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Department of Economics
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Why Trading with Dictators May Nevertheless Help the People: On the Interplay between Trade, Political Regimes and Economic Institutions

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WHY TRADING WITH DICTATORS MAY NEVERTHELESS HELP THE PEOPLE:

On the Interplay between Trade, Political Regimes and Economic Institutions*

Usman Khalid[†]

Abstract

Recent empirical studies confirm a positive relation between trade liberalization or trade openness and the quality of domestic economic institutions. An isolated analysis of trade openness per se, however, may grossly simplify the mechanisms at work because the link between open trade and the quality of economic institutions is likely to vary with different political regimes. This study examines the causal relation between trade openness and quality of economic institutions under different political institutions. We observe that in the presence of extractive political institutions, the effect of trade openness on economic institutions is reduced significantly.

JEL Classification: P14, P16, F14, F13

Keywords: trade openness, political institutions, economic institutions, institutional change

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1. INTRODUCTION

Explaining institutional change is a challenging endeavour that has only recently gained broader academic attention. Recently, an impressive variety of explanatory factors have been explored in diverse attempts at theory-building across the social science disciplines (Greif 2006; Nee & Opper 2012; Padgett & Powell 2012; Fligstein & MacAdam 2012). In economics, changing relative prices and the specific role of trade have long been regarded as crucial drivers of institution building (North 1990). In their historical study of Atlantic trade after 1500, Acemoglu *et al.* (2005a) showed how the growth of trade has empowered merchant groups to push for institutional changes that would consequently constrain monarchies and protect traders' property rights. Recent empirical studies applying a short-term analysis of panel data confirm a positive relation between trade liberalization or trade openness and the quality of domestic economic institutions (Levchenko 2012; Dang 2010; Nicolini & Paccagnini 2011; Bhattacharyya 2012). A related strand of the literature also identifies a link between trade openness and the quality of governance (Wei 2000; Bonaglia *et al.* 2001; Al-Marhubi 2005), level of corruption and rent seeking (Ades & Di Tella 1999; Treisman 2000; Gatti 2004; Neeman *et al.* 2004).

An isolated analysis of trade openness *per se*, however, may grossly simplify the mechanisms at work. From a short-term perspective, trade regimes and domestic rules of international trade participation clearly reflect the priorities of the ruling class and are in this sense political constructs. It is therefore an open question whether trade liberalization will – independently of the political system – lead to an improvement in domestic economic institutions. The likely interaction effect between trade openness and political structures is far from trivial. Not only are these interactions important to understanding and predicting the direction of institutional change but the assumed interaction effects should also inform policy makers and representatives of international institutions. Ultimately, such analysis is crucial to

understanding whether trade with authoritarian regimes is in the short-term helping to improve institutions or merely increasing the survival chances of dictatorial rulers.

For our analysis of the relation between trade openness and economic institutional quality under different political regimes, we use a longitudinal dataset covering 138 countries during the period from 1984 to 2010. The observation period thus includes a time of intense global trade liberalization followed by an average growth of world export of approximately 6% between 1990 and 2008 (World Trade Organization [WTO], 2011). Our instrumented estimations yield two robust results: first we confirm a positive and significant effect of trade openness on the quality of economic institutions independent of the domestic political regime. Second, the effect of trade openness on economic institutional quality is considerably smaller in the presence of authoritarian political institutions. Our results are robust to changes in the measurement of political institutions. We also test our hypotheses using identification through the Heteroscedasticity method, and the overall conclusions remain similar.

The remainder of the paper is organized as follows: Section 2 reviews the theoretical arguments detailing the various causal mechanisms by which trade openness may influence a country's economic institutions and highlights the interplay between political institutions and trade liberalization effects. Section 3 introduces the empirical model; section 4 describes the data, and section 5 presents our results. The final section concludes the paper.

2. TRADE OPENNESS AND POLITICAL INSTITUTIONS

In recent theoretical literature studying determinants of institutional change, trade openness has featured prominently. The link between trade openness and the quality of domestic economic institutions rests on various transmission channels.

First, trade openness introduces a *competition effect*. Because domestic producers must compete both nationally and internationally with other producers, high transaction costs

stemming from weak domestic institutions take a toll on domestic production. Domestic economic agents therefore have increased incentives to lobby for and invest in better economic institutions to survive in the international marketplace (Islam & Montenegro 2002). Simultaneously, competition also has the potential to decrease corruption and rent-seeking activities and thereby improve bureaucratic efficiency (Bardhan 1997; Ades & Di Tella 1999; Treisman 2000).

Open trade also brings about a *learning effect*. Frequent cross-border interactions with international business partners increase knowledge and lead to a more informed citizenry (Islam & Montenegro 2002; Al-Marhubi 2005). Global flows of information improve and serve as alternative sources of knowledge and ideas. Such information spillovers help improve domestic institutions because citizens will treat international practice as a benchmark and increasingly request changes in their home institutions consistent with international standards (Al-Marhubi 2005).

Third, trade openness brings about a *technology effect*, which can have second-order effects on the quality of domestic economic institutions. Technological changes or technological shocks are likely to influence the distribution of domestic economic and political power (Grossman & Helpman 1991, 1994; Coe & Helpman 1995; Litwin 1998; Spilimbergo *et al.* 1999). These shifts in relative societal power may subsequently affect the quality of economic institutions (Acemoglu *et al.* 2005b).

Finally, increasing trade openness and the growing exposure to international market fluctuations trigger a certain *insurance effect*. An increase in trade openness can leave the economy more prone to external shocks such as sharp interest rate fluctuations, abrupt changes in the terms of trade or a sudden capital outflow (Al-Marhubi 2005), and to cope with these fluctuations, countries seek to improve their institutional environments. In parallel, growing trade with foreign business partners requires a more sophisticated contract law and

legal arbitration in case of business conflicts. This pushes governments to legal reforms if they wish to reap the benefits from international trade (Islam & Montenegro 2002). Particularly, membership or aspiration to gain membership in international organizations such as the WTO requires the signatory to bring domestic rules and regulations into compliance with international standards. In sum, the close link between trade openness and institutional qualities suggests the following hypothesis:

H1: The more integrated a country is in the world economy, the better the quality of domestic economic institutions.

The link between open trade and the quality of economic institutions, however, is likely to vary for different political regimes. If political power is held by small number of the elite not subject to an elaborate system of political checks and balances, leaders are liable to establish extractive rules to pursue their own self-interest (North 1990; North & Weingast 1989). Trade openness is therefore not necessarily associated with better economic institutions, as a casual review of trading nations confirms. Take, for example, the case of the Middle Eastern and North African countries. The majority of these are oil-exporting countries with trade volumes exceeding the global average by a considerable margin. Notwithstanding these large trade volumes, the development of institutional indices over time shows that these countries have not experienced any significant change in the quality of their economic institutions.

The mechanisms impeding positive institutional effects from open trade can be twofold: On one hand, authoritarian regimes applying an extractive approach are liable to have a trade regime in place that does not allow broader participation of the general populace. Key elements are typically large shares of state-ownership in trading and manufacturing companies, trade monopolies and monopsonies (Acemoglu *et al.* 2005b). Many countries, for instance, rely on government-owned agro-food trading companies that buy cash crops from

domestic farmers at a price well below the world market price to generate substantial monopsony rents when trading these products on the world market. In fact, in 1959-60 when cocoa prices dropped by £50 a ton, the governments of Ghana and Nigeria, instead of subsidizing their farmers to maintain a stable price, passed the burden of the drop in prices on to farmers (Acemoglu *et al.* 2005b).

Similarly, the political elite use regulations, quotas, and licenses to manipulate the market structure and impede market access. Typically, the goal is to retain control over the bulk of the resources for a few, often politically connected, key players. The export boom in the meat and cotton industries of the 1960s in Central America provides an example of how political institutions were used to retain gains from growing trade for the ruling elite of large landholders. To capture the economic benefits of a rapidly growing cotton and meat export market in the 1960s and 1970s, large landholders with political power first evicted smallholders from their land by sharply increasing their rents. Politically well-connected landholders then used their power to obtain formal land titles. Domestic rules cemented these landholders' dominant market position by imposing restrictions on the number and production capacity of the firms involved in meat packaging. This regulation effectively instituted market entry barriers that restricted competition and increased economic profits for the elite (Do and Levchenko 2006).

