Can Bribes Buy Protection Against International Competition?

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January 20, 2006

Abstract.

This paper explores the association between corruption and trade policy. Estimates show that - consistent with a set of theoretical considerations - corruption tends to lead to higher non-tariff barriers but not tariff barriers. These effects vary with the political ideology of the median voter and the degree of press freedom.

JEL Codes:

Keywords: Trade Policy, Corruption

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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 while the broad public does not. The reason for the latter is straightforward, as policies hindering competition in general lead to higher prices or lower quality of goods. The reason for the former is more complicated as politicians and producers can enter into a rent-seeking process in which the former seek support from producers in exchange for giving producers protection as outlined in Grossman and Helpman's (1994) classic contribution on special interest politics. Self-interested politicians may perceive such support as necessary when informed voters are not always likely to support the preferred policies, or may simply want to step on 'the gravy train'. Consequently, support can take many forms as all involved private agents can choose to make contributions to political parties. Labour unions have traditionally encouraged their members to vote for centre-leftwing parties that work for policies that the unions choose to support, resulting in union representatives often doubling as leftwing politicians, and politicians – mostly belonging to rightwing parties - can also be promised lucrative positions on the boards of companies in return for supporting policies that benefit those companies or sectors in which they operate. 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.

As such, corruption can be seen simply 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. This problem is nevertheless not limited to politicians. 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 state. From an intuitively theoretical perspective, we should therefore observe that corrupt behaviour is associated with barriers to trade, a causal association that could go both ways. However, the existing literature has focussed on the link from corruption to trade. Krueger (1974) and Ades and di Tella (1999) for example both make the theoretical point that more protection against international competition leads to more rent-seeking activity and thereby also to more corruption. The latter study supports this proposition with empirical evidence from 31 countries, a finding that since has become almost a stylized fact in the corruption literature.

However, Ades and di Tella (1999) also mention the possibility that corrupt practices might affect trade policy or – as the title of this paper suggests – 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. There are nevertheless two much simpler potential mechanisms that do not involve coordination. Firstly, 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 their costs, 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. Secondly, one needs to remember that 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, there are good reasons to suspect that corruption can influence the formation and implementation of trade policy. The main question to be explored in this paper is therefore whether corruption leads to more protectionist trade policy and which elements of trade policy are associated with corruption. 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 a set of empirical results that are discussed and concluded upon in the final section.

2. Theoretical considerations

Before doing anything else, it is necessary to trace the interests of the different agents in the economy. Agents in two places can decide actual trade barriers. Firstly, in the political sphere where trade policy is decided upon import-competing firms have an interest in influencing politicians to lead a more protectionist trade policy. These firms will therefore attempt to bribe politicians to the extent that the bribes are expected to increase profits. The size of the bribes is limited by the risk of being convicted of corruption, which probably increases with their size and the price effect that follows,

which induces a more limited demand. On the receiving side, politicians in turn may be tempted to accept bribes to bias tariffs and administrative barriers such as discriminatory standards in favour of domestic producers or 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. 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. 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, and the potential effect on their chances of reelection as well as voters' accept of trade restrictions.

Second, importing firms may have a similar incentive to lobby for less protection, which could to some extent counteract the lobby activity of import-competing sectors. However, this influence is probably much smaller than that of the domestic industry because the import-competing sector is likely to have smaller concentration and will not generate the same employment than the domestic industry and hence carry the same political weight. 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. The

barriers to trade decided on in the political process thus create an incentive for corruption at the 'local' level, and this incentive is stronger the higher the barriers to trade are. In the light of the Rose-Ackerman quote in the introduction, an additional barrier to trade can also occur due to corruption in the customs offices where civil servants might decide to accept bribes in order for firms to circumvent the official and administrative barriers to trade. The demand for such circumvention will thus in general provide incentives for adopting a more cumbersome administration of trade regulations, which will increase the size and likelihood of bribes.[1] 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 they are only concerned about their individual profits. Hence, the degree to which importing firms can be characterized as atomistic – the inverse of their market power - will potentially be associated with the share of corrupt offers being turned down.

As such, political corruption is likely to affect trade policy by leading to a more protectionist regime while a protectionist trade regime is likely to lead to more

[1] 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, p. 8).

corruption at the local level when firms try to circumvent the regime. The only trade regime that would tend to remove all incentives to accept bribes would therefore probably be a free-trade regime with sufficiently strong legal deterrence to keep corruption from arising. These theoretical considerations can also be stated stringently as follows.

2.1. Corruption in trade administration

First, assume that the utility of customs officers, U^C, is given by (1).

$$U^C = \mu\left(w + yb^C\right) + \left(1-\mu\right)w_{out} \tag{1}$$

Here, w is the wage received by customs officers, w_{out} is the wage of their outside option, and yb^C is the size of bribes b^C multiplied by the import volume y; the risk of a corrupt transaction being detected as given μ. Customs officers maximize the administrative burden t associated with any trade barrier r in order to maximize their income from bribes, which yields an optimum bribe given by the differential equation in (2).

$$b_t = -\varepsilon_{yt}\frac{b^C}{t} \tag{2}$$

Now assume that the profits of firms importing the foreign good y are given by:

$$\pi_y = \left(p_y - p_w\left(1+rt\right) - b^C - \mu F\right)y \tag{3}$$

Where p_y and p_w are the domestic and international prices of good y, respectively, r is the trade barrier, t is the administrative cost of enforcing the barrier, b^C is a bribe given to customs officers to reduce t, and μ once more is the risk of being convicted of corruption in which case the firm pays the fine G. For any firm in the importing sector,

this yields an optimal bribe given by (4) and hence what might be termed an optimal 'supply' of the administrative trade barriers, *t*.

$$t_b = -\frac{1+\mu F}{p_w r} \tag{4}$$

Which implies that the optimum 'demand' for the administrative barrier t^* is:

$$t^* = t_0 + \mu\frac{F}{p_w r} - \frac{b^C}{p_w r} \tag{5}$$

In (5), t_0 is the necessary constant, which can be interpreted as the minimum barriers arising from honest bureaucratic administration of the official trade policy, *r*, decided upon by politicians. As such, the determination of bribes in customs can be depicted in a standard supply-demand schedule as in Figure 1.

