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Trade Policies, Investment Climate, and Exports

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Abstract

There is a large body of research that explores international trade as a source of the dispersion in income levels and growth performances across countries. The trade liberalization policies undertaken between 1950 and 2006 led to an almost 30 fold growth in the volume of international trade. However this increase has not been homogeneous across countries. This study investigates a possible reason that prevents convergence of countries in export performance. It shows that regulatory quality, customs efficiency, quality of infrastructure, and access to finance among other factors increase export performance. Furthermore, it shows that countries that are relatively more constrained in accessing to foreign markets benefit more from improvements in investment climate than the countries with easier foreign market access. Hence attaining a favorable investment climate for private sector development should be an important policy objective for relatively closed economies to achieve convergence in export volumes with countries that have more liberal trade policies.

Keywords: *Export performance, trade policy, investment climate, institutions, trade facilitation*

JEL Classification: *F13, F14, F15, F4, O1*

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1. Introduction

There is a large theoretical and empirical literature that explores trade as a potential source for the dispersion in income levels across countries. The achievements of several Asian countries on sustained growth while pursuing a strong export orientation has made export-led growth theories highly acknowledged. Studies like Frankel and Romer (1999), Alcalá and Ciccone (2004), and Wacziarg and Welch (2008) among many others find a positive causal link between openness and high economic performance.² This positive links between openness and growth led many governments to embark on trade liberalization programs. Wacziarg and Welch (2008) show that in 1960, only 22% of countries representing just 21% of global population had open trade policies. By 2000, around 73% of countries representing 46% of population were open to international trade. The liberalization policies led to an almost 30 fold growth in the volume of international trade between 1950 and 2006 which is three times faster than the growth in global GDP. However this increase has not been homogeneous across countries. Countries in East Asia had more than 800 percent increase in real exports since early 1970s, whereas countries in Sub-Saharan Africa had only 70 percent increase. Since openness is a significant contributor of high economic performance, the large variation in export performance of countries has raised concerns that only some countries are benefiting from globalization. This study investigates the possible reasons that prevent convergence of countries in export performance. In particular it shows how trade policies, trade facilitation, and the investment climate (IC) affect export performance.³

For a long time, trade policies such as tariff rates, quotas, non-tariff barriers have been the major policy tools to improve export performance. Studies like Hoekman and Nicita (2008) and Anderson and Marcouiller (2002) show that bilateral tariff rates significantly reduce export performance. In this study, I use two indices to measure the restrictiveness of tariff policies. Both indices are constructed by Kee et al. (2009).⁴ The first index is trade tariff restrictiveness index (TTRI) which shows the restrictiveness of domestic trade policies on imports. The second index is market access trade tariff restrictiveness index (MATTRI) which shows the ease of foreign market access of the country. Unlike simple or weighted average tariff rates, these indices are well grounded in trade theory and provide sound aggregate measures of trade restrictiveness.

Despite of the substantial decreases in tariff rates since 1960s' in many countries, the gap in trade performance across countries has not closed. Clarke (2005) and Morrissey (2005) note that the adoption of significant trade liberalization policies in the majority of African countries have resulted in a reduction of import tariff rates from 33% in early 1980s to 15% in 2002. However Gupta and Yang (2006) shows that the share of manufactured goods in total exports remains at about 30% during the same time span. Focusing on the low export performance of African countries, Iwanow and Kirkpatrick (2009) show that liberalizing trade is not sufficient to achieve high export performance.

² See Berg and Krueger (2003) and Hallaert (2006) for literature surveys on the link between trade and growth.

³ Throughout the text, I use business environment and investment climate interchangeably.

⁴ The methodology developed in Kee et al. (2009) is built on the work of Anderson and Neary (1994,1996) on trade restrictiveness. A detailed discussion on the construction of the indices is provided in Kee et al. (2009).

A business environment that is conducive to private sector development has drawn increasing attention as a factor that closely relates to export performance. Building on the work of North (1990), there is a growing body of research that investigates the impact of institutional factors on international trade flows. Using a gravity model, Anderson and Marcoullier (2002) show that bilateral trade volumes are positively influenced by the trading countries' institutional quality. Francois and Manchin (2007) analyze the influences of institutions, infrastructure, and trade policies on the patterns of bilateral trade. They find that empirically the dependence of export performance on indicators of business environment is far more important than the dependence on tariff rates in explaining the variations in North-South trade. Similarly trade facilitation is also closely related to trade performance. The reforms in this area have been at the forefront of the discussions on reducing the costs of trading. Using a gravity model specification, Wilson et al. (2003) estimate the impact of trade facilitation on trade flows and find large increases in trade and growth rates from trade facilitation reforms. Similarly Djankov et al. (2010) find that each additional day a product is delayed prior to being shipped reduces trade by at least 1%. Limao and Venables (2001) and Iwanow and Kirkpatrick (2009) find that inefficient trade facilitation is one of the main factors behind low trade performance of Sub-Saharan African countries. They also highlight the importance of other reforms including the quality of the regulatory environment and the quality of the basic infrastructure. Infrastructure is important because unexpected losses due to water or electricity outages, inefficient telephone connections or roads could increase the cost of production which eventually leads to lower competitiveness in international markets. Overall, all these studies show that a favorable investment climate comprised of efficient institutions, good trade facilitation, and high quality infrastructure is crucial to attain high competitiveness in international markets. High costs of trade transactions due to inefficiencies in business environment attenuate the abilities of countries in establishing strong links with global markets.

Using a dataset that comprises countries with various income levels and from different regions of the world, I analyze how economic policies on investment climate affect the variation in export performances of countries. I focus on six indicators each representing a different aspect of investment climate. These indicators are regulatory quality, trade facilitation, entry regulations, access to finance, infrastructure, and property rights. Although there are a number of studies that analyze how some of these indicators affect export performance, none of them have looked at the interaction of these indicators with the restrictiveness of foreign market access. I show that a favorable investment climate not only improves export performance, but also reduces the distortions caused by restrictive foreign market access policies. This finding puts the reforms in investment climate at a high place in reform agenda of countries with lagging trade performance in order to be able to catch up with the trade performances of more open countries.