Evidently, extractive governments can rely on a wide portfolio of policy measures that will reduce the expected *competition effect* associated with open trade. Extractive political institutions will dampen the corrective influence of increased trade openness on corruption; in fact, trade participation of the politically well-connected elite may even increase corruption levels given the great financial rents at stake (Hutchcroft 1997; Banloi 2004). Soft budget constraints and frequent state subsidies sponsoring the state's participation in foreign trade reinforce the problem. Similarly, because of the potential restriction of foreign trade to the

privileged, politically well-connected elite, information spillovers are limited, and direct *learning effects* may remain modest. The same is true for *technology effects*. If the political leadership is in control of those economic sectors benefiting the most from new technologies and innovations, shifts in the societal power balance may be relatively limited. Clearly, political efforts to tightly control new communication technologies and social media tools represent one example of how restrictive political regimes seek to cement their power by controlling access to new technologies.

Second, authoritarian regimes catering to the demands of small groups of political elite are relatively insulated with regard to requests or lobbying attempts from the general public or international institutions (Baccini, Impullitti and Malesky 2013). Whereas a democratic government's willingness to impose WTO rules is subject to the relative power of different economic lobby groups in politics, an oligarchic state will first realize the vested interests of the ruling elite. Because institutional reforms generally have a direct redistributive effect from small groups of the political elite toward the general public, external pressure for reforms is rarely successful unless domestic governments are forced to respond for economic and financial reasons.

Thus, institutional effects stemming from trade openness are unlikely to be independent of the prevailing political regime. Centralized power in the hands of a small political elite is likely to have moderating effects on the assumed link between trade openness and institutional quality. We therefore hypothesize the following:

H2: Trade openness under extractive political regimes will lead to smaller improvements in institutional quality than in democratic systems.

3. METHODOLOGY

The empirical methodology in this study follows models used in the literature on institutional development (see La Porta *et al.* 1999; Levchenko 2012); however, it differs in two respects. First, to test hypothesis *H2*, an interaction term is introduced to capture the effect of increased trade openness under different political regimes. Second, considering the nature of our dependent variable, which is bounded from above and below, estimation is performed using a two-way Tobit model. This is a deviation from previous studies, which employ OLS that leads to biased estimates. Thus, we estimate the following regression equation:

$$eci_{it} = \alpha + \beta_1 op_{it} + \beta_2 op_{it} \times poi_{it} + \beta_3 poi_{it} + \gamma Z_{it} + \varepsilon_{it} \quad (1)$$

$$eci_{it} = \begin{cases} eci_{it}^*, & 0 < eci_{it}^* < 12 \\ 12, & eci_{it}^* \geq 12 \\ 0, & eci_{it}^* \leq 0 \end{cases}$$

in which eci_{it}^* is a measure of quality of economic institutions for country i in period t , α is the constant, op_{it} is the log of trade openness, poi_{it} is a measure of country i 's quality of political institutions, and Z_{it} is the matrix of other control variables that contains population, legal origin, geography, and GDP per capita.

There may exist a causal link between the quality of economic institutions and trade openness (see, for example, Jansen & Nordås 2004; Linders *et al.* 2005; Levchenko 2007), which could introduce bias into the estimates. We address this problem using instrumental variable technique and identification by the heteroscedasticity method. In the instrumental variable approach, we use two sets of instrumental variables (IVs) for trade openness¹. The first set of IVs is a measure of the natural openness of a country, obtained using the gravity model of trade (see Frankel and Romer 1999). A gravity equation is estimated for bilateral trade shares (relative to GDP) and uses a country's and its trading partners' geographic characteristics and population as explanatory variables. The predicted values from the gravity

¹ To estimate the endogenous Tobit model, we use the Amemiya Generalized Least Squares (AGLS) estimator introduced by Newey (1987).

equation are then used to determine natural openness². The gravity model used in the construction of the IV is estimated using OLS and is given below:

$$\ln\left(\frac{open_{ijt}}{GDP_{it}}\right) = \beta_0 + \beta_1 \ln(pop_{it}) + \beta_2 \ln(pop_{jt}) + \beta_3 \ln(Dev_{jt}) + \beta_4 \ln(distance_{ij}) \\ + \varphi(Geography_j) + \delta(Geography_i) + \epsilon_{ijt} \quad (2)$$

in which $open_{ijt}$ is bilateral trade from country i to country j in period t . GDP_{it} is country i 's GDP in period t whereas Dev_{jt} is the level of development of country j captured by its GDP per capita. Pop_{it} and pop_{jt} represent country i 's and country j 's populations, respectively, $distance_{ij}$ is the distance between country i and country j , and $Geography_i$ is a matrix containing a set of other geographical features of country i , which includes its area, a dummy indicating if it is landlocked, its longitude and latitude and a dummy indicating its continent. $Geography_j$ is a matrix containing a set of other geographical features of country j , including its area, a dummy indicating if it is landlocked and a dummy indicating its continent.

The predicted values from equation (2) are used to determine the predicted value of the bilateral trade share for each pair of countries. The predicted value of bilateral trade shares for each country compared with all other countries are then aggregated to obtain a measure of natural openness of the country denoted by $Natopen_{it}$.

$$Natopen_{it} = \sum_j \exp(\text{predicted value of } \ln(\frac{open_{ijt}}{GDP_{it}})) \quad (3)$$

The second set of instruments for trade openness consists of internal instruments that are also commonly used in literature (see, for example, Dollar & Kraay 2003, 2004; Yanikkaya 2003).

In this set we use tenth, fifteenth and twentieth lags of trade openness as IVs. The identifying assumption here is that although institutions in period t affect trade openness in period t , they

² Data on trade with partners comes from the dataset by Head, Mayer, and Ries (2010), which is only available to the year 2006, which restricts our analysis because of instrumental variables. This dataset also provides information on the GDP and population for the domestic country and its trading partner, distance between each pair of countries and also if they have common language. Data on other geographical features of the country such as its area, a dummy indicating if it is landlocked, its longitude and latitude come from Mayer and Zignago (2011).

cannot affect trade in previous periods. The reason for choosing long lag length as an IV is to minimize the correlation that today's institutions may have with past values of trade openness because of the often slowly changing nature of economic institutional quality.

The second estimation technique we use to resolve the endogeneity problem is the Identification through Heteroscedasticity (IH) method. The IH method estimates the causal relation by exploiting differences in the variance of the error terms across different sub-samples of the data. Rigobon (2003) shows that the identification problem can be solved if the data can be split into separate regimes in which the structural error term differs while the parameters are stable across regimes. To see the intuition behind the IH method, consider the pair of equations that describe the relationship between trade (T) and institutional quality (I):

$$I = \gamma T + \theta \quad (1)$$

$$T = \beta I + \varepsilon \quad (2)$$

where, θ and ε are the random shocks to the institutions and trade equations respectively. This is an unidentified system because the four unknown coefficients, $\hat{\gamma}, \hat{\beta}, \sigma_{\theta}^2$, and σ_{ε}^2 have to be explained by three moment conditions: $var(I)$, $var(T)$, and $cov(I, T)$. Suppose now that it is possible to split the data into two sub-samples A and B with identical parameters γ and β , but different variances for the random shocks ($\sigma_{A\theta}^2 \neq \sigma_{B\theta}^2$ and $\sigma_{A\varepsilon}^2 \neq \sigma_{B\varepsilon}^2$). Now the two sub-samples yield two separate variance–covariance matrices and six moments, which are enough to solve for the six unknowns ($\hat{\gamma}, \hat{\beta}, \sigma_{A\theta}^2, \sigma_{B\theta}^2, \sigma_{A\varepsilon}^2$ and $\sigma_{B\varepsilon}^2$). Thus, dividing the sample into two sub-samples adds two new unknowns (two additional variances), while generating three new moment conditions, and therefore identifies the system.

Two different splits of data are used to consistently estimate the model. The first split distinguishes between countries that were colonized by European powers and countries that were not; we call this the *Euro-colony split*. The underlying assumption of this split is that

non-colonized countries may have had more heterogeneous outcomes in institutional arrangements compared to the colonized countries; hence, the variance in structural shocks for non-colonized countries will be higher compared with colonized countries (Rigobon & Rodrik 2005). The second split differentiates countries based on their levels of development as measured by their per capita GDP. We call this the *development split*³. Compared with low-income countries, there is a greater variance in per capita income in high-income countries, and this implies that there will be relatively greater variance in institutional investment in the high-income group.