FIGURE 1 ABOUT HERE

2.2 Corruption in politics

Assume that the utility of a representative politician can be written as:

$$U^P = \sigma\left(w^P + xb^P + ry\right) + \left(1-\sigma\right)w_{out}^P \tag{6}$$

Where w^P is the wage received by the politician, w_{out} is his outside option, and b^P is the bribe that he receives from domestic producers producing the amount *x*. The reception of the bribe and wage is conditional on his getting elected to parliament, σ. Maximizing the trade barriers *r* as a response to bribes received for raising those barriers yields a demand for supply, corresponding to a 'supply' of the official trade barrier, *r*:

$$b_r^P = \frac{\beta\left(\frac{w^P - w_{out}^P + ry}{x} + b^P\right) - 1}{\varepsilon_{xp}\varepsilon_{p_x r}\frac{b^P}{r} + y\left(1 + \varepsilon_{yp}\varepsilon_{p_y r}\right) - \gamma\left(\frac{w^P - w_{out}^P + ry}{x} + b^P\right)} \tag{7}$$

In this expression, ε's are elasticities of the superscript variable relative to the subscript variable. As a benchmark, note that in the total absence of bribes it is easily shown that politicians would set the trade barriers at (8) as a trade-off between politicians' appetite for government revenue and voters' dislike of trade restrictions.

$$r_0 = \max\left[-\frac{y}{y_r} + \gamma\frac{w^p - w_{out}^p}{y_e}; 0\right] \tag{8}$$

Meanwhile, the domestic industry maximizes profits, π_x:[2]

$$\pi_x = p_x x - w l_x - x b^P - \lambda G x \tag{9}$$

Where p_x is the price of the domestically produced good x, w is the general wage level, l_x is labour (the only input), G is a fine proportional to production that is paid if the corruption is detected, and λ is the risk of getting caught. Putting things together yields the equilibrium demand for official trade barriers:

$$r_b = \frac{1 - \lambda G}{\varepsilon_{pr} x p_x} \tag{10}$$

Hence, the trade barrier decided on by self-interested politicians will come to depend on the level of corruption, b^P, as depicted in Figure 2.

FIGURE 2 ABOUT HERE

[2] It may be worth noting that the mere possibility of either lobbying or bribing politicians to bias trade policy could be sufficient incentive to form an industrial cartel or special interest organization, as Olson (1965) stresses.

2.3. Summing up predictions

Both loose theoretical considerations as well as a formal model thus suggest that trade policy and corruption are endogenously formed. The three lemmas below summarize the main predictions of the theoretical model. Yet, whether trade policy and corruption are in fact associated and in which direction the causality goes is an empirical question to be explored in the remainder of the paper.

Lemma 1: When combating corruption in customs by increasing the expected fine μF paid by importing firms, the administrative barrier t is lowered.

Proof: While the supply of t in (5) is unaffected, demand is reduced, which in turn lowers the optimal t set by customs officers.

Lemma 2: When combating corruption by increasing the expected relative fine λG paid by domestic firms, the official trade barrier r is lowered.

Proof: While the supply of r given by (7) is unaffected, demand in (10) is reduced, which lowers firms' optimal bribe, b^P. This in turn lowers the optimal r set by (corrupt) politicians.

Lemma 3: The effectiveness of bribes depends negatively on voters' acceptance of corruption and their acceptance of trade restrictions.

Proof: While these factors leave the demand for the official trade barrier r unchanged, the slope and curvature of the supply schedule given by (7) is increased by increasing either β (dislike of corruption) or γ (dislike of trade restrictions).

3. Data and empirical results

The data used in this section derive from a number of sources. First, the data used to capture the extent of corruption in society is the Corruption Perception Index, developed by Johann Graf Lambsdorff and published annually since 1995 by the German NGO Transparency International. The data derive from a number of primary sources and are distributed between 1 (endemic corruption) and 10 (no corruption) and thus measure the 'lack' of corruption. In order to maximize the sample size, the scores are from the latest report in 2005 (Transparency International, 2005).

The set of dependent variables derive 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): 'hidden barriers', 'costs of importing', and 'regulatory barriers'. The advantage of using the Fraser Institute indices derives from the fact 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, these 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. Table 1 gives descriptive statistics for all variables; Table A1 in the appendix lists all countries, their corruption scores and their average NTB scores.

INSERT TABLE 1 ABOUT HERE

The baseline in all regressions in the following consists of a set of regional dummies, a measure of political ideology averaged over 25 years to capture the effects of political-economic tradition, the share of Protestants in the population, the log to GDP per capita, and political competition and press freedom to capture the potential political dangers for politicians in engaging in corrupt transactions. The GDP data are from the Penn World Tables (Heston et al., 2002), and the Protestant share of citizens derive from CIA (2004) supplemented by USDS (2004). The ideology data, distributed from -1 (perfectly leftwing) to 1 (perfectly rightwing), that measure the long-run tendency to vote for rightwing governments are from Bjørnskov (2005), calculated on the basis of the categorizations in Beck et al. (2001). The latter source also provides the measure of political competition, which is the long-run average Herfindahl index of the legislature. Finally, the index of press freedom, distributed from 1 (full freedom) to 100 (no freedom) is from Freedom House (2004). In the following, it must therefore be remembered that both political competition and press freedom are measured such that lower scores mean more competition/freedom.