The rest of the paper is organized as follows. In section 2, I explain the methodology and specifications used in the analysis. In section 3, I describe the data and then in section 4, I present the analysis results. Alternative specifications and robustness tests are presented in section 5. I finish with some concluding remarks in section 6.

2. Methodology and Variables of Interest

To be able to evaluate whether trade restrictions affect export performance, one has to use the trade barriers imposed by trading partner countries on the products of the exporting country. Kee et al. (2009) constructed such an indicator. The market access-trade tariff restrictiveness index (MA-TTRI) which is presented in World Trade Indicators (WTI) from 2005 to 2007 measures the equivalent uniform tariff of trading partners facing the exporter country that would maintain the imports of the trading partners constant, including preferential tariffs. It is weighted by import values and import demand elasticities of trading partners and expressed as a tariff rate. A low value of the index indicates low trade barriers (or high market access) faced by the country's exporters when selling their products to other countries. I use this indicator as a proxy for the restrictiveness of trade policies in accessing to foreign markets.

The tariff rates adopted at home can also contribute to the export performance of a country if exporters are more likely to use imported intermediate goods. In their analysis on U.S. firms, Bernard et al. (2007) find that 41 percent of exporting firms also import while 79 percent of importers also export. Using a firm level dataset from 43 developing countries Seker (2010) shows that 35 percent of firms that are engaged with international markets through exporting or importing perform both activities. Low domestic tariff rates decrease the cost of imports which eventually might stimulate exports. I include trade tariff restrictiveness index (TTRI) in the analysis which is also constructed by Kee et al. (2009) and presented in WTI.⁵ This index summarizes the impact of each country's non-discriminatory trade policies on its aggregate imports. It indicates the degree of domestic inefficiency caused by the trade regime. It is calculated as an equivalent uniform tariff of a country's tariff schedule that would keep domestic import levels constant. Product level tariffs are weighted by import shares as well as the responsiveness of imports to price changes. It is also expressed as a tariff rate. I introduce several estimation methods to explain how MA-TTRI and TTRI distort export performance of countries and show how investment climate interact with this relationship.

Dollar et al. (2006) show that a favorable business environment works in the direction of decreasing the sunk costs of exporting and eventually leads to higher participation in export markets. Such an environment can also increase export volumes of countries by reducing the distortions of the restrictive market access policies. Ability of a country to improve its foreign market access is limited to making multilateral and bilateral trade agreements. Such policy actions could be less practical and convenient for governments relative to the policy changes for improving business environment. In this study, I focus on several investment climate measures. The choice of these indicators was motivated by the existing studies in the literature. As it was briefly discussed in the introduction, there are plenty of empirical studies that show institutions, infrastructure, trade facilitation, and regulations affect export performance of countries. To show how these aspects of investment climate affect export performance I choose the following indicators: regulatory quality, financial development, business entry regulations, exports facilitation, quality of infrastructure, and property rights.

⁵ The TTRI index used here is for the most favored nation which is the most common used tariff measure in the literature.

The first indicator is regulatory quality which is obtained from Worldwide Governance Indicators (WGI). This index captures the ability of a government to formulate and implement sound policies and regulations that permit and promote private sector development. Details of how this indicator is constructed are presented in Kaufman, Kraay, and Mastruzzi (2009). The indicator is standardized between -2.5 and 2.5 with high scores corresponding to better outcomes. The second indicator measures financial development. It is the log of the ratio of money and quasi money (M2) to GDP which is collected through World Bank's World Development Indicators (WDI). This is a standard measure of financial development in the literature. The third indicator is an index of business entry regulations. It is collected through the Doing Business surveys of the World Bank and it measures the number of procedures it takes to start a business. The fourth indicator is a measure of country's customs efficiency. Time to export is measured as the log of the duration (in days) of the goods to be exported. It is also collected by Doing Business. The fifth indicator is the quality of overall infrastructure (e.g. transport, telephone, and energy). This indicator is collected by World Economic Forum's Global Competitiveness report. The last indicator measures protection of property rights. It is obtained from Economic Freedom of the World database. However the original data is collected by World Economic Forum. The last two indicators vary between 1 and 7 where 1 corresponds to lowest rating.

In the estimation, in addition to the trade policy variables and the indicators for investment climate, I control for the size of the country with two measures: log of real GDP and log of its area. Real GDP is measured in constant 2005 US dollars at PPP. I follow Dollar and Kraay (2003) and Alcalá and Ciccone (2004) to use the PPP for converting GDP values into US dollars. Presenting GDP in PPP is more appropriate than deflating with market exchange rates for cross-country analysis. As for the area of the country, studies like Rodrik (1998) and Frankel and Rose (2000) shows that area has a significantly negative impact on openness. Large countries are less likely to trade because of relatively higher domestic demand and higher transport costs of exporting abroad. Moreover small size limits the country's possibilities to diversify production. Another explanatory variable is the remoteness of the country from the rest of the world. Anderson and Van Wincoop (2003) show that a country's trade with any partner country depends on its average distance from the rest of the world. Following the method introduced in Head (2003) I define a remoteness index.⁶ Finally, I control for the past export growth performance of the country. This variable can control for the positive steps taken in the past to spur export performance such as implementation of trade liberalization policies, expansion of trade into new markets, exports of new products, or establishing trade agreements.