4. DATA

We have obtained data from several sources covering 138 countries for the period 1984-2010. The data are unbalanced because not all countries have data from 1984 until 2010. Because we combine several different datasets, we have a varying number of countries and time periods for different specifications of our model, specifically in IV estimation.

4.1. Dependent Variable

To measure economic institutions, we use the Investment Profile Index (IP Index) from the International Country Risk Guide (ICRG)⁴. The score on the IP index is assigned on the basis of subjective analysis of the available information regarding the investment climate in a country. This index is composed of three sub-indices, which when combined, present a country's investment profile. These sub-indices are Contract Viability/Expropriation, Profits Repatriation and Payment Delays. These three sub-indices capture the dimensions of

³ We place countries having a GDP per capita of \$5000 (in current prices) or greater in the year 2000 in one group and the rest in the other group.

⁴ Several measures to capture changes in economic institutions are highlighted in the literature. These include the measure of Political Freedom and Civil Liberties from Freedom House (see, for example, Scully, 1988; La Porta *et al.*, 1999; Nicolini & Paccagnini, 2011). Other measures include Expropriation Risk, Rule of Law and Repudiation of Contracts by Government available from ICRG (see, for example, Keefer and Knack, 1995; Bhattacharyya, 2012; Acemoglu *et al.*, 2001) and the Executive Constraint Index from the Polity IV dataset (see, for example, Bhattacharyya, 2012; Acemoglu *et al.*, 2001). These measures either partially reflect the variation in economic institutions and overlap with political institutions or cover a limited time period and are therefore not appropriate for our analysis.

economic institutions such as the protection of property rights and contract enforcement. Because they do not include any political aspects, they are appropriate for our analysis. This index has been used in a similar context in several recent studies (for example, Atoian, Mourmouras, & Nsouli 2004; Harms & An de Meulen 2010; Rajan & Subramanian 2007). The index varies from 0 to 12, and a higher value represents less risk of investment.

4.2. Explanatory Variables

The explanatory variables include the measure of trade openness and the measure of political institutions. Trade openness is measured by the trade to GDP ratio⁵ collected from the Penn World Table 7.0 (PWT 7.0), one of the most widely used measures of trade openness in the literature (see, for example, Frankel & Romer 1999; Dollar & Kraay 2003, 2004; Rodrik *et al.* 2004).

To quantify political institutions, we use the Democratic Accountability Index (DA Index) from the ICRG. This measure of political institutions captures political accountability – the extent to which policy makers are restricted from following the interests of the elite in establishing extractive economic institutions. The DA Index measures the responsiveness of government to its citizens and the checks and balances on the executive that are in place. This index varies from 0 to 6, and points are awarded on the basis of governance enjoyed by a country, which is categorized as follows: alternating democracy, dominated democracy, de facto one-party state, de jure one-party state and autarchy. In general, alternating democracies received the most points and autarchies received the fewest points. For ease of interpretation of results, we reverse this index so that democracies receive the fewest points and autarchies receive the most points.

⁵ We take the log of trade to GDP ratio.

4.3. Control Variables

Following the literature (see La Porta *et al.* 1999; Levchenko 2012; Bhattacharyya 2012), we include a set of control variables that can influence economic institutions and that are potentially correlated with trade openness. It is important to control for a country's level of development because more developed countries tend to have better institutions. It is highly likely that rich countries choose or can afford better institutions as well because they tend to trade more (Acemoglu *et al.* 2001; La Porta *et al.* 1999; Alonso & Garcimartín 2013; Frankel & Romer 1999; Rigobon & Rodrik 2005). To control for the level of development, we use the log of PPP converted GDP per capita (in current prices). We add the log of total population to control for the demographic structure of the country because the demographic structure affects the security of property rights (Harms & An de Meulen 2010). La Porta *et al.* (1999) observed that a socialist legal system negatively affects institutional development compared with common law countries; therefore, we control for legal origins in our analysis. The quality of institutions and trade openness can also be influenced by geographical conditions such as a country's location, natural endowments and disease environment (Easterly & Levine 2003; Frankel & Romer 1999). Hence, geographical conditions are controlled for using distance from the equator as measured by absolute value of latitude.

Appendix A provides descriptive statistics of the variables used in the analysis. The first two columns report the mean and standard deviations of our full sample. The average IP score is 7.2 and the average trade to GDP ratio in our sample is 78.40, which is approximately the same as that of Switzerland, which has a mean trade to GDP ratio of 78.75. Moreover, the average values for the DA index and the PR index are 2.25 and 3.49, respectively. The rest of the table reports the mean and standard deviations when the data are split into sub-samples based on the values of quartiles of trade to GDP ratio⁶. A clear pattern arises when we look at

⁶ The sub-samples are created based on the quartile values of trade to GDP ratio.

the first two rows of the table; that is, trade openness and the IP index are positively correlated. The increase in the average trade to GDP across sub-samples is substantial compared with the increase in the IP index, especially if we compare the last two columns, in which the average trade to GDP increases nearly twofold although the average IP index only increases marginally. This supports our hypothesis that the effect of trade openness on economic institutions may depend on the quality of political institutions.

Appendix B provides correlations between dependent and explanatory variables. The correlation between the IP index and the log of trade to GDP ratio is positive, suggesting that countries with a high trade to GDP ratio have better economic institutions. The correlation of the IP index with the DA index is negative, which indicates that countries with better political institutions have better quality economic institutions.

5. RESULTS

Table 1 presents the estimation results of the unconditional effect of trade openness on quality of economic institutions. There is a positive and significant effect of trade openness on economic institutional quality for all the specifications, and the results hold up even when we use different sets of IVs. This result is consistent with hypothesis *H1*, which suggests that an increase in trade openness improves economic institutional quality and also confirms the results of previous studies (see Levchenko 2012; Dang 2010; Bhattacharyya 2012). The effect of the DA index is negative and significant in all specifications, which is in accordance with the theory that predicts a positive relation between the quality of political institutions and economic institutions (see, for example, Acemoglu *et al.* 2005b; North 1990; North & Weingast 1989).

[Insert Table 1]

The relation between trade openness and quality of economic institutions, however, may depend on the quality of political institutions as indicated in hypothesis *H2*. Therefore, we estimate the model by including an interaction term between trade openness and political institutions. The results of estimating several specifications of equation (1) while using the DA index as a measure of political institutions are presented in Table 2. Except for the basic specification in Column (1), the coefficient of the interaction term is negative and significant in all specifications whereas the coefficient of trade openness is positive and significant. The results are consistent with our second hypothesis, which suggests that in the presence of extractive political institutions, trade will have an attenuated effect on the quality of economic institutions. These results appear to confirm that authoritarian regimes effectively restrict broader participation of the public in trade and may also resort to use of regulations, quotas, and licenses to manipulate the market structure and impede market access, reducing the effect of trade openness on economic institutions.

[Insert Table 2]

For the pooled Tobit model in Column (2), the coefficients for trade openness and the interaction term are 1.226 and -0.117, respectively. Both coefficients are statistically significant at a 1% level of significance. To visualize the size of the moderating effect, Figure 1 depicts the marginal effect of trade openness at different values of the DA index for the pooled Tobit model in the graph. The graph indicates that the marginal effect of trade openness decreases as political institutions become more extractive; however, it remains positive and significant even for the most extractive regime. The overall conclusions remain unchanged when different sets of IVs are used in estimation. A comparison of Columns (2) and (4) reveals that despite suggesting the same overall conclusion, the coefficient of trade openness and the interaction term have increased in magnitude in Column (4). Figure 2 provides a graph of the total marginal effect of trade openness at different values of the DA

index when natural openness is used as an IV. The graph suggests that at lower values of the DA index, the marginal effect of trade openness will be higher and as the DA index increases, the marginal effect tends to decrease; moreover, for extremely high values of the DA index, the marginal effect is nearly zero and statistically insignificant. Thus, compared with Vietnam, which has extractive political institutions (average DA score of 4.13), Taiwan, with its inclusive political institutions (average DA score of 1.56), will experience more rapid improvement in its quality of economic institutions as it opens up. Moreover, countries such as Myanmar or Somalia with an average DA score of 5.4 and 5.02, respectively, may not experience any significant improvement in their quality of economic institutions in response to an increase in trade openness.