In a set of additional analyses, I interact corruption with political ideology, political competition and press freedom in order to test whether the potential effects of corruption vary with the characteristics of the political environment. In particular, the median ideology proxies for voters' preferences for protectionist policies, political competition proxies for the risks of not getting reelected, and press freedom proxies for the elasticity of election chances relative to corruption, as voters need information on such matters in order to form political opinions. The additional set also includes regressions exploring the robustness of the findings to the inclusion of alternative institutional measures, including government size, legal quality, sound money (the

quality of economic policy) and regulatory quality from the same source as the NTB data (Gartzke et al., 2005); and an overall measure of economic freedom from the Heritage Foundation (2006).

The instruments for corruption consists of the log to GDP per capita, income inequality, ethnic diversity, and the share of Protestants in society, as these variables are found to be among the most important for explaining corruption (e.g. Treisman, 2000; Paldam, 2001). Income inequality is measured by Gini coefficients from the Deininger and Squire (1996) dataset, and ethnic diversity derives from Alesina et al. (2003). To make sure that the IV approach works suitably well, I report two statistics. Staiger and Stock (1997) use the rule of thumb that the F-statistic in any first-stage regression ought to exceed ten; otherwise two-stage estimation makes little sense as weak instruments imply that the IV-estimates become biased towards the OLS-estimates. I therefore include both the first-stage F-statistic as well as Sargan tests for overidentification of instruments with all 2SLS regressions. These tests are reported in all tables but not discussed as they indicate that the instruments are valid and sufficiently strong in all cases. In all cases, I also report the variance inflation factor (VIF) as institutional measures such as the trade policy indices and press freedom tend to correlate quite significantly in cross-country samples, which would make the identification of separate effects difficult. Again, I refrain from commenting on these results as they do not indicate that there are problems of variance inflation.

3.1. A first look

Before going to the regression results, it may be worth noting that indications already catch the eye in the raw data. The least corrupt countries – Iceland, Finland and New

Zealand – have fairly low tariff rates and non-tariff barriers while countries with the least protectionist policies - Hong Kong, Luxembourg and Singapore – all have very little corruption. At the bottom, the most corrupt countries in the sample – Bangladesh, Chad and Haiti – are all characterized by fairly high tariff rates although they do not have particularly protectionist overall trade regimes while the most protectionist regimes – Burundi, Zimbabwe and Venezuela – all have corruption scores below three and therefore belong to the absolutely most corrupt regimes in the world. The overall associations reported in Table 2 also point to a connection, as the correlations between the various trade protection measures and corruption are very high.

INSERT TABLE 2 ABOUT HERE

This picture is also apparent within the European Union. Although it is a customs union and as such has a common tariff structure, the ratings on non-tariff barriers vary by approximately 1½ 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. 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.

3.2. Overall regression results

Moving from the indications in the raw data to more formal empirical results, Table 3 first of all reports on the determinants of the mean tariff rate. The table first shows that political ideology – the politico-ideological tradition – exerts a significant influence on the mean tariff rate. Going from a purely leftwing to a purely rightwing tradition implies a decrease of roughly eight percentage points, or one standard deviation. There are also strong regional differences, most of which remain significant throughout. On the other hand, neither the level of economic development, nor political competition or press freedom seem to exert an effect on mean tariff rates although the latter becomes significant in column three that excludes outlier observations.

INSERT TABLE 3 ABOUT HERE

When turning to the potential effects of corruption on the mean tariff rate, neither the OLS nor the IV estimate turn out to be significant. The IV estimate is indeed very far from significance and has the opposite sign, indicating that the correlation in Table 2 most likely reflects an influence of the mean tariff and its effects on the protection from international competition on the level of corruption as is the standard finding in the corruption literature. As such, it appears that domestic producers and other parties cannot bribe politicians to raise the observable level of tariff protection, which may not be surprising. After all, most official components of trade barriers are negotiated within the World Trade Organization and other cross-national fora, and tariffs are therefore locked in at their current levels, or at least prevented from increasing. Even if domestic politicians would prefer so, international agreements are therefore liable to prevent them from succumbing to pressure from interest groups. For two separate reasons, politicians

neither have incentives to move in the direction of easing trade barriers. The incentives to reduce tariffs and other barriers will be fairly weak in times between rounds of international trade negotiations as existing barriers may provide valuable bargaining power in future international trade negotiations. Secondly, even though politicians may ideologically support trade liberalization it also comes with an anticipated reduction of government revenue from import tariffs, which is likely to reduce the room for fiscal policy. As stressed by Wazciarg (2001), openness to trade thus limits the scope for most types of political intervention in society, a move that many politicians will probably instinctively oppose. For a number of reasons, tariff rates are therefore likely to be fairly stable and not subject to corrupt pressure.

However, as Table 4 shows, this is not necessarily the case for the less readily observable components of trade policy. Starting in the first three columns, the dependent variable is the index of hidden barriers. The only variables to be significant are political competition and press freedom in column two that excludes outliers.[3] On the other hand, neither political ideology nor economic development, having a postcommunist past or being predominantly Protestant determines the height of hidden barriers. However, corruption is strongly associated with such barriers in both OLS and IV estimates. The estimate suggests that a one standard deviation shock to corruption induces an increase in hidden barriers of 1.2 points, corresponding to 72 percent of a standard deviation. As such, this effect is sufficient to warrant considerable interest, in particular when noting that the IV estimate is only marginally smaller.