Export performance of countries is measured by log of export sales in constant 2005 US dollars which is obtained from World Bank Development Indicators (WDI). By measuring exports in constant US dollars, I assume that exported goods' prices are roughly equalized across countries. Endogeneity is a major concern in the estimation, especially for the relationship between GDP and export. Gravity models assume that the volume of trade between two trading countries is positively related to the GDPs

⁶ Remoteness is defined as $remote_i = 1 / (\sum_j GDP_j / Dist_{ij})$ where $Dist_{ij}$ is the distance between two countries i and j . Djankov et al. (2010) use this index in their estimation of a modified gravity equation. They argue that remoteness is correlated with factory-to-port time delays hence excluding it from the analysis would produce biased estimates of the impact of trade facilitation on export sales.

of these countries (see Anderson and Van Wincoop (2003)). On the other hand, studies by Freund and Bolaky (2008) and Chang et al. (2009) among many others find positive income effects of openness. To account for the endogeneity problem, I use lagged values of the independent variables. Real export sales at period t is regressed on the independent variables at period $t-1$ and at $t-2$. To control for the endogeneity of GDP, in alternative specifications I use log of the ratio of real export to real GDP in PPP and log of the ratio of nominal export value to nominal GDP as measures of export performance.

The data is formed of a short panel of three years of observation for each country. The primary estimation method that I apply is pooled ordinary least squares method (OLS). This method is appropriate when in addition to standard assumptions of OLS method; homoskedasticity and no-serial correlation assumptions over the time dimension are satisfied. However in panel datasets, the standard errors are likely to be correlated over time and hence not independent and identically distributed. For this reason, I correct for the standard errors by clustering over countries. Failure to control for this error correlation might lead to underestimation of standard errors. I include two year dummies to control for the aggregate year effects. The estimation equation is presented as follows.

$$\log(Export_{it}) = \beta_0 + \beta_1 \log(GDP_{it-1}) + \beta_2 \log(Area_i) + \beta_3 \log(remote_i) + \beta_4 \log(ExpGrowth)_{it-1,t-2} + \beta_5 \log(TTRI_{it-1}) + \beta_6 \log(MATTRI_{it-1}) + \beta_7 Indicator_{it-1} + \beta_8 \log(MATTRI_{it-1}) * Indicator_{it-1} + \beta_9 d_{2006} + \beta_{10} d_{2007} + \varepsilon_{it}.$$

In an alternative specification I use linear panel estimation method to alleviate the endogeneity problem. There are several different linear models for panel data. The fixed-effects panel model is attractive as we can obtain consistent estimates of the variables provided that they are time varying, even if the regressors are endogenous. However, in this method the coefficients of the regressors with little variation over time will be imprecisely estimated. Since the number of periods is only three for most of the countries, I use population average and random-effects models. In these models, the unobserved country specific effect is assumed to be purely random. The first panel method I introduce is the pooled feasible generalized squares (FGLS) method which is also known as population averaged estimator. FGLS methods are appropriate to use when the error terms are heteroskedastic and serially correlated over time. This estimator allows over time correlation for each country. Since the time dimension is short, I allow the errors to be equi-correlated.⁷ When I apply this method, I present robust standard errors which are clustered at country level. In the second panel method, I allow the disturbance term to be first-order autoregressive to control for the serial correlation and I apply the FGLS estimator in random effect model.⁸

3. Data

The dataset covers three years of observations between 2005 and 2007 for 137 countries. It is not balanced as there are variables which have missing observations for some of the countries. The list of countries is given in Table 1. The data includes countries from six regions of the world and five income

⁷ If we define $\rho_{t,s} = Corr(u_{it}, u_{is})$ as the correlation between the error terms for individual i , for periods t and s , then $\rho_{t,s} = \rho$ for all $t \neq s$.

⁸ The code used for this estimation in Stata implements the method introduced by Baltagi and Wu (1999).

groups. The regional and income distribution of the countries included in the dataset for 2005 is presented in Table 2.⁹

For the analysis, I combine data from several sources which are explained in the previous section. In Table 3, I present the list of variables used in the analysis. The export data is obtained from 2006 to 2008 whereas the explanatory variables are from 2005 to 2007 when possible. Although some of the variables are available for a longer time span, the analysis is limited by the availability of the data for TTRI and MA-TTRI from WTI which are only available for 2005-2007. Data from global competitiveness report on the quality of infrastructure is only available for 2008. The last column in Table 3 shows the expected signs of the relationships between the explanatory variables and export sales. Descriptive statistics for the variables used in the analysis are presented in Table 4. In the table, I present both within and between country variations for each variable. The data shows that for most of the variables within variation is quite small compared to the overall variation which is due to the few number of time periods. This also shows why using fixed effects method in panel regressions would give imprecise results.

4. Analysis and Results

Collinearity between the explanatory variables could make the estimation results imprecise and make it difficult to isolate the individual influences of the explanatory variables on export sales. I present the correlation matrix between the variables in Table 5. The table shows that investment climate indicators are highly correlated with each other. Thus in each estimation, I include only one investment climate indicator.

The first group of estimation results with the pooled OLS method is presented in Table 6. GDP is a strong correlate of high export performance which is a common finding of gravity models. On the other hand, large and remote countries export less. Ten percent increase in the remoteness of the country decreases export sales by 4-5 percentage points. These findings are in accordance with the results of Djankov et al (2010) and Iwanow and Kirkpatrick (2009). Past export growth also contributes significantly to the current export performance. Lastly, trade restrictiveness index which measures the stringency of domestic trade policies on imports negatively affect exports. This shows that there is complementarity between importing and exporting activities which could be caused by exporters' extensive usage of imported intermediate goods.

Redding and Venables (2003) emphasize the importance of foreign market access as a factor of export growth. In their theoretical model, they define foreign market access of an exporting country as the sum of market capacities of all partner countries. They find that a substantial part of the differential export growth of numerous countries since 1970 can be attributed to variations in the rate at which their foreign market access has grown. In Table 6, I use the market access restrictiveness index (MA-TTRI) as a proxy for foreign market access. The table shows that difficulties in market access significantly decrease export performance. In four of the six specifications, its coefficient is negative and significant. Ten percent increase in market access lead to 2 to 8 percentage points increase in exports. Among the

⁹ In 2005 there are 136 countries. Data for Namibia is available for 2006 and 2007.

investment climate indicators, the significant ones are in accordance with the empirical findings in the literature. Better regulatory quality, quality of infrastructure, and protection of property rights lead to higher export sales whereas the inefficiencies in trade facilities decrease exports. The interaction terms between market access and IC indicators are significant with the expected signs in all specifications. This shows that improvements in investment climate would make larger contributions to increasing export performance of countries with low foreign market access relative to the ones with high foreign market access. Firms in a country with low foreign market access have to be more competitive and efficient in export markets in order to be able compete with those firms in more open countries. Hence, the marginal contribution of improvements in investment climate to export sales will be relatively more in countries with low foreign market access.