[Insert Figure 1] [Insert Figure 2]

The effect of the DA index on the expected value of the IP index is negative and statistically significant for reasonable values of trade openness as shown in Figure 3. For instance, the marginal effect of the DA index at the mean value of trade openness⁷ is -0.36. This suggests that for a country with an average trade to GDP ratio, deterioration in political institutions will result in deterioration of economic institutions.

[Insert Figure 3]

The results using the IH method also suggest that there is a positive causal relation between trade openness and the quality of economic institutions, and this effect becomes attenuated in the presence of extractive political institutions as shown in Table 3. Moreover, we obtain similar results for both splits of the data. For instance, in Column (3), we estimate the full model using development split, and the result suggests that a 10 percent increase in trade openness is related to an increment of 0.23 units in the IP index for a country with a DA index of 0. For a country with a DA index of 6, this effect decreases to 0.069, which is nearly

⁷ Mean value of trade to GDP ratio in our sample is 78.41, and the corresponding value in log is 4.36.

one-third of the effect in a country with a DA index of 0. To put this into perspective, consider two countries, A and B, both with similar characteristics, an IP index of 6 in year 1 but with different DA scores. Let country A be an autocracy with a DA score of 6, and let country B be a democracy with a DA score of 0. If both countries experience a 10% increase in trade openness per year for 10 years with all other variables being constant, country B's IP index will increase from 6 in year 1 to 8.07 in year 10 whereas country A will experience a marginal increase of 0.6 units in its IP index as shown in Figure 4.

[Insert Table 3][Insert Figure 4]

5.1. Robustness Checks

We perform various robustness checks to scrutinize our results. First, we use an alternative measure of political institutions to counter any bias that results from construction of a particular index. Second, we split our sample by region and estimate our model on these subsamples using the IP index and the DA index as measures of economic and political institutions, respectively, to see if our results hold.

Table 4 presents the results when we use the Political Rights Index (PR Index)⁸ by Freedom House as a measure of political institutions instead of the DA index. The overall conclusion drawn from the results is similar to the conclusions obtained using the DA index. Trade openness has a positive and significant effect on the quality of economic institutions. Moreover, increased political freedom significantly increases the effect of trade openness on the quality of economic institutions. These results suggest that the interaction term robustly

⁸ The PR Index "... measures the degree of freedom in the electoral process, political pluralism and participation, and functioning of government. Numerically, Freedom House rates political rights on a scale of 1 to 7, with 1 representing the most free and 7 representing the least free" (Freedom in the World, 2010: Survey Methodology). A score of 1 represents a country having free and fair elections, political competition and autonomy for all citizens whereas a PR Index value of 7 represents a country in which political rights are essentially missing because of extremely oppressive regimes, civil war, extreme violence or warlord rule.

captures the effect of trade openness on economic institutions under different political regimes as measured by two different methods. The result of the baseline model in Column (2) suggests that a 10 percent increase in trade openness in a country with a PR index of 1 is related to an increment of 0.152 units in the latent dependent variable. However, for a country with a PR index of 7, a 10 percent increase in trade openness merely increases the latent dependent variable by 0.054, only one-third of the effect of a country with PR index of 1.

[Insert Table 4]

Further, we re-estimate our model using different sub-samples of the data because the heterogeneity of the countries may bias our results. We divide our data by regions and then re-estimate our model on each of the sub-samples using linear regression instead of Tobit because we are left with little or no censoring data. The results are presented in Table 5. The unconditional effect of trade openness on economic institutional quality is positive for all the regions; however, it is insignificant for American countries. When we add the interaction term in the model, the overall conclusions remain unchanged for all regions except for African countries, for which the coefficient of trade openness is negative whereas the coefficient of the interaction term is positive. The counter-intuitive results for Africa are driven by the fact that the majority of African countries mainly export natural resources and only 10 percent of the sub-sample is categorized as democratic. This result may also suggest that a certain level of development is a precondition for the improvement of institutional quality.

[Insert Table 5]

As an additional robustness test, the model is estimated with a lagged dependent variable using Arellano and Bond GMM estimation method and lagged variables as well as external variables are used as instruments. The results are similar. These results are available upon request.

5.2. Socioeconomic Index

Thus far, our results suggest that the effect of trade openness on economic institutional quality decreases as political institutions become more extractive. However, these results do not say much about how increased trade openness under various political regimes can affect people's lives and their socio-economic condition. To assess this, we use the Socioeconomic Conditions Index (SC Index) from the ICRG as our dependent variable. The SC Index measures the social dissatisfaction in a society by looking at three indicators: unemployment, consumer confidence and poverty.

Table 6 presents the results when the SC index is used as an dependent variable. The results show a positive link between trade openness and the SC index, suggesting that gains from trade will be redistributed in the society and the socioeconomic conditions of the people will improve. This result is consistent with the literature, which suggests that increased trade openness reduces poverty and unemployment (Dollar and Kraay 2004; Agénor 2004; Felbermayr, Prat & Schmerer 2011). One reason for this reduction may be that increased trade openness is related to increased income growth, and this in turn helps reduce poverty and unemployment. Conversely, we observe a negative association between the DA index and the SC index, implying that poor political institutions will result in a degradation of socioeconomic conditions, which can be attributed to the differences in economic performance among democratic and autocratic states (see, e.g., Barro 1989).

[Insert Table 6]

The interaction term is insignificant in the majority of the specifications, providing weak evidence of any conditional effect of trade openness. However, it is positive and significant in Columns (1) and (4), suggesting that higher trade openness leads to better socioeconomic conditions in countries with authoritarian regimes compared with countries with democratic regimes. This suggests that in authoritarian regimes, trade openness causes a

greater reduction in social dissatisfaction than in democratic regimes. This can be attributed to the high level of economic growth experienced by some of the authoritarian regimes such as China. Moreover, the positive interaction effect can also indicate that authoritarian regimes may spend more on social expenditures to win public sentiment and improve their survival rate.

6. CONCLUSION

This study explored the relation between trade and economic institutions under different political regimes. There is ample theoretical grounding to believe that trade openness leads to improved economic institutions. However, the effect of trade openness on economic institutions is likely to vary for different political regimes. The political elite are likely to establish extractive economic institutions if the political power is not subject to checks and balances. In an authoritarian regime, the political elite can effectively restrict broader participation of the public in trade and may also resort to the use of regulations, quotas, and licenses to manipulate the market structure and impede market access. Trade openness is therefore not necessarily associated with better economic institutions. Thus, we hypothesized that trade openness under extractive political regimes will lead to smaller improvements in institutional quality than in democratic societies.

Our results can be summarized as follows: We confirm a positive and significant effect of trade openness on institutional quality. We further observed that under extractive political regimes, trade openness has a significantly reduced effect on economic institutional quality. Our results hold true for both pooled and panel data specifications and under veracious specification. We further investigated whether trade openness affects the socioeconomic conditions of a country and if this effect is dependent on the quality of political institutions. We observed that there is a positive link between trade openness and

socioeconomic conditions regardless of the quality of political institutions. Our findings suggest that in political regimes in which there is some democratic accountability, trade openness will result in an improvement in economic institutional quality whereas in the absence of democratic accountability, trade openness will have substantially smaller effects on economic institutions. Conversely, trade openness has an unconditional effect on the socioeconomic conditions of a country. Thus, restricting trade ties with an authoritarian regime may hurt the general public because such restrictions can reduce growth and employment opportunities, hence increasing poverty and worsening socioeconomic conditions.

The results also present several important policy implications. First, trade restrictions hurt people not only in terms of increasing prices and reducing the size of their consumption sets but also because they lose out on potential institutional benefits. Thus, reducing trade restrictions, especially in LDCs, will not only improve the socioeconomic conditions in those countries but also lead to improvement in institutional quality. Second, economic and trade embargoes may push a despotic regime such as Iran to the negotiation table but may not improve institutional quality and may lead to a worsening of socioeconomic conditions. As a result of sanctions, people become the target instead of regimes' being the target; thus, there is a need to reconsider economic and trade sanctions.

The discourse on trade and institutional quality is far from complete and requires further study to explore the link between different types of institutions and different individual channels through which trade openness affects the quality of institutions. It would also be of interest to see what type of trade (primary goods, industrial goods, services) leads to more change in institutional quality.