[3] It should be noted that throughout, the excluded observations tend to be those of non-democratic countries. As such, the significance of political competition and press freedom comes to correspond to the predictions of the model.

INSERT TABLE 4 ABOUT HERE

Turning to the next three columns in which the dependent variable is the costs of importing index, the findings are fairly similar. Political competition and press freedom are not significant here, indicating that these checks on political discretion do not influence such costs while the Protestant share of the population seems to exert a negative effect in column five that excludes outliers; i.e. Protestant countries have higher import costs in the OLS regression, all other things being equal. Considering the variable of interest, corruption is again highly significant and the IV estimate is marginally smaller than the OLS estimate. However, the effects of corruption on the costs of importing are considerably smaller than those on hidden barriers.

Finally, when turning to the regulatory barriers to trade the determinants are similar to those of hidden barriers with the exception that political ideology is significant at $p<.10$ when excluding outliers in column eight. Increased press freedom turns out to be fairly strongly associated with lower regulatory barriers as is political competition although this is only significant when excluding outliers. Finally, corruption is again significant and causally related to regulatory barriers as both the OLS and IV estimates are significant and of roughly the same size. The estimates suggest that a one standard deviation shock to corruption would induce an increase in regulatory barriers of .94 points, or 68 percent of a standard deviation, i.e. the average effect is similar to that on hidden barriers.[4]

[4] It could be expected that the effects of ideology, political competition and press freedom were non-linear. In particular, extreme rightwing parties are often nationalistic, which could yield a more

Overall, insofar as the use of instrumental variables can separate causal directions, the estimates in Table 4 clearly suggest the existence of a strong causal association between corruption and non-tariff barriers as suggested by previous literature and the theoretical considerations above. An important concern nevertheless remains as the three non-tariff indices are highly correlated (see Table 2), indicating that it may be difficult to separate the effects. As such, the significant but somewhat weaker association between corruption and the costs of importing could simply pick up real associations with the other trade policy variables. Indeed, when all three are included in the same regression (not shown), none are significant due to variance inflation. However, when the an alternative index is included as regressor in any of the analyses in Table 4, the costs of importing index fails to be associated with corruption, which may be taken as a first hint that this type of trade barriers may not be the primary force driving the associations in Table 4. This would also be consistent with the theory, as the administration of hidden and regulatory barriers are probably within the discretionary control of customs officers while import costs are more likely to be determined by written rules and regulations that are outcomes of political decisions and by geography, transport costs and bargaining power of e.g. dockworkers unions.

3.3. The effectiveness of corruption

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protectionist policy. Likewise, politicians with small reelection chances could rationally spend their limited time in office extracting as many bribes as possible. Both effects would tend to give higher effectiveness of corruption at both extreme points of the ideology and competition scales. However, there seems to be no evidence for these possible effects. An additional set of regressions available on request from the author only showed some indication of a nonlinear effect of press freedom, which is always significant but with an effect that tends to be largest at large values of the index.

As a next question to explore, 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 reelection chances (the β of the model). In particular, leftwing governments and parliaments may be more prone to protecting their domestic industries, implying that it will be easier to sway such politicians with bribes, and bribes will be less effective when there is strong political competition and sufficient press freedom. These possibilities are tested in Table 5, which includes interaction terms between corruption and these variables in regressions explaining the levels of non-tariff barriers.

INSERT TABLE 5 ABOUT HERE

The table first of all reproduces the basic findings in the preceding tables. However, it also shows that for all three dependent variables, and in particular the extent of regulatory barriers, there seems to be variations in the effectiveness of corruption in the expected directions. In column one where hidden barriers is the dependent variable, political ideology and the interaction term with corruption are not individually significant and fails to be jointly significant at $p<.05$ while the effects on the costs of importing in column four are also questionable. On the other hand, the result is quite stable in the cases of regulatory barriers, which could be expected as regulatory barriers are probably the type of non-tariff barriers most readily within the control of politicians. It should also be noted that when controlling for the interaction effect, political ideology

per se becomes strongly significant in column seven with an estimate of quite considerable size.

Next, the findings when including an interaction term between corruption and political ideology are similar as the interaction term and political competition are far from being significant in the hidden barriers regressions but significant when the other indices of non-tariff barriers are dependent variables, and most so in the case of import costs. Finally, all interactions with press freedom are individually as well as jointly significant in all three cases, although most strongly in the case of regulatory barriers. As such, the theoretical considerations regarding the effects of election chances receive considerable support insofar as the interaction terms can pick up the theoretical effects.

Taking the influence of corruption on regulatory barriers as the example, the estimates suggest that at the mean, a one standard deviation increase in corruption (a decrease of the index) would result in a .99 points increase in regulatory barriers (again, a decrease of the index), or 72 percent of a standard deviation. However, one standard deviation to the right on the political ideology index – i.e. with a moderately rightwing government – a similar increase in corruption only yields a .82 points increase in the extent of regulatory barriers, corresponding to 59 percent of a standard deviation. Such a shock to political ideology therefore reduces the effectiveness of corruption by almost a fifth. Similarly, moving one standard deviation in the direction of increased press freedom lowers the effect of a shock to 61% of a standard deviation, thus reducing the effectiveness of corruption by about a fourth. As such, the results indicate that the political ideology of the government and the freedom of the press to report on politics play important roles in determining how much protection can be bought by bribes. On the other hand, it should be stressed that the effects of the interaction with political

competition may be due to collinearity with the corresponding interaction with press freedom as the effects of the former disappear when simultaneously adding all interaction terms to the specification (not shown).[5] I therefore refrain from exemplifying the magnitude of such effects.