It is possible to measure the total impacts of the investment climate indicators on export performance. Using the estimation results from Table 6, I find total impacts of one standard deviation change in investment climate indicator on growth rates of export sales.¹⁰ To show how countries with different levels of foreign market access benefit from this improvement, I compare 25th and 75th percentiles of foreign market access restrictiveness index which correspond to 2 and 5.5 percent tariff rates respectively.¹¹ The difference between growth rates of export sales generated by the change in each IC indicator for the two values of foreign market access index are given in Table 7. The table shows that a country in the 75th percentile of market access index distribution benefits from one standard deviation improvement of regulatory quality by 10 percentage points more than a country in the 25th percentile of the distribution. The impacts of the other IC indicators are of similar magnitudes. This finding shows that improvements in investment climate are important in reducing the barriers of trade and in leading to the convergence of export performance of countries.

I tested the findings which were presented in Table 6, with several alternative indicators of investment climate such as rule of law from WGI, logistic performance index (LPI) from WTI, a measure of infrastructure from Enterprise Surveys database, and a measure of property rights from index of economic freedom (IEF). The information contained in these variables are similar to the ones presented in Table 6, however they are obtained from different sources.¹² Rule of law captures the extent to which agents have confidence in and abide by the rules of society, the quality of contract enforcement, the police and the courts, as well as the likelihood of crime and violence. The second indicator is logistic performance index (LPI) which reflects the overall performance of a country's logistics environment.¹³

¹⁰ The standard deviation in the investment climate indicators are calculated over the largest regression sample which corresponds to 205 observations. The change is applied in the direction of improvement in the investment climate indicator.

¹¹ The formula applied is as follows:

$$\Delta Export_{it}(75) - \Delta Export_{it}(25) = \beta_8 * \Delta Indicator_{it-1} * (\log(MATTRI_{it-1}(75)) - (\log(MATTRI_{it-1}(25))))$$

¹² The rule of law is an exception. Although it is also collected through WGI, the variables used in constructing rule of law are different than the ones used for regulatory quality. I have included this indicator as it has been used in several studies such as Dollar and Kraay (2003) and Freund and Bolaky (2008) as a proxy for institutional quality and it significantly relates to welfare of countries.

¹³ LPI is formed of the following subcategories: efficiency of the customs clearance process, quality of transport and transport-related infrastructure, ease of arranging competitively priced shipments and competence, quality of logistics services, and tracking ability and timeliness of shipments.

Although the methodology applied to collect the data is similar to time to export data from DB, the content of LPI is broader. The third indicator is an alternative for infrastructure measure. It measures the losses of firms within countries that resulted from power outages. This cross-sectional survey data, which is conducted only to firms in developing countries, is collected through Enterprise surveys of the World Bank.¹⁴ The final indicator is a measure of property rights from Index of Economic Freedom database. It measures the degree to which a country's laws protect private property rights and the degree to which its government enforces those laws. This measure differs from the property rights measure in Economic Freedom of the World in its source of collection.¹⁵ The data for infrastructure is available for 2005 to 2008 depending on the survey year. All other data are available for 2005-2007 periods. The results with these alternative variables are presented in Table 8. In all specifications, investment climate indicators have the expected signs and the interaction terms are significant. The findings are in close accordance with the main estimation results.

5. Alternative Specifications and Panel Estimation Methods

Economic Freedom of the World report publishes an index for the size of trade sector relative to its expected size. Using regression analysis, an expected size of the trade sector (summation of import and export) is derived based on the population and geographical size of the country and its location relative to the concentration of world GDP. This expected size is compared to the actual size of trade. This procedure allocates higher ratings to countries with large trade sectors compared to what would be expected, given their population, geographic size, and location.¹⁶ The level of knowledge capital in the country, the percentage of population speaking a major global language such as English, the legal origin of the country could affect the country's export performance. Expected size of trade could be used to control for these factors that are likely to affect trade but cannot be controlled by factors like geography, size, and trade policies.

Another variable that I include in the robustness test is the net inflows of foreign direct investment (FDI) to the country. Dollar and Kraay (2003) show that there are countries like China where large shares of exports come from firms with foreign investment. Moreover, UNCTAD (2002a, b) reports illustrates that FDI can be expected to contribute to enhancing a country's competitiveness on international markets by increasing the technological content of exports. FDI is usually directed towards either higher-value-added activities in newly targeted industries or higher-productivity and higher-technology activities within already targeted industries. Hence these establishments can cause technological spillover to domestic firms which can increase their competitiveness. Fugazza (2004) shows that the contribution of FDI to capital formation has a positive impact on export performance. Estimation results including both expected size of trade and FDI investment are presented in Table 9. Results show that both variables significantly increase export sales and do not distort the relationship

¹⁴ See www.enterprisesurveys.org for the methodology and data coverage. Each country is surveyed once and the survey year varies across countries.

¹⁵ IEF uses data from Economist Intelligence Unit, Country Profile, Country Report, and Country Commerce, 2005–2008; U.S. Department of Commerce, Country Commercial Guide, 2005–2008; and U.S. Department of State, Country Reports on Human Rights Practices.

¹⁶ See Economic Freedom of the World Report for further details on the construction of this index and <http://www.freetheworld.com/2004/TradeSectorMethodology.pdf> for a description of the methodology.

between market access and the IC indicators. However, in this specification past export growth is no longer significant.

I perform several other robustness tests. In these tests, in addition to the explanatory variables used in the results from Table 6, I include expected size of trade. In one of them, I use two year lag values of the explanatory variables instead of one year. Trade theory suggests that firms incur sunk costs to start and continue exporting. Improvements in investment climate reduce these costs. However, it might take longer than a year for firms to respond to these improvements.¹⁷ The result of this specification is presented in Table 10. Although the sample size drops almost by half, the interaction terms are still significant.