REFERENCES

- Acemoglu, Daron, Simon Johnson, and James Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review* no. 91 (5):1369-1401.
- Acemoglu, Daron, Simon Johnson, and James Robinson. 2005a. "Institutions as a fundamental cause of long-run growth." *Handbook of economic growth* no. 1:385-472.
- Acemoglu, Daron, Simon Johnson, and James Robinson. 2005b. "The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth." *American Economic Review* no. 95 (3):546-579.
- Ades, Alberto, and Rafael Di Tella. 1999. "Rents, competition, and corruption." *American Economic Review* no. 89 (4):982-993.
- Agenor, Pierre-Richard. 2004. "Does Globalization hurt the poor?" *International Economics and Economic Policy* no. 1 (1):21-51.
- Al-Marhubi, Fahim A. 2005. "Openness and governance: Evidence across countries." *Oxford Development Studies* no. 33 (3-4):453-471.
- Alonso, José Antonio, and Carlos Garcimartín. 2013. "The determinants of institutional quality. More on the debate." *Journal of International Development* no. 25 (2):206-226.
- Baccini, Leonardo, Giammario Impullitti, and Edmund J Malesky. 2013. "Trade Liberalization and State-Owned Enterprises: Evidence from Vietnam's Accession to the WTO." *Available at SSRN 2314897*.
- Banlaoi, Rommel. 2004. "Globalization and nation-building in the Philippines: State predicaments in managing society in the midst of diversity." *Growth and Governance in Asia, Hawaii: Asia-Pacific Center for Security Studies*.
- Bardhan, Pranab. 1997. "Corruption and development: a review of issues." *Journal of economic literature* no. 35 (3):1320-1346.
- Barro, Robert J. 1991. "Economic growth in a cross section of countries." *The quarterly journal of economics* no. 106 (2):407-443.
- Bhattacharyya, Sambit. 2012. "Trade liberalization and institutional development." *Journal of Policy Modeling* no. 34 (2):253-269.
- Bonaglia, Federico, Jorge Braga de Macedo, and Maurizio Bussolo. 2001. How Globalization Improves Governance. C.E.P.R. Discussion Papers.
- Coe, David T, and Elhanan Helpman. 1995. "International R&D Spillovers." *European Economic Review* no. 39 (5):859-887.

- Dang, Anh Duc. 2010. Trade Liberalization and Institutional Quality: Evidence from Vietnam. University Library of Munich, Germany.
- Do, Quy-Toan, and Andrei A Levchenko. 2006. Trade, inequality, and the political economy of institutions. The World Bank.
- Dollar, David, and Aart Kraay. 2003. "Institutions, trade, and growth." *Journal of monetary economics* no. 50 (1):133-162.
- Dollar, David, and Aart Kraay. 2004. "Trade, Growth, and Poverty*." *The Economic Journal* no. 114 (493):F22-F49.
- Easterly, William, and Ross Levine. 2003. "Tropics, germs, and crops: how endowments influence economic development." *Journal of monetary economics* no. 50 (1):3-39.
- Felbermayr, Gabriel, Julien Prat, and Hans-Jörg Schmerer. 2011. "Trade and unemployment: What do the data say?" *European Economic Review* no. 55 (6):741-758.
- Fligstein, Neil, and Doug McAdam. 2012. *A theory of fields*: Oxford University Press.
- Frankel, Jeffrey A, and David Romer. 1999. "Does trade cause growth?" *American economic review*: 379-399.
- Freedom House. 2010. Freedom in the World 2010: The Annual Survey of Political Rights and Civil Liberties, Freedom House, New York. Data retrieved from: www.freedomhouse.org.
- Gatti, Roberta. 2004. "Explaining corruption: are open countries less corrupt?" *Journal of International Development* no. 16 (6):851-861.
- Greif, Avner. 2006. *Institutions and the path to the modern economy: Lessons from medieval trade*: Cambridge University Press.
- Grossman, Gene M, and Elhanan Helpman. 1991. "Trade, knowledge spillovers, and growth." *European Economic Review* no. 35 (2):517-526.
- Grossman, Gene M, and Elhanan Helpman. 1995. "Technology and trade." *Handbook of international economics* no. 3:1279-1337.
- Harms, Philipp, and Philipp An de Meulen. 2010. "Demographic Structure and the Security of Property Rights in Developing Countries—An Empirical Exploration." *Ruhr Economic Paper* (229).
- Head, Keith, Thierry Mayer, and John Ries. 2010. "The erosion of colonial trade linkages after independence." *Journal of International Economics* no. 81 (1):1-14.
- Hutchcroft, Paul D. 1997. "The politics of privilege: assessing the impact of rents, corruption, and clientelism on Third World development." *Political Studies* no. 45 (3):639-658.

- Islam, Roumeen, and Claudio E Montenegro. 2002. "What determines the quality of institutions?" *World Bank Policy Research Working Paper* (2764).
- Jansen, Marion, and Hildegunn Kyvik Nordås. 2004. *Institutions, trade policy and trade flows*: Centre for Economic Policy Research.
- Knack, Stephen, and Philip Keefer. 1995. "Institutions and economic performance: cross-country tests using alternative institutional measures." *Economics & Politics* no. 7 (3):207-227.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. 1999. "The quality of government." *Journal of Law, Economics, and organization* no. 15 (1):222-279.
- Levchenko, Andrei A. 2007. "Institutional quality and international trade." *The Review of Economic Studies* no. 74 (3):791-819.
- Levchenko, Andrei A. 2012. "International Trade and Institutional Change." *Journal of Law, Economics, and Organization*.
- Linders, Gert-Jan M, Henri LF de Groot, and Piet Rietveld. 2005. *Institutional Determinants of Bilateral Trade: An Analysis according to Product Type*. Tinbergen Institute.
- Litwin, Carol. 1998. "Trade and income distribution in developing countries." *rapport nr.: Working Papers in Economics* (1998).
- Mayer, Thierry, and Soledad Zignago. 2011. "Notes on CEPII's distances measures: The GeoDist database."
- Nee, Victor, and Sonja Opper. 2012. *Capitalism from below: markets and institutional change in China*: Harvard University Press.
- Neeman, Z, MD Paserman, and A Simhon. 2004. *Corruption and openness*. Centre for Rationality and Interactive Decision Theory, Hebrew University. Jerusalem, Discussion Paper Series No. dp353.
- Newey, Whitney K. 1987. "Efficient estimation of limited dependent variable models with endogenous explanatory variables." *Journal of Econometrics* no. 36 (3):231-250.
- Nicolini, Marcella, and Alessia Paccagnini. 2011. "Does Trade Foster Institutions?" *Review of Economics and Institutions* no. 2 (2).
- North, Douglass C. 1990. *Institutions, institutional change and economic performance*: Cambridge university press.
- North, Douglass C, and Barry R Weingast. 1989. "Constitutions and commitment: the evolution of institutions governing public choice in seventeenth-century England." *The journal of economic history* no. 49 (04):803-832.

- Nsouli, Saleh M, Rouben Atoian, and Alex Mourmouras. 2004. *Institutions, program implementation, and macroeconomic performance*: International Monetary Fund.
- Nsouli, Saleh M, Rouben Atoian, and Alex Mourmouras. 2013. *Institutions, Program Implementation, and Macroeconomic Performance*. International Monetary Fund.
- Padgett, John F, and Walter W Powell. 2012. *The emergence of organizations and markets*: Princeton University Press.
- PRS Group. 2010. ICRG Researchers' Dataset: Table 3B.
- Rajan, Raghuram, and Arvind Subramanian. 2007. "Does aid affect Governance?" *The American economic review* no. 97 (2):322-327.
- Rigobon, Roberto. 2003. "Identification through heteroskedasticity." *Review of Economics and Statistics* no. 85 (4):777-792.
- Rigobon, Roberto, and Dani Rodrik. 2005. "Rule of law, democracy, openness, and income." *Economics of Transition* no. 13 (3):533-564.
- Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi. 2004. "Institutions rule: the primacy of institutions over geography and integration in economic development." *Journal of economic growth* no. 9 (2):131-165.
- Scully, Gerald W. 1988. "The institutional framework and economic development." *The Journal of Political Economy*:652-662.
- Spilimbergo, Antonio, Juan Luis Londoño, and Miguel Székely. 1999. "Income distribution, factor endowments, and trade openness." *Journal of development Economics* no. 59 (1):77-101.
- Treisman, D. 2000. "The causes of corruption: A cross-national study." *Journal of Public Economics* no. 76 (3):399-457.
- Wei, Shang-Jin. 2000. *Natural openness and good government / Shang-Jin Wei, Working paper series / National Bureau of Economic Research: 7765*: Cambridge, Mass., 2000.
- World Trade Organization. 2011. Trade growth to ease in 2011 but despite 2010 record surge, crisis hangover persists, [Press release]. Retrieved from http://www.wto.org/english/news_e/pres11_e/pr628_e.htm
- Yanikkaya, Halit. 2003. "Trade Openness and Economic Growth: A Cross-Country Empirical Investigation." *Journal of Development Economics* no. 72 (1):57-89.