3.4. Robustness

As a final question, this section explores the degree to which the results are robust to the inclusion of alternative institutional variables. Table 6 summarizes the relevant results in the case of regulatory barriers.[6] The table includes one of four other institutional variables from the same source as the NTB indices, covering the size of government, the quality of the legal system, 'sound money' and regulatory freedom, as well as the overall alternative economic freedom index from the Heritage Foundation. These variables are added to the baseline specifications in Tables 4 and 5. Starting with the results from Table 4, it is clear that while the addition of government size and sound money are not associated with regulatory barriers to trade, legal quality, regulatory freedom and the Heritage index are all significant. However, only the latter two change the results substantially, as the coefficient on corruption decreases by roughly a third.

[5] Even when adding all interaction terms to regressions with regulatory barriers as the dependent variable, and thus suffering severe problems with multicollinearity and the following variance inflation, political ideology and its interaction with corruption remains jointly significant at $p<.10$ while the interaction with political competition becomes insignificant and the individual and interacted effects of press freedom remain strongly significant.

[6] The results of using the hidden barriers and costs of importing indices are rather similar although, as is the case throughout, they are slightly less robust. The additional results can be obtained from the author on request.

Yet, this is not inconsistent with either simple intuition or the theoretical model as the risk of being detected in a corrupt action overall should decrease both the supply of and demand for illegal differential treatment.

INSERT TABLE 6 ABOUT HERE

Turning next to the robustness of the results in Table 5, which includes interaction effects, these are substantially more robust to the inclusion of alternative institutional measures. Again, the inclusion of either legal quality or the Heritage index reduces the size of the corruption coefficient by about a fourth while the inclusion of regulatory freedom reduces the coefficient only slightly. Yet, the interaction effects with either political ideology or press freedom remain significant throughout and their sizes are not affected to any substantial degree. Hence, the results in Table 6 show that the overall findings in Table 4 and 5 hold although the effect or corruption per se may be somewhat overstated. As such, the results warrant discussion.

4. Conclusions

This paper has explored the question whether corruption leads to protectionist trade policy. First, a set of theoretical considerations stressed that 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 theory also included the official trade barriers set by

politicians. For these barriers, an additional constraint comes from politicians' desires to be re-elected, meaning that they must also take into account voters' dislike of tariff barriers and their acceptance of corruption.

A set of cross-country regressions supported the broad implications although with the qualification that only non-tariff barriers are affected by corruption. Tariff barriers as measured by the mean tariff, on the other hand, are locked in by international trade agreements and are therefore not subject to corrupt influences. 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, the costs of importing, and the regulatory barriers.

To gain a deeper understanding of the effects of corruption, it is nevertheless also necessary to explore its effectiveness in different 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 trade barriers. 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, these considerations are clearly supported. All interactions are significant with at least two of the three non-tariff indices, indicating that the effectiveness of bribes in buying protection varies substantially with the political environment in which they are given. Corruption is substantially more effective in buying protectionist trade policy in countries characterized by a leftwing political ideology of the median voter, little political

competition, and weak press freedom. As such, these findings therefore point to a set of policy implications that may not all correspond to traditional thinking in how to combat corruption and liberalize international trade.

Firstly, 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 (2004) suggestion to include strong administrative and bureaucratic measures in the international trade rules set by WTO as well as similar proposals from other NGOs would be problematic for specific reasons. 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. The other reason relates to the problem of capture 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. Instead, a viable strategy when working within international organizations is more likely to be one leading to more transparent rules of trade and trade barriers. Unfortunately, such moves towards international rules for trade facilitation were strongly opposed by most

developing countries in the most recent WTO negotiations (Panagariya, REF; Bjørnskov and Lind, 2005).

Second, the estimates suggest that an alternative way to combat corruption would be to invest in political competition and press freedom. Naturally, democracy is a precondition for such competition but even mature democracies may have limited political competition, in particular when having a traditional two-party system. Constitutional arrangements such as low entry barriers into politics may thus limit politicians' corrupt options. The same would be the case for a free and vigilant press and informed voters. However, even though 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 (Mauro, 1995; Mo, 2001), one of its most costly effects could be that of limiting countries' exposure to international competition and integration when bribes can buy protection. 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

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Table 1. Descriptive statistics

	Mean	Standard deviation	Observations
Corruption	4.51	2.35	115
Costs of importing	8.07	1.24	100
Ethnic diversity	.43	.26	122
GDP per capita	9648.79	9138.89	122
Log GDP per capita	8.63	1.16	122
Gini coefficient	42.41	11.29	108
Hidden barriers	5.84	1.66	100
Mean tariff	10.27	7.12	122
Overall trade policy	6.95	1.18	122
Political competition	.50	.18	117
Political ideology	-.06	.48	118
Press freedom	40.35	22.53	121
Protestants	16.56	27.08	122
Regulatory barriers	6.95	1.38	100

Table 2. Correlations

	Corruption	Mean tariff	Hidden bariers	Costs of importing	Regulatory barriers
Corruption	1	-.59	.89	.78	.89
		(-.28)	(.73)	(.37)	(.28)
Mean tariff		1	-.58	-.60	-.62
			(-.26)	(-.30)	(-.31)
Hidden bariers			1	.81	.96
				(.54)	(.92)
Costs of importing				1	.93
					(.83)
Regulatory barriers					1

Note: numbers in parentheses are partial correlations, controlling for log GDP per capita.