In the second test, I use the average values of the dependent and all explanatory variables for years 2005 to 2007 and perform simple OLS estimation. Collapsing the data alleviates the possible effects of the noise in the data over time. Moreover, this specification avoids the serial correlation problem. The result of this estimation is presented in Table 11. The coefficients of the market access index and the interaction term are larger in absolute terms compared to the main estimation results. Moreover, the finance and infrastructure indicators are no longer significant. However, the interaction terms are all significant and in accordance with the main results.

In the third test using pooled OLS method, I remove GDP from the estimation and replace the dependent variable with export share. In one specification I use real export share measured as real exports divided by real GDP in PPP and in another one I use nominal export share measured as nominal exports divided by nominal GDP. In both specifications the results are quite similar to the main estimation results.¹⁸ In addition to these specifications that aim to control for the endogeneity of GDP, long run effects of GDP on export performance can be tested by a distributed lag model. In the analysis, I include both one year and ten (and five in another test) year lag values of GDP. The result shows that long run effects of GDP on export is significantly positive.¹⁹

Lastly, I present the results from two linear panel estimation methods that were described in the methodology section. In these estimations, I use the same explanatory variables as in the main estimation results from Table 6. The first specification which uses population average estimator is presented in Table 12. The results are in accordance with the pooled OLS results. However the magnitudes of the coefficients of export growth, tariff rates, and market access restrictiveness indices are much smaller in the panel estimations. Moreover, the interaction term for the finance variable is no longer significant. The results for the random effect model with autoregressive error terms are quite similar to the population average method. Results with this estimation method are presented in Table 13.

¹⁷ Firms might be quick in responding to improvements in reductions of time to export. However improvements in regulatory quality or property rights might take longer time for firms to respond.

¹⁸ This should be expected as the elasticity of export with respect to GDP is close to one in all specifications.

¹⁹ The results for these estimations are available upon request.

6. Conclusion

The significance of international trade for economic development led policy makers to undertake vast trade liberalization policies which have led to an almost 30 fold growth in trade volumes in the last 60 years. The policy makers now confront a more complex trade agenda as the policy is no longer focused solely on eliminating trade barriers. This new stage of trade policies focuses on improving the business environment that would facilitate trade. These policy areas ensure access to backbone infrastructure services, improvements in customs facilities, reduction in transactions costs, and improvements in access to external finance for firms. Improvements in these areas lead to increases in competitiveness of firms which complement trade liberalization policies in creating the success in international markets.

The effects of investment climate on economic performance have been investigated by many researchers. The studies by Rodriguez and Rodrik (2000) and Rodrik et al. (2004) show that excluding the institutional differences across countries when analyzing the relationship between openness and economic performance would be inconclusive. More recent studies by Dollar and Kraay (2003), Chang et al. (2009) and Freund and Bolaky (2008) show that although openness is beneficial for generating high income and growth, its impact varies by the conditions of business environment. There are also an increasing number of studies that show how investment climate affects trade performance such as Anderson and Marcoullier (2002), Wilson et al. (2003), Dollar et al. (2006), Iwanow and Kirkpatrick (2009), and Djankov et al. (2010). I extend the findings of these existing studies by illustrating how improvements in investment climate lead to convergence in countries' exports.

In the analysis, after controlling the effects of size, remoteness, and past export growth performance of countries, I show that restrictions in foreign market access and domestic tariff policies reduce export performance. Then I incorporate six indicators that measure different aspects of investment climate. These indicators are regulatory quality, trade facilitation, entry regulations, access to finance, infrastructure, and property rights. Improvements in these indicators not only increase export volumes but also reduce the distortions caused by restrictive foreign market access. I introduce several tests using alternative specifications and estimation methods to show the significance and robustness of the findings. I show that including additional variables such as FDI or expected size of trade or defining a different lag structure does not affect the results. Application of linear panel methods instead of the pooled OLS methods also gives similar results.

The analysis allows me to measure the impacts of both distortions caused by improvements in investment climate on export performance. To show how much improvements in investment climate contribute to export growth I compare the 75th and 25th percentiles of foreign market access index. The comparison shows that the countries with less favorable foreign market access benefits around 10 percentage points more from a one standard deviation improvement in investment climate. These effects show that reforms to improve investment climate enhance countries' abilities to respond to the export market opportunities and they contribute to convergence of trade performances of countries with different levels of market access. Policies to improve global trade will be more successful if they include reforms on improving the investment climate.

7. References

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8. Appendix

Table 1 List of Countries

1	Albania	36	Djibouti	71	Kyrgyz Republic	106	Russian Federation
2	Algeria	37	Dominica	72	Lao PDR	107	Senegal
3	Argentina	38	Dominican Rep.	73	Latvia	108	Serbia
4	Armenia	39	Ecuador	74	Lebanon	109	Seychelles
5	Australia	40	Egypt, Arab Rep.	75	Lesotho	110	Slovak Republic
6	Austria	41	El Salvador	76	Lithuania	111	Slovenia
7	Azerbaijan	42	Eritrea	77	Luxembourg	112	South Africa
8	Bangladesh	43	Estonia	78	Macao, China	113	Spain
9	Belarus	44	Ethiopia	79	Macedonia, FYR	114	Sudan
10	Belgium	45	Finland	80	Madagascar	115	Swaziland
11	Belize	46	France	81	Malawi	116	Sweden
12	Benin	47	Gabon	82	Malaysia	117	Switzerland
13	Bolivia	48	Gambia, The	83	Mali	118	Syrian Arab Republic
14	Bosnia and Herz.	49	Georgia	84	Mauritania	119	Tajikistan
15	Botswana	50	Germany	85	Mauritius	120	Tanzania
16	Brazil	51	Ghana	86	Mexico	121	Thailand
17	Brunei Darussalam	52	Greece	87	Moldova	122	Togo
18	Bulgaria	53	Guatemala	88	Montenegro	123	Trinidad and Tobago
19	Burkina Faso	54	Guinea	89	Morocco	124	Tunisia
20	Cambodia	55	Guinea Bissau	90	Mozambique	125	Turkey
21	Cameroon	56	Honduras	91	Namibia	126	Turkmenistan
22	Canada	57	Hong Kong	92	Netherlands	127	Uganda
23	Cape Verde	58	Hungary	93	New Zealand	128	Ukraine
24	Central Afr. Rep.	59	Iceland	94	Nicaragua	129	United Kingdom
25	Chad	60	India	95	North America	130	United States
26	Chile	61	Indonesia	96	Norway	131	Uruguay
27	China	62	Iran, Islamic Rep.	97	Pakistan	132	Uzbekistan
28	Colombia	63	Ireland	98	Panama	133	Venezuela, RB
29	Comoros	64	Israel	99	Papua New Guinea	134	Vietnam
30	Congo, Dem. Rep.	65	Italy	100	Paraguay	135	West Bank and Gaza
31	Costa Rica	66	Japan	101	Peru	136	Zambia