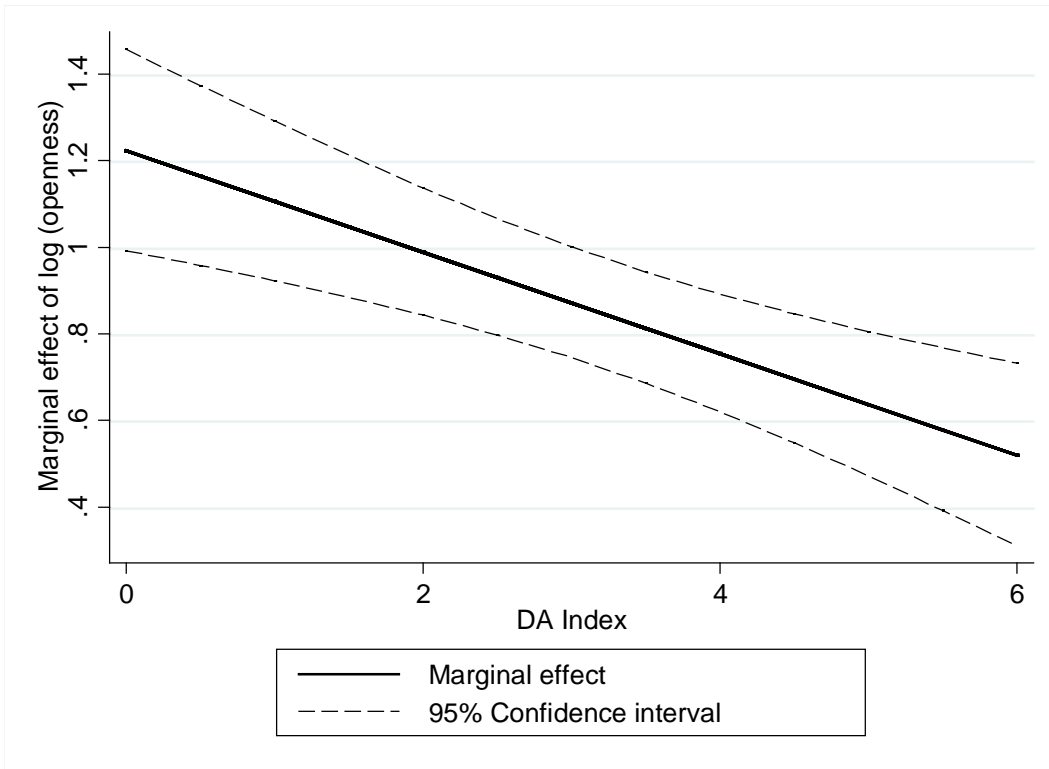


Figure 1: Marginal effect of log of trade openness on expected value of IP index for different values of DA index

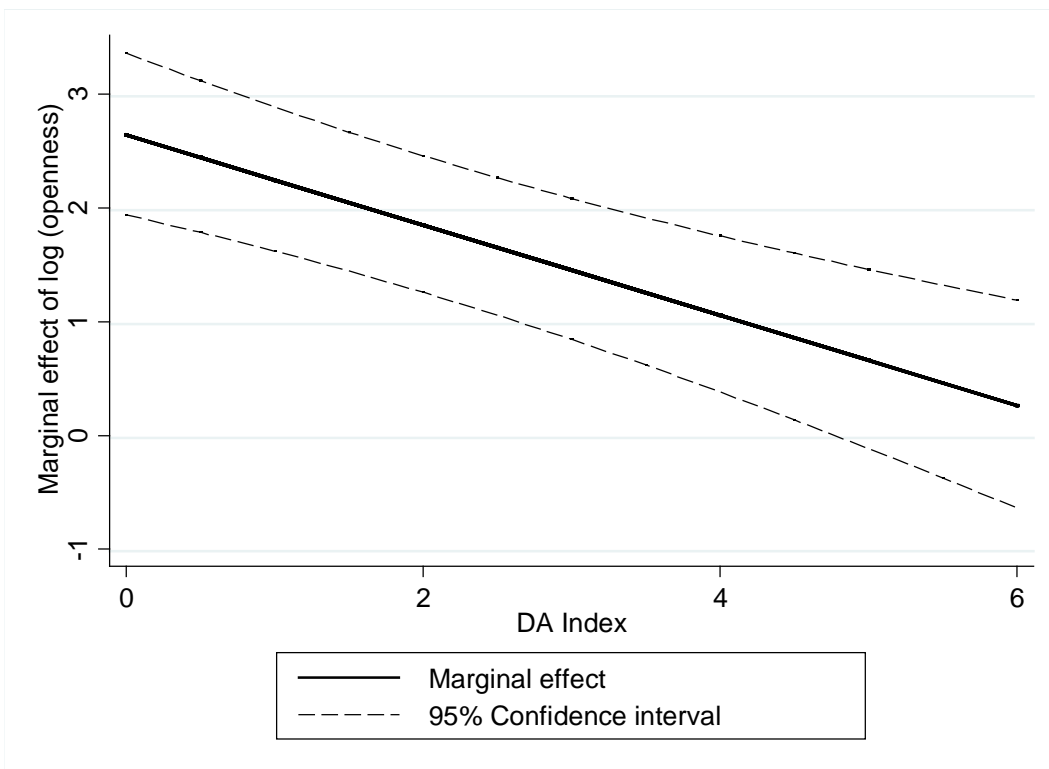


Figure 2: Marginal effect of log of trade openness on expected value of IP index for different values of DA index when natural openness is used as an IV

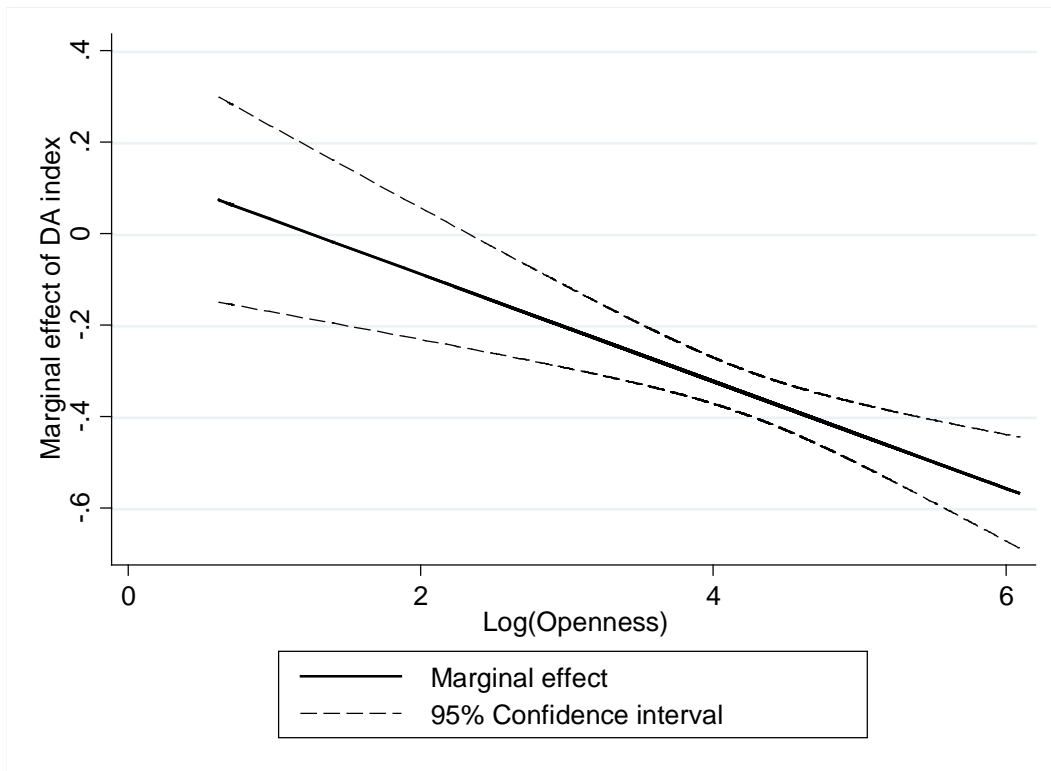


Figure 3: Marginal effect of DA index on expected value of IP index for different values of log of openness

