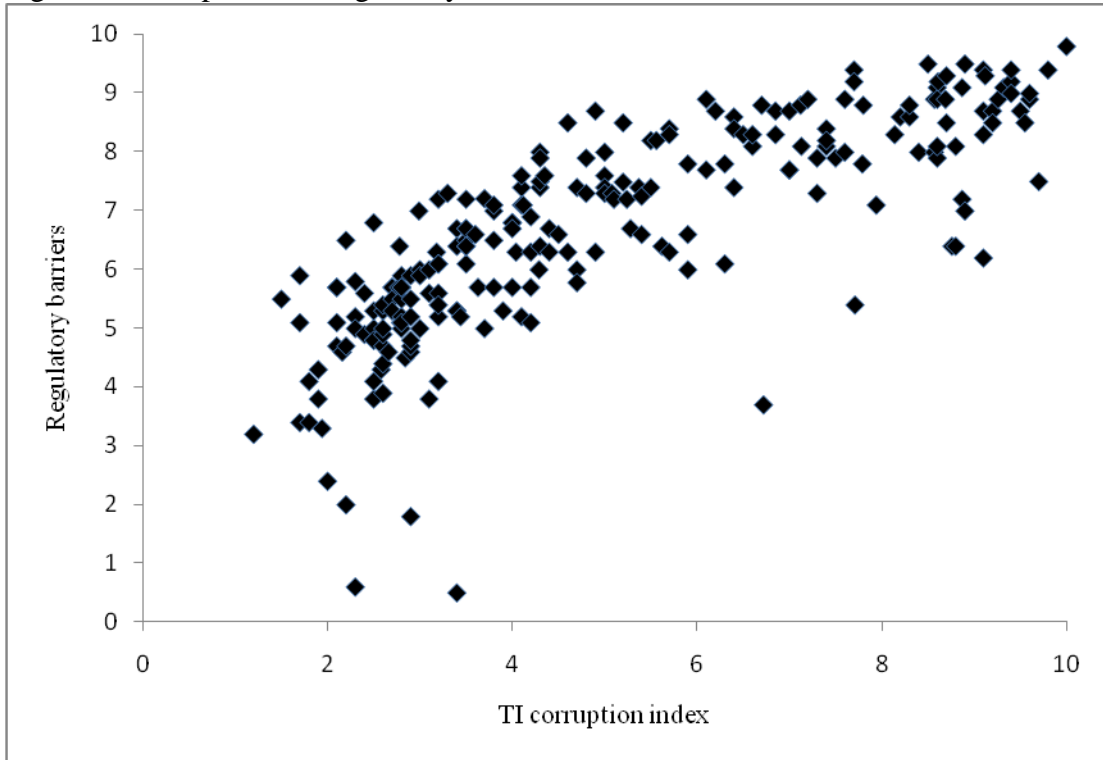


Figure 2a. Effects of corruption, conditional on press freedom: hidden barriers

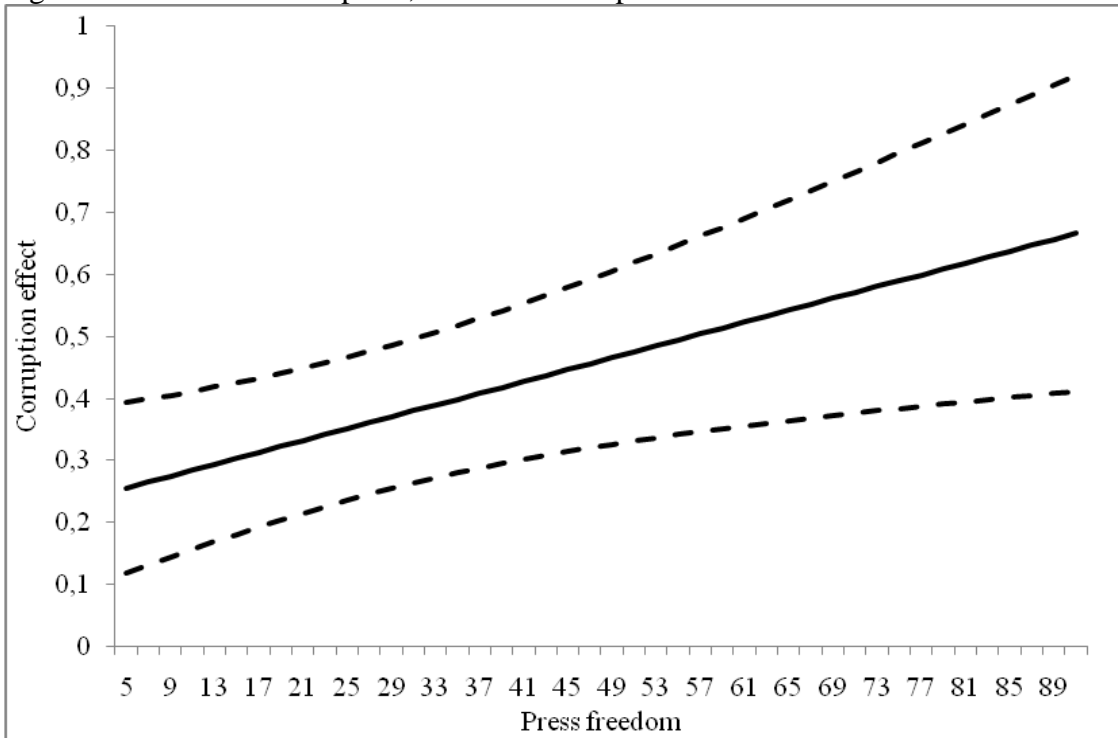


Figure 2b. Effects of corruption, conditional on press freedom: regulatory barriers