32	Croatia	67	Jordan	102	Philippines	137	Zimbabwe
33	Czech Republic	68	Kazakhstan	103	Poland		
34	Côte d'Ivoire	69	Kenya	104	Portugal		
35	Denmark	70	Korea, Rep.	105	Romania		

Table 2 Regional and Income Distribution of Countries in 2005

Region	High Income: OECD	High Income: nonOECD	Low Income	Lower Middle	Upper Middle	Total
East Asia & Pacific	4	3	3	5	1	16
Europe & Central Asia	21	4	3	7	13	48
Latin America & Carib.	2	1	-	8	12	23
Middle East & North Afr.	-	-	-	8	2	10
South Asia	-	-	1	2	-	3
Sub-Saharan Africa	-	-	24	6	6	36
Total	27	8	31	36	34	136

Table 3 Variables Used in the Analysis

Variable	Description	Years Used	Source	Expected Relation
Real Export	Log of export in constant 2005 \$	2006-2008	WDI	
RealGDP(PPP)	Log of GDP, PPP (constant 2005 international \$)	2005-2007	WDI	+
Finance	Log of the ratio of M2 (money and quasi money) to GDP	2005-2007	WDI	+
FDI	Foreign direct investment, net inflows (% of GDP)	2005-2007	WDI	+
log(MATTRI)	Log of MA-TTRI (applied tariff incl. prefs.) - All goods	2005-2007	WTI	-
log(TTRI)	Log of TTRI (MFN+ applied tariff) - All goods	2005-2007	WTI	-
log(MAOTRI)	Log of MA-OTRI (applied tariff incl. prefs.+NTMs) - All goods	2005-2007	WTI	-
log(OTRI)	Log of OTRI (MFN applied tariff+NTMs) - All goods	2005-2007	WTI	-
log(# of FTAs)	No. of FTAs / CUs - goods and services	2006-2007	WTI	+
Time to Export	Log of time to export (days) trading across borders	2005-2007	DB	-
Entry	Number of procedures required to start a business	2005-2007	DB	-
Size of Trade	Size of the trade sector relative to expected	2005-2007	EFW	+
Property	Index measuring protection of property rights	2005-2007	EFW	+
Infrastructure	Log of overall quality of infrastructure	2008	GCR	+
Log(Area)	Log of area in square kilometers	-	CEPII	-
Remoteness	Weighted measure of remoteness of the country	2008	Author	-
Regulatory Quality	Overall quality of the regulatory system	2005-2007	WGI	+

Note: WDI: World Bank Development Indicators, WTI: World Trade Indicators, DB: Doing Business, GCR: Global Competitiveness Report, EFW: Economic Freedom of the World, WGI: World Governance Indicators.

Table 4 Descriptive Statistics

Variable		Mean	Std. Dev	Min	Max	Obs.	Variable	Mean	Std. Dev	Min	Max	Obs.	
Log (Real Export)	overall	23.3	2.18	17.6	28.0	N = 339	Regulation	overall	-0.02	1.01	-2.7	1.9	N = 592
	between		2.30	17.7	28.0	n = 131		between		1.00	-2.6	1.9	n = 198
	within		0.08	22.8	23.5	T = 2.6		within		0.09	-0.4	0.4	T = 3
log(Real GDP(PPP))	overall	24.3	2.27	19.2	30.2	N = 531	Finance	overall	3.7	0.69	1.7	5.6	N = 476
	between		2.26	19.2	30.2	n = 180		between		0.69	1.8	5.6	n = 164
	within		0.05	24.0	24.6	T = 3		within		0.08	3.2	4.2	T = 3
log(Area)	overall	11.2	2.73	3.2	16.7	N = 594	Entry	overall	9.4	3.43	2.0	20.0	N = 528
	between		2.74	3.2	16.7	n = 198		between		3.37	2.0	20.0	n = 179
	within		0	11.2	11.2	T = 3		within		0.73	2.7	12.7	T = 3
Remote	overall	9.0	0.26	8.6	9.7	N = 507	Time to Export	overall	3.1	0.62	1.6	4.6	N = 509
	between		0.26	8.6	9.7	n = 169		between		0.60	1.6	4.6	n = 179
	within		0	9.0	9.0	T = 3		within		0.13	2.6	4.1	T = 2.8
Log(Export Growth _{t-1,t-2})	overall	2.0	0.83	-1.7	4.8	N = 338	Infra-structure	overall	1.3	0.37	0.4	1.9	N = 399
	between		0.66	0.1	3.8	n = 134		between		0.37	0.4	1.9	n = 133
	within		0.53	-0.5	4.1	T = 2.5		within		0	1.3	1.3	T = 3
log(TTRI)	overall	1.8	0.66	-3.3	3.4	N = 325	Property	overall	6.1	1.82	1.4	9.6	N = 368
	between		0.74	-3.3	3.2	n = 126		between		1.80	1.7	9.4	n = 125
	within		0.14	0.9	2.5	T = 2.6		within		0.26	5.0	7.0	T = 2.9
Log (MATTRI)	overall	1.2	0.82	-2.3	3.3	N = 345							
	between		0.71	-0.9	2.9	n = 127							
	within		0.44	-0.2	3.4	T = 2.7							

* N: Total number of observations; n: Number of observations per country; T: Number of time periods. The statistics for real export is for 2006-2008 period for all other variables they are for 2005-2007 periods.