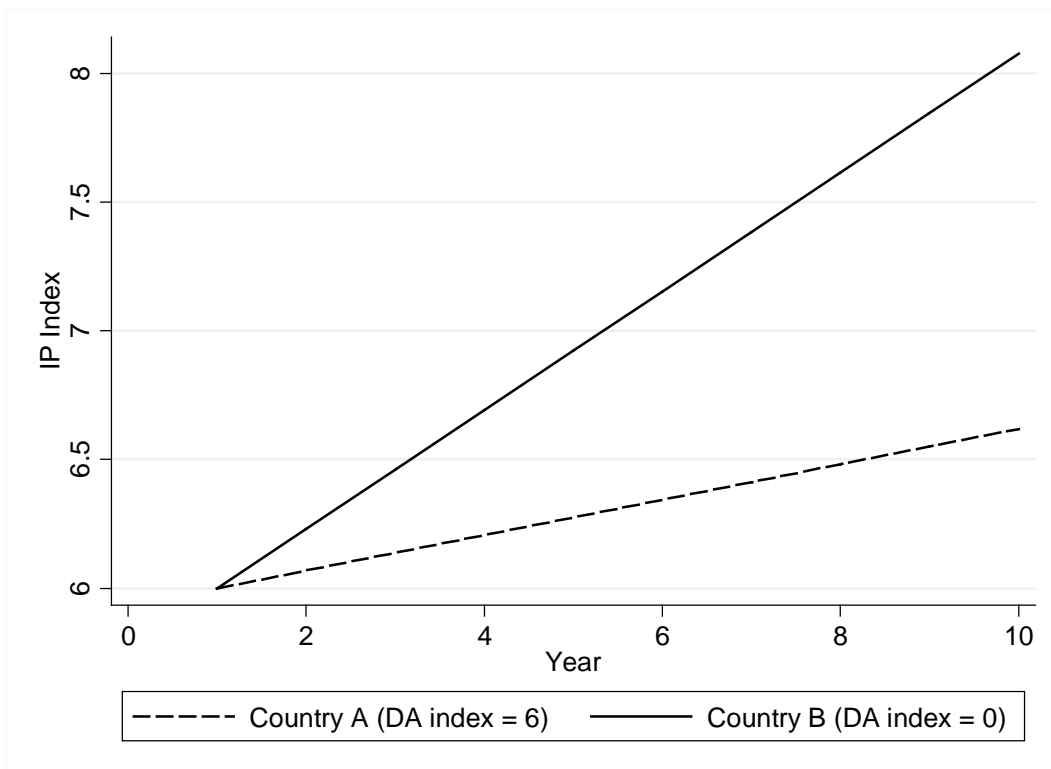


Figure 4: Development of IP index over a 10 year period for a 10% increase in trade to GDP ratio per year

Table 1. Two-way Tobit Regression: Effect of Trade Openness on IP Index

VARIABLES	Pooled	Pooled	Random Effects	IV Estimates [†]	IV Estimates [‡]	IV Estimates [§]	IV Estimates ^{§§}
Log(Openness)	1.485*** (0.0663)	0.849*** (0.0652)	0.516*** (0.110)	2.618*** (0.389)	0.576*** (0.0881)	0.551*** (0.101)	0.939*** (0.118)
DA index		-0.350*** (0.0249)	-0.396*** (0.0307)	-0.313*** (0.0316)	-0.326*** (0.0257)	-0.313*** (0.0268)	-0.317*** (0.0280)
Log(GDP per capita)		0.896*** (0.0352)	2.513*** (0.0850)	0.493*** (0.0754)	0.960*** (0.0371)	0.981*** (0.0388)	0.872*** (0.0415)
Log(Population)		0.167*** (0.0248)	0.836*** (0.108)	0.464*** (0.0721)	0.115*** (0.0270)	0.119*** (0.0285)	0.176*** (0.0311)
Latitude		-0.758*** (0.288)	-8.837*** (1.333)	0.151 (0.384)	-0.704** (0.291)	-0.739** (0.297)	-0.488 (0.307)
Constant	1.088*** (0.280)	-4.693*** (0.510)	-19.58*** (1.648)	-11.48*** (1.747)	-3.800*** (0.573)	-3.918*** (0.616)	-5.090*** (0.681)
Other Controls	Legal Origin	Legal Origin	Legal Origin	Legal Origin	Legal Origin	Legal Origin	Legal Origin
Observations	3,440	3,440	3,440	2,873	3,326	3,219	3,043
Number of Countries	138	138	138	136	138	138	128

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is Investment Profile index

[†] Instrumental variable: *Natopen_{it}*[‡] Instrumental variable: *lnopen_{it-10}*[§] Instrumental variable: *lnopen_{it-15}*^{§§} Instrumental variable: *lnopen_{it-20}*

Table 2. Two-way Tobit Regression: Effect of Trade Openness and DA Index on IP Index

VARIABLES	Pooled	Pooled	Random Effects	IV Estimates [†]	IV Estimates [‡]	IV Estimates [§]	IV Estimates ^{§§}
Log(Openness)	1.108*** (0.113)	1.226*** (0.119)	1.260*** (0.187)	2.657*** (0.364)	0.909*** (0.144)	0.849*** (0.157)	1.358*** (0.169)
Log(Openness) × DA index	0.0451 (0.0321)	-0.117*** (0.0309)	-0.209*** (0.0424)	-0.396*** (0.0909)	-0.113*** (0.0377)	-0.107** (0.0419)	-0.169*** (0.0482)
DA index	-0.841*** (0.136)	0.148 (0.133)	0.485*** (0.182)	1.328*** (0.381)	0.151 (0.162)	0.136 (0.178)	0.389* (0.203)
Log(GDP per capita)		0.919*** (0.0356)	2.428*** (0.0859)	0.777*** (0.0720)	0.987*** (0.0380)	1.008*** (0.0400)	0.922*** (0.0438)
Log(Population)		0.199*** (0.0263)	0.867*** (0.105)	0.360*** (0.0590)	0.142*** (0.0286)	0.142*** (0.0301)	0.205*** (0.0323)
Constant	4.139*** (0.483)	-6.725*** (0.739)	-22.39*** (1.696)	-13.04*** (1.815)	-5.623*** (0.846)	-5.561*** (0.904)	-7.458*** (0.963)
Other Controls	--	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin
Observations	3,440	3,440	3,440	2,873	3,326	3,219	3,043
Number of Countries	138	138	138	136	138	138	128

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is Investment Profile index

[†] Instrumental variable: $Natopen_{it}$ and $Natopen_{it} \times DA\ index_{it}$

[‡] Instrumental variable: $lnopen_{it-10}$ and $lnopen_{it-10} \times DA\ index_{it}$

[§] Instrumental variable: $lnopen_{it-15}$ and $lnopen_{it-15} \times DA\ index_{it}$

^{§§} Instrumental variable: $lnopen_{it-20}$ and $lnopen_{it-20} \times DA\ index_{it}$

Table 3. Identification through Heteroscedasticity: Effect of Trade Openness and DA Index on IP Index

VARIABLES	Development Split			Euro Colony Split		
Log(Openness)	2.85 (5.09)	2.38 (8.12)	2.308 (7.67)	3.29 (10.12)	3.91 (6.57)	4.21 (4.89)
Log(Openness) × DA index	-0.04 (0.79)	-0.32 (4.97)	-0.27 (4.15)	-0.07 (2.26)	-0.614 (4.72)	-0.66 (3.48)
Control Variables						
DA index		Yes	Yes		Yes	Yes
Log(GDP per capita)		Yes	Yes		Yes	Yes
Log(Population)		Yes	Yes		Yes	Yes
Latitude		Yes	Yes		Yes	Yes
Legal Origins			Yes			Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3440	3440	3440	3440	3440	3440
Number of Countries	138	138	138	138	138	138

T-statistics in the parentheses. Based on 500 bootstrap samples.
The dependent variable is Investment Profile index

Table 4. Two-way Tobit Regression: Effect of Trade Openness and PR Index on IP Index