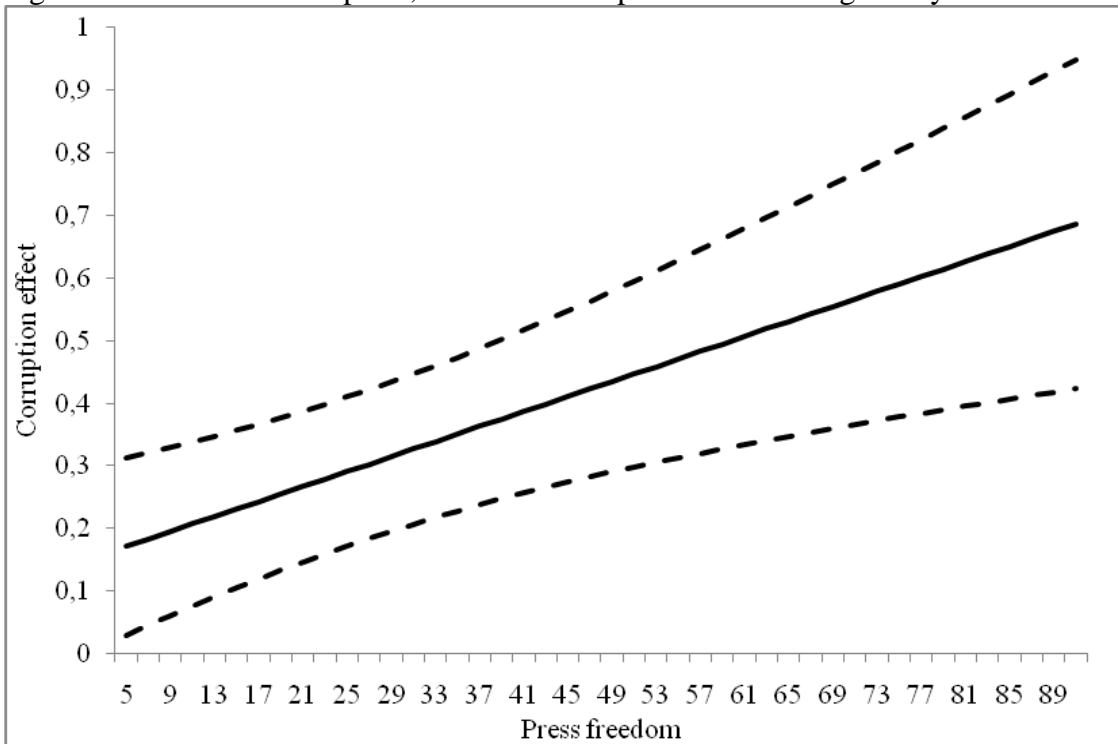


Figure 3a. Effects of corruption, conditional on GDP per capita: hidden barriers

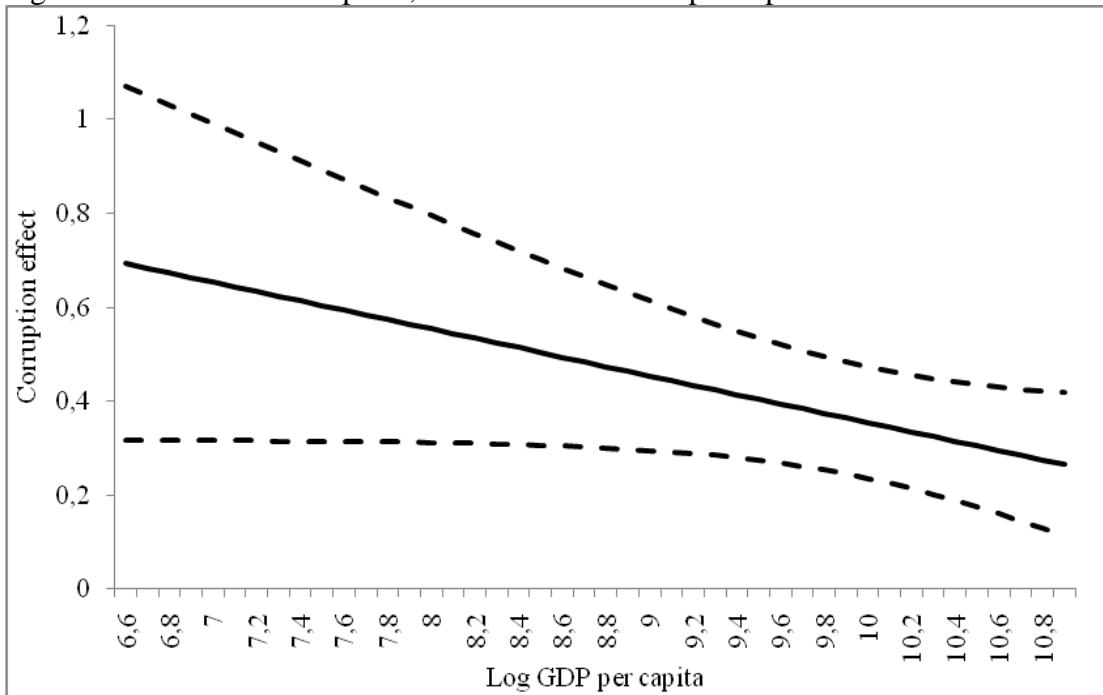


Figure 3b. Effects of corruption, conditional on GDP per capita: regulatory barriers