Table 5 Correlation Matrix

	Real Export	RealGDP (PPP)	log (MATTRI)	log (TTRI)	Log (Area)	Remote	Exp Gr _{t-1,t-2}	Regul.	Finance	Entry	Time to Export	Infrastr.
RealGDP(PPP)	0.95											
log(MATTRI)	0.1	0.03										
log(TTRI)	-0.32	-0.24	0.02									
Log(Area)	0.32	0.61	-0.15	0.29								
Remoteness Export	-0.25	-0.31	-0.06	0.21	-0.09							
Export Growth _{t-1,t-2}	-0.02	-0.09	0.04	0.03	-0.06	0						
Regulations	0.58	0.39	0.16	-0.58	-0.26	-0.33	-0.12					
Finance	0.39	0.13	0.11	-0.41	-0.36	-0.05	0	0.59				
Entry	-0.27	-0.05	-0.11	0.35	0.25	0.12	0.09	-0.49	-0.43			
Time to Export	-0.57	-0.4	-0.09	0.5	0.19	0.27	0.15	-0.78	-0.57	0.42		
Infrastructure	0.55	0.43	0.02	-0.49	-0.28	-0.28	-0.18	0.78	0.61	-0.46	-0.69	
Property	0.53	0.39	0.12	-0.46	-0.26	-0.24	-0.16	0.87	0.63	-0.58	-0.74	0.85

* Bold cells show significance levels with p>0.05. The rest is significant at 1 percent.

Table 6 Estimation Results with Pooled OLS Method

	Regulations	Finance	Entry	Time to Export	Infrastructure	Property
RealGDP(PPP)	0.989 (0.031)***	1.006 (0.045)***	1.064 (0.034)***	0.976 (0.032)***	0.978 (0.030)***	0.994 (0.034)***
Log(Area)	-0.082 (0.035)**	-0.081 (0.043)*	-0.129 (0.043)***	-0.060 (0.037)	-0.079 (0.040)**	-0.091 (0.041)**
Remoteness	-0.384 (0.155)**	-0.470 (0.188)**	-0.422 (0.182)**	-0.474 (0.157)***	-0.504 (0.163)***	-0.533 (0.175)***
Export Growth _{t,t-1}	0.094 (0.046)**	0.094 (0.060)	0.077 (0.049)	0.101 (0.047)**	0.134 (0.048)***	0.121 (0.047)**
log(TTRI)	-0.265 (0.094)***	-0.498 (0.111)***	-0.458 (0.109)***	-0.432 (0.085)***	-0.397 (0.084)***	-0.411 (0.096)***
log(MATTRI)	-0.185 (0.046)***	-0.805 (0.318)**	0.202 (0.131)	0.269 (0.257)	-0.526 (0.170)***	-0.536 (0.167)***
log(MATTRI)*Indicator	0.124 (0.055)**	0.173 (0.089)*	-0.037 (0.011)***	-0.141 (0.077)*	0.299 (0.117)**	0.058 (0.025)**
Indicator	0.281 (0.076)***	-0.028 (0.139)	0.004 (0.021)	-0.345 (0.134)**	0.599 (0.195)***	0.114 (0.039)***
Constant	3.493 (1.612)**	4.357 (1.959)**	2.915 (1.843)	5.761 (1.671)***	4.321 (1.591)***	4.457 (1.833)**
Observations	205	175	204	203	193	189
R-squared	0.953	0.933	0.944	0.952	0.954	0.954

* Pooled OLS results. Robust standard errors clustered by country are in parentheses. All regressions control for year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

Table 7 Impacts of Improvements in Investment Climate Indicators on Exports (in percentage points)

Indicator	Regulations	Finance	Entry	Time to Export	Infrastructure	Property
Total Impact	10.1	9.9	12.4	7.9	10	9.6

Note: Improvements in IC indicators mean increase for regulations, finance, infrastructure, and property indicators where it means decrease in entry time and time to export.

Table 8 Pooled OLS Method with Alternative Indicators for Investment Climate

	Rule of Law	LPI	Infrastructure	Property	Property(IEF)	Power Outage
RealGDP(PPP)	0.993 (0.031)***	0.870 (0.037)***	0.978 (0.030)***	0.994 (0.034)***	1.017 (0.032)***	1.009 (0.037)***
log(TTRI)	-0.309 (0.091)***	-0.330 (0.092)***	-0.397 (0.084)***	-0.411 (0.096)***	-0.358 (0.097)***	-0.297 (0.110)***
Log(Area)	-0.087 (0.038)**	-0.072 (0.034)**	-0.079 (0.040)**	-0.091 (0.041)**	-0.095 (0.039)**	-0.095 (0.033)***
Remoteness	-0.419 (0.158)***	-0.482 (0.159)***	-0.504 (0.163)***	-0.533 (0.175)***	-0.593 (0.166)***	-0.364 (0.169)**
Export Growth _{t,t-1}	0.106 (0.046)**	0.131 (0.040)***	0.134 (0.048)***	0.121 (0.047)**	0.104 (0.048)**	0.104 (0.043)**
log(MATTRI)	-0.164 (0.043)***	-0.218 (0.049)***	-0.526 (0.170)***	-0.536 (0.167)***	-0.766 (0.348)**	-0.049 (0.068)
log(MATTRI)*Indicator	0.067 (0.039)*	0.121 (0.056)**	0.299 (0.117)**	0.058 (0.025)**	0.157 (0.085)*	-0.093 (0.052)*
Indicator	0.292 (0.054)***	0.376 (0.107)***	0.599 (0.195)***	0.114 (0.039)***	0.505 (0.110)***	-0.279 (0.071)***
Constant	3.910 (1.578)**	7.399 (1.438)***	4.321 (1.591)***	4.457 (1.833)**	3.187 (1.674)*	3.343 (1.857)*
Observations	205	198	193	189	202	110
R-squared	0.954	0.959	0.954	0.954	0.950	0.960