Table 3. Determinants of mean tariffs

	1 OLS	2 OLS	3 No outliers	4 IV
Political ideology	-4.249***	-4.032***	-2.122***	-5.037***
	(1.338)	(1.346)	(.783)	(1.459)
Post-communist	2.406	.931	1.756	5.996*
	(2.034)	(2.374)	(1.601)	(3.266)
Sub-Saharan Africa	8.258**	7.368**	8.725***	12.982***
	(3.163)	(3.086)	(2.123)	(3.482)
North Africa and	7.197**	6.101	10.402***	11.941***
Middle East	(3.480)	(3.774)	(1.862)	(4.026)
South America and	6.541***	4.951*	5.736***	10.656***
Caribbean	(2.093)	(2.554)	(1.681)	(3.201)
Asia	5.704**	4.814*	3.621**	9.205***
	(2.638)	(2.681)	(1.607)	(3.203)
Pacific and Oceania	5.118**	3.127	4.518*	9.180**
	(2.460)	(3.140)	(2.627)	(3.949)
Protestants	-.013	-.001	-.004	
	(.019)	(.018)	(.012)	
Log GDP per capita	-.112	.734	.385	
	(1.132)	(1.204)	(.820)	
Political competition	-2.258	-1.492	-2.049	-3.223
	(3.402)	(3.270)	(2.015)	(3.548)
Press freedom	.048	.032	.059**	.073
	(.034)	(.038)	(.023)	(.053)
Corruption		-.787	-.405	.723
		(.603)	(.391)	(.882)
Observations	107	107	93	97
Pseudo R square	.411	.418	.811	.452
F-statistic	12.29	12.37	29.24	5.32
RMSE	5.196	5.164	3.015	8.028
VIF	2.39	3.00	3.65	
1st stage F statistic				66.64
Sargan test, p<				.393

Note: all regressions include a constant term. Instruments in column 4 are Gini coefficients, ethnic diversity, log GDP per capita and Protestant share of population.

Table 4. Determinants of non-tariff barriers

Dependent var.	Hidden barriers			Costs of importing			Regulatory barriers		
	1	2	3	4	5	6	7	8	9
	OLS	No outliers	IV	OLS	No outliers	IV	OLS	No outliers	IV
Political ideology	.192	.156	.151	.090	.094	.186	.153	.244*	.178
	(.199)	(.169)	(.190)	(.179)	(.124)	(.168)	(.163)	(.127)	(.160)
Post-communist	-.304	.066	-.473	.236	.247	.120	-.006	.078	-.133
	(.388)	(.288)	(.466)	(.247)	(.180)	(.336)	(.281)	(.199)	(.345)
Protestants	.001	-.001		-.004	-.005**		-.002	-.005**	
	(.003)	(.003)		(.003)	(.002)		(.003)	(.002)	
Log GDP per capita	-.015	.075		.067	.080		.036	-.083	
	(.179)	(.134)		(.176)	(.127)		(.143)	(.103)	
Political competition	-.464	-1.075**	-.756	-.677	-.448	-.202	-.555	-.666**	-.466
	(.542)	(.421)	(.484)	(.473)	(.334)	(.442)	(.349)	(.277)	(.373)
Press freedom	-.008	-.011**	-.013*	-.012**	-.005	-.010	-.009**	-.010***	-.011**
	(.006)	(.005)	(.007)	(.005)	(.004)	(.006)	(.004)	(.003)	(.005)
Corruption	.511***	.567***	.461***	.285***	.318***	.238***	.399***	.465***	.359***
	(.098)	(.074)	(.116)	(.079)	(.055)	(.089)	(.079)	(.048)	(.086)
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	91	78	86	91	81	86	91	80	86
Pseudo R square	.783	.884	.807	.690	.827	.674	.806	.899	.807
F-statistic	47.21	78.06	51.64	29.92	60.27	26.85	48.63	93.06	53.01
RMSE	.764	.542	.726	.676	.429	.678	.598	.419	.594
VIF	3.07	3.34		3.07	3.21		3.07	3.57	
1st stage F statistic			54.26			54.26			54.26
Sargan test, p			.497			.527			.439

Note: all regressions include a constant term. Instruments in columns 3, 6 and 9 are the log to GDP per capita, ethnic diversity, Gini coefficients, and the Protestant share in population.