VARIABLES	Pooled	Pooled	Random Effects	IV Estimates [†]	IV Estimates [‡]	IV Estimates [§]	IV Estimates ^{§§}
Log(Openness)	1.215*** (0.132)	1.683*** (0.138)	1.928*** (0.227)	3.036*** (0.391)	1.247*** (0.166)	1.078*** (0.177)	1.513*** (0.190)
Log(Openness)× PR index	0.0123 (0.0278)	-0.164*** (0.0268)	-0.279*** (0.0401)	-0.275*** (0.0787)	-0.150*** (0.0336)	-0.130*** (0.0374)	-0.141*** (0.0452)
PR index	-0.499*** (0.117)	0.494*** (0.114)	0.921*** (0.168)	0.957*** (0.329)	0.454*** (0.142)	0.389** (0.157)	0.429** (0.187)
Log(GDP per capita)		0.943*** (0.0376)	2.612*** (0.0917)	0.757*** (0.0821)	1.028*** (0.0409)	1.060*** (0.0437)	0.957*** (0.0488)
Log(Population)		0.276*** (0.0273)	1.073*** (0.117)	0.459*** (0.0637)	0.204*** (0.0298)	0.191*** (0.0314)	0.253*** (0.0336)
Constant	3.763*** (0.563)	-9.565*** (0.826)	-28.09*** (1.898)	-15.24*** (1.924)	-8.013*** (0.945)	-7.517*** (0.996)	-8.964*** (1.057)
Other Controls	--	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin
Observations	3,208	3,208	3,208	2,799	3,102	2,999	2,838
Number of Countries	135	135	135	133	135	134	121

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is Investment Profile index

[†] Instrumental variable: $Natopen_{it}$ and $Natopen_{it} \times PR index_{it}$

[‡] Instrumental variable: $lnopen_{it-10}$ and $lnopen_{it-10} \times PR index_{it}$

[§] Instrumental variable: $lnopen_{it-15}$ and $lnopen_{it-15} \times PR index_{it}$

^{§§} Instrumental variable: $lnopen_{it-20}$ and $lnopen_{it-20} \times PR index_{it}$

Table 5. Linear Regression: Effect of Trade Openness and DA Index on IP, in Various Splits of the Data

VARIABLES	African Countries	Asian Countries	American Countries	European Countries	African Countries	Asian Countries	American Countries	European Countries
Log(Openness)	0.356** (0.139)	0.361* (0.187)	0.357 (0.227)	2.049*** (0.296)	-0.716** (0.326)	1.069*** (0.296)	0.876** (0.359)	2.145*** (0.348)
Log(Openness) × DA index					0.255*** (0.0697)	-0.233*** (0.0754)	-0.200* (0.104)	-0.0844 (0.139)
DA Index	-0.349*** (0.0503)	-0.237*** (0.0485)	-0.582*** (0.0688)	-0.671*** (0.0834)	-1.385*** (0.286)	0.779** (0.332)	0.248 (0.439)	-0.315 (0.594)
Log(GDP per capita)	1.980*** (0.129)	1.912*** (0.107)	2.469*** (0.183)	2.640*** (0.169)	1.992*** (0.127)	1.933*** (0.108)	2.405*** (0.188)	2.614*** (0.172)
Log(Population)	0.768*** (0.121)	0.486*** (0.0768)	0.00872 (0.145)	0.412*** (0.104)	0.724*** (0.118)	0.510*** (0.0777)	0.0659 (0.150)	0.419*** (0.104)
Latitude	-5.710*** (1.702)	-3.107** (1.286)	-1.258 (1.651)	-9.225*** (2.372)	-5.727*** (1.651)	-3.058** (1.306)	-1.069 (1.684)	-9.227*** (2.345)
Constant	-14.21*** (1.428)	-14.02*** (1.427)	-15.97*** (2.408)	-23.88*** (2.190)	-9.355*** (1.847)	-17.50*** (1.785)	-18.38*** (2.707)	-24.09*** (2.237)
Other Controls	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin
Observations	978	908	725	775	978	908	725	775
Number of countries	37	36	27	36	37	36	27	36

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is Investment Profile index

Table 6. Linear Regression: Effect of Trade Openness and DA Index on SC Index

VARIABLES	Pooled	Pooled	Random Effects	IV Estimates [†]	IV Estimates [‡]	IV Estimates [§]	IV Estimates ^{§§}
Log(Openness)	0.490*** (0.108)	0.709*** (0.124)	1.095*** (0.179)	1.007** (0.443)	-0.380 (0.278)	0.352* (0.205)	1.672*** (0.322)
Log(Openness)× DA index	0.146*** (0.0307)	0.0353 (0.0321)	0.00664 (0.0435)	0.591*** (0.106)	-0.000746 (0.0592)	-0.0796 (0.0507)	-0.00531 (0.0683)
DA index	-0.765*** (0.130)	-0.132 (0.139)	-0.157 (0.187)	-2.488*** (0.444)	-0.147 (0.253)	0.292 (0.216)	-0.0477 (0.289)
Log(GDP per capita)		0.486*** (0.0371)	1.010*** (0.0656)	0.0288 (0.0853)	1.177*** (0.0716)	0.784*** (0.0509)	0.643*** (0.0802)
Log(Population)		0.191*** (0.0274)	0.558*** (0.0529)	0.423*** (0.0719)	0.212*** (0.0542)	0.154*** (0.0392)	0.447*** (0.0585)
Constant	6.007*** (0.461)	-0.740 (0.766)	-8.342*** (1.154)	-0.189 (2.190)	-0.962 (1.429)	-1.012 (1.129)	-7.362*** (1.567)
Other Controls	--	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin	Latitude and legal origin
Observations	3,335	3,335	3,335	2,802	3,227	3,122	2,952
Number of Countries	133	133	133	133	133	133	124

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is Socioeconomic Conditions Index

[†] Instrumental variable: $Natopen_{it}$ and $Natopen_{it} \times DA\ index_{it}$ [‡] Instrumental variable: $lnopen_{it-10}$ and $lnopen_{it-10} \times DA\ index_{it}$ [§] Instrumental variable: $lnopen_{it-15}$ and $lnopen_{it-15} \times DA\ index_{it}$ ^{§§} Instrumental variable: $lnopen_{it-20}$ and $lnopen_{it-20} \times DA\ index_{it}$

Appendix A: Summary Statistics of the Variables

Variable	Full Sample		Sub-Sample 1		Sub-Sample 2		Sub-Sample 3		Sub-Sample 4	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
IP index	7.26	2.53	6.01	2.30	7.00	2.40	7.75	2.37	8.27	2.49
Openness	78.41	51.85	32.92	10.45	56.67	5.79	79.78	8.66	144.26	60.47
DA index	2.25	1.65	2.70	1.58	2.11	1.57	2.10	1.67	2.09	1.70
PR index	3.49	2.17	4.11	2.15	3.38	2.09	3.31	2.13	3.10	2.16
GDP per capita	10388.01	12927.97	5821.50	8790.52	7953.57	8928.45	12443.12	14091.51	15333.84	16063.11
Latitude	0.29	0.19	0.23	0.15	0.29	0.19	0.31	0.20	0.31	0.20
British Legal Origin	0.32	0.47	0.35	0.48	0.27	0.44	0.27	0.44	0.37	0.48
French Legal Origin	0.48	0.50	0.53	0.50	0.59	0.49	0.42	0.49	0.38	0.49
Socialist Legal Origin	0.12	0.32	0.08	0.28	0.07	0.25	0.12	0.32	0.21	0.41
German Legal Origin	0.05	0.21	0.04	0.19	0.03	0.17	0.08	0.27	0.03	0.17
Scandinavian Legal Origin	0.04	0.19	0.00	0.03	0.04	0.19	0.11	0.32	0.01	0.09
Population	42352.080	139959.500	102351.30	229185.40	39634.57	118492.30	17716.65	79404.10	9705.83	16297.98

Appendix B: Correlation Matrix

	IP Index	Openness	DA Index	PR Index	GDP per capita	Population	Latitude
IP Index	1						
Openness	0.36	1					
DA Index	-0.46	-0.14	1				
PR Index	-0.43	-0.17	0.79	1			
GDP per capita	0.6	0.36	-0.49	-0.52	1		
Population	-0.09	-0.49	-0.03	0.16	-0.15	1	
Latitude	0.32	0.08	-0.46	-0.31	0.51	0.2	1