Table 5. The effectiveness of corruption

	Hidden barriers			Costs of importing			Regulatory barriers		
	1	2	3	4	5	6	7	8	9
	OLS			OLS			OLS		
Political ideology	.787	.185	.209	.619	.069	.108	.750**	.139	.171
	(.487)	(.202)	(.198)	(.373)	(.176)	(.174)	(.349)	(.162)	(.159)
Post-communist	-.257	-.361	-.619	.278	.052	-.086	.041	-.124	-.323
	(.382)	(.404)	(.426)	(.242)	(.226)	(.231)	(.274)	(.287)	(.290)
Protestants	-.045	.095	.312	-.508*	-.297	-.156	-.279	-.099	.079
	(.298)	(.306)	(.344)	(.294)	(.304)	(.319)	(.254)	(.275)	(.302)
Log GDP per capita	-.033	-.030	-.065	-.005*	.019	.016	.018	.005	-.014
	(.177)	(.177)	(.172)	(.003)	(.182)	(.172)	(.142)	(.144)	(.137)
Political competition	-.496	-.510	-.799	-.705	-.825*	-1.019**	-.587*	-.649*	-.891**
	(.542)	(.579)	(.651)	(.472)	(.484)	(.481)	(.344)	(.368)	(.374)
Press freedom	-.008	-.009	-.004	-.012**	-.015**	-.008*	-.010**	-.012**	-.006
	(.006)	(.007)	(.006)	(.005)	(.006)	(.005)	(.004)	(.005)	(.004)
Corruption	.534***	.601***	.586***	.305***	.575***	.362***	.422***	.586***	.475***
	(.095)	(.159)	(.083)	(.078)	(.156)	(.089)	(.078)	(.109)	(.072)
Corruption*ideology	-.148			-.132*			-.149**		
	(.101)			(.072)			(.070)		
Corruption*competition		.144			.467**			.299**	
		(.219)			(.201)			(.145)	
Corruption*freedom			.005*			.006**			.005***
			(.003)			(.002)			(.002)
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	91	91	91	91	91	91	91	91	91
Pseudo R square	.786	.782	.793	.694	.712	.711	.811	.812	.822
F-statistic	42.65	45.82	51.45	35.86	26.64	27.96	55.87	46.78	50.81
RMSE	.759	.766	.746	.672	.652	.653	.590	.589	.572
VIF	4.09	5.83	3.51	4.09	5.83	3.51	4.09	5.83	3.51
Joint sign., p<	.059	.985	.000	.361	.000	.000	.001	.000	.000

Note: all regressions include a constant term.

Table 6. Robustness to alternative institutional variables

	Coefficient on corruption	Coefficient on extra variable	Change in coefficient	Coefficient on interaction	Change in coefficient
			No interaction term		
Government size	.396***	-.021	.003		
	(.082)	(.049)			
Legal quality	.257***	.229***	.143		
	(.095)	(.063)			
Sound money	.378***	.091	.022		
	(.079)	(.056)			
Regulatory freedom	.340***	.208**	.059		
	(.090)	(.102)			
Heritage index	.259***	-.635***	.141		
	(.089)	(.203)			
			Interaction with press freedom		
Government size	.471***	-.027	.004	.005***	.000
	(.073)	(.045)		(.002)	
Legal quality	.348***	.186***	.127	.005***	.001
	(.087)	(.066)		(.002)	
Sound money	.454***	.066	.021	.005***	.000
	(.075)	(.056)		(.002)	
Regulatory freedom	.414***	.217**	.061	.006***	.000
	(.084)	(.099)		(.002)	
Heritage index	.359***	-.433*	.115	.004*	.001
	(.095)	(.238)		(.002)	
			Interaction with political ideology		
Government size	.420***	-.009	.002	-.147**	-.002
	(.079)	(.049)		(.071)	
Legal quality	.282***	.224***	.140	-.140**	-.009
	(.092)	(.063)		(.067)	
Sound money	.401***	.081	.022	-.136*	-.012
	(.079)	(.056)		(.071)	
Regulatory freedom	.359***	.228**	.064	-.162**	.014
	(.089)	(.097)		(.073)	
Heritage index	.268***	-.724***	.154	-.189***	.040
	(.086)	(.182)		(.065)	

Table A1. Countries included in study

Country	Corruption 2005	Mean tariff 2003	Overall trade policy
Afghanistan	2.5		
Albania	2.4	11.7	5
Algeria	2.8	18.4	5.6
Angola	2		
Argentina	2.8	14.6	6.8
Armenia	2.9		
Australia	8.8	5.9	7.5
Austria	8.7	1.4	8.5
Azerbaijan	2.2		
Bahamas		35	4.5
Bahrain	5.8		7.8
Bangladesh	1.7	21.6	5.5
Barbados	6.9	19	4.8
Belarus	2.6		
Belgium	7.4	3.1	8.8
Belize	3.7		5.5
Benin	2.9	14.5	4.9
Bolivia	2.5	9.4	7.3
Botswana	5.9	6.4	7.5
Brazil		14.9	6.7
Bulgaria	4	13.8	7.3
Burkina Faso	3.4		
Burundi	2.3	19.6	3.2
Cambodia	2.3		
Cameroon	2.2	18.3	5.5
Canada	8.4	3.9	8
Central African Republic		18.9	5.4
Chad	1.7	17.1	6.1
Chile	7.3	6	8.6
China	3.2	15.1	7.5
Colombia	4	12.8	6.5
Congo	2.3	19.6	6.7
Congo, Dem. Rep.	2.1	13.2	6.1
Costa Rica	4.2	6.6	8
Cote d'Ivoire	1.9	12.8	6
Croatia	3.4	12	6.7
Cuba	3.8		
Cyprus	5.7	16.4	6.3
Czech Republic	4.3	5.1	8.2
Denmark	9.5	1.4	8.1
Dominican Republic	3	10.1	7
Ecuador	2.5	12.5	6.7
Egypt	3.4	19.1	5.1
El Salvador	4.2	7.5	7.4
Equatorial Guinea	1.9		
Eritrea	2.6		
Estonia	6.4	.9	8.6
Ethiopia	2.2		
Fiji	4	12.4	6.1

Finland	9.6	1.4	8.1
France	7.5	1.4	8
Gabon	2.9	20.2	5.8
Gambia	2.7		
Georgia	2.3	7.1	7.3
Germany	8.2	1.4	8.7
Ghana	3.5	15.2	7.4
Greece	4.3	1.4	7.4
Guatemala	2.5	7.8	6.6
Guinea-Bissau		13.6	5.5
Guyana	2.5	12.2	8.5
Haiti	1.8	10	6.7
Honduras	2.6	7.5	7.2
Hong Kong	8.3	0	9.7
Hungary	5	8.9	8.4
Iceland	9.7	5.2	6.7
India	2.9	31	6.4
Indonesia	2.2	6.4	7.3
Iran	2.9	4.9	5.6
Iraq	2.2		
Ireland	7.4	1.4	8.8
Israel	6.3	2	8.3
Italy	5	1.4	7.7
Jamaica	3.6	9.5	6.9
Japan	7.3	2.9	6.8
Jordan	5.7	14.5	7.6
Kazakhstan	2.6		
Kenya	2.1	20	6.6
Kuwait	4.7	3.5	6.9
Kyrgyz Republic	2.3		
Laos	3.3		
Latvia	4.2	3.4	7.6
Lebanon	3.1		
Lesotho	3.4		
Liberia	2.2		
Libya	2.5		
Lithauania	4.8	1.3	7.8
Luxembourg	8.5	1.4	8.9
Macedonia	2.7	10.2	6.3
Madagascar	2.8	5.4	6.3
Malawi	2.8	13.3	6.5
Malaysia	5.1	7.3	7.6
Mali	2.9	12.9	6.5
Malta	6.6	8.8	6.7
Mauritius	4.2	25.4	6.4
Mexico	3.5	16.2	7.5
Moldova	2.9		
Mongolia	3		
Morocco	3.2	18.9	5.9
Mozambique	2.8	12.9	6.2
Namibia	4.3	6.5	6.6
Nepal	2.5	13.1	5.7

Netherlands	8.6	1.4	8.6
New Zealand	9.6	4.3	8.2
Nicaragua	2.6	4.4	7.4
Niger	2.4	14.5	5.6
Nigeria	1.9	26.7	6.9
Norway	8.9	.5	7.4
Oman	6.3	8	7.9
Pakistan	2.1	16.9	5.8
Panama	3.5	8.1	7.4
Papua Ny Guinea	2.3	6.3	5.9
Paraguay	2.1	13.9	7.8
Peru	3.5	13.4	7.4
Philippines	2.5	4.5	7.3
Poland	3.4	3.4	6.5
Portugal	6.5	1.4	7.9
Qatar	5.9		
Romania	3	11.4	6.9
Russia	2.4	10.4	6.9
Rwanda	3.1	8.7	5.4
Saudi Arabia	3.4		
Senegal	3.2	13.9	6.1
Seychelles	4		
Sierra Leone	2.4		5.7
Singapore	9.4	0	9.5
Slovakia	4.3	22.2	8.5
Slovenia	6.1	4.3	7.3
Somalia	2.1		
South Africa	4.5	9.4	7.4
South Korea	5	9.5	7.1
Spain	7	1.4	8.3
Sri Lanka	3.2	8.4	6.9
Sudan	2.1		
Suriname	3.2		
Swaziland	2.7		
Sweden	9.2	1.4	8.3
Switzerland	9.1	3.2	8.1
Syrian Arab Rep.	3.4	14.7	4.9
Taiwan	5.9	6.9	8.4
Tajikistan	2.1		
Tanzania	2.9	15.2	5.9
Thailand		14	7.5
Togo		14.5	5.9
Trinidad		10.1	6.6
Tunisia	4.9	30.2	6.1
Turkey	3.5	2.6	7
Turkmenistan	1.8		
Uganda	2.5	8	6.9
Ukraine	2.6	7.9	7
United Kingdom	8.6	1.4	8.3
United States	7.6	4.1	7.8
Uruguay	5.9	13.3	6.9
Uzbekistan	2.2		

Venezuela	2.3	13.5	4.6
Vietnam	2.6	15	6.9
Yemen	2.7		
Zambia	2.6	14.2	7.2
Zimbabwe	2.6	16.7	3.4

Figure 1. Trade barriers through customs administration

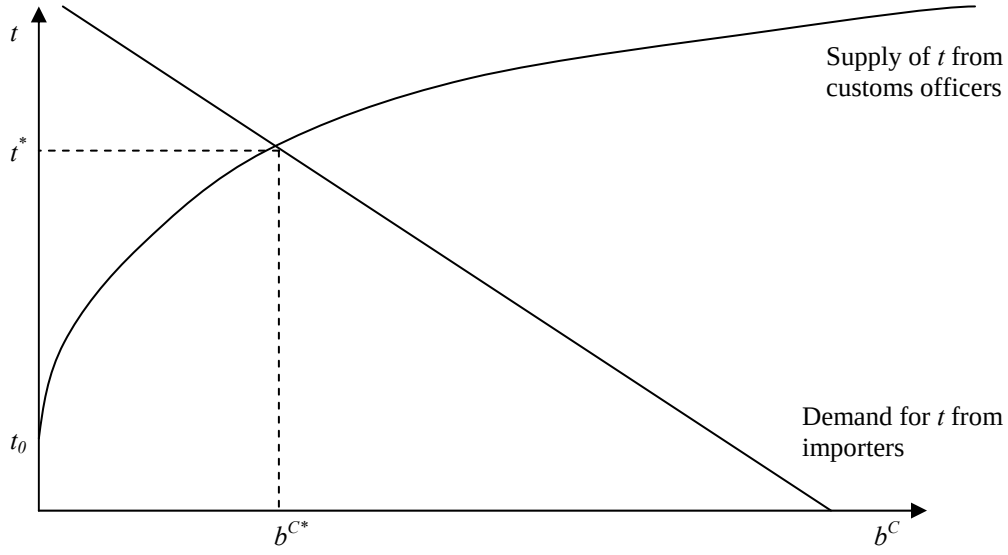

Figure 2. Trade barriers through politics