* Pooled OLS results. Robust standard errors clustered by country are in parentheses. All regressions control for year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

Table 9 Pooled OLS Method with Additional Controls

	Regulations	Finance	Entry	Time to Export	Infrastructure	Property
RealGDP(PPP)	0.977 (0.026)***	1.005 (0.041)***	1.063 (0.033)***	0.974 (0.032)***	0.983 (0.030)***	0.991 (0.029)***
Log(Area)	-0.086 (0.024)***	-0.110 (0.045)**	-0.145 (0.039)***	-0.087 (0.034)**	-0.085 (0.036)**	-0.094 (0.033)***
Remoteness	-0.323 (0.123)**	-0.422 (0.199)**	-0.422 (0.169)**	-0.431 (0.147)***	-0.470 (0.146)***	-0.482 (0.151)***
Export Growth _{t,t-1}	0.033 (0.055)	0.047 (0.074)	0.021 (0.059)	0.033 (0.058)	0.064 (0.056)	0.052 (0.055)
log(TTRI)	-0.188 (0.080)**	-0.432 (0.110)***	-0.404 (0.109)***	-0.373 (0.080)***	-0.374 (0.088)***	-0.374 (0.099)***
log(MATTRI)	-0.172 (0.036)***	-1.103 (0.300)***	0.194 (0.143)	0.495 (0.287)*	-0.445 (0.146)***	-0.482 (0.144)***
log(MATTRI)*Indicator	0.154 (0.052)***	0.251 (0.085)***	-0.036 (0.013)***	-0.212 (0.086)**	0.254 (0.109)**	0.056 (0.023)**
Indicator	0.312 (0.086)***	-0.071 (0.127)	-0.001 (0.023)	-0.275 (0.151)*	0.611 (0.162)***	0.116 (0.033)***
Size of Trade	0.118 (0.015)***	0.079 (0.024)***	0.093 (0.019)***	0.105 (0.017)***	0.099 (0.015)***	0.105 (0.015)***
FDI	0.002 (0.000)***	0.009 (0.008)	0.003 (0.001)***	0.002 (0.001)***	0.003 (0.000)***	0.003 (0.000)***
Constant	2.564 (1.343)*	3.962 (2.011)*	2.653 (1.746)	4.954 (1.590)***	3.401 (1.444)**	3.485 (1.600)**
Observations	196	167	195	195	192	189
R-squared	0.972	0.950	0.958	0.967	0.967	0.968

* Pooled OLS results. Robust standard errors clustered by country are in parentheses. All regressions control for year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

Table 10 Pooled OLS Estimation with Two Period Lag

	Regulations	Finance	Entry	Time to Export	Infrastructure	Property
RealGDP(PPP)	0.980 (0.031)***	1.010 (0.045)***	1.057 (0.039)***	0.989 (0.036)***	0.988 (0.036)***	0.986 (0.034)***
Log(Area)	-0.097 (0.030)***	-0.113 (0.049)**	-0.140 (0.045)***	-0.096 (0.039)**	-0.102 (0.044)**	-0.108 (0.041)**
Remoteness	-0.264 (0.128)**	-0.431 (0.208)**	-0.361 (0.193)*	-0.340 (0.171)**	-0.396 (0.168)**	-0.429 (0.178)**
Export Growth _{t,t-1}	0.066 (0.073)	0.068 (0.090)	0.052 (0.078)	0.053 (0.077)	0.087 (0.077)	0.069 (0.085)
Size of Trade	0.115 (0.021)***	0.081 (0.033)**	0.085 (0.025)***	0.096 (0.024)***	0.091 (0.021)***	0.101 (0.022)***
log(TTRI)	-0.171 (0.091)*	-0.426 (0.129)***	-0.404 (0.118)***	-0.345 (0.100)***	-0.332 (0.095)***	-0.330 (0.112)***
log(MATTRI)	-0.136 (0.045)***	-1.066 (0.349)***	0.191 (0.188)	0.610 (0.337)*	-0.550 (0.194)***	-0.598 (0.186)***
log(MATTRI)*Indicator	0.181 (0.055)***	0.252 (0.102)**	-0.035 (0.015)**	-0.241 (0.099)**	0.331 (0.151)**	0.078 (0.032)**
Indicator	0.238 (0.080)***	-0.200 (0.152)	0.005 (0.028)	-0.165 (0.161)	0.440 (0.236)*	0.068 (0.044)
Constant	2.071 (1.416)	4.459 (2.143)**	2.199 (2.030)	3.538 (1.825)*	3.058 (1.630)*	3.619 (1.824)*
Observations	120	107	119	119	118	115
R-squared	0.971	0.947	0.958	0.965	0.964	0.964

* Pooled OLS results. Export value at period t is regressed on variables at period $t-2$. Robust standard errors clustered by country are in parentheses. All regressions control for year fixed effects.*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 11 Estimation Using Three Year Average Values of Data (Between 2005 and 2007)

	Regulations	Finance	Entry	Time to Export	Infrastructure	Property
RealGDP(PPP)	0.973 (0.028)***	0.981 (0.043)***	1.087 (0.033)***	0.948 (0.031)***	0.977 (0.033)***	0.986 (0.029)***
Log(Area)	-0.120 (0.030)***	-0.119 (0.042)***	-0.198 (0.037)***	-0.105 (0.032)***	-0.122 (0.034)***	-0.132 (0.030)***
Remoteness	-0.309 (0.141)**	-0.421 (0.196)**	-0.406 (0.188)**	-0.413 (0.147)***	-0.381 (0.157)**	-0.422 (0.142)***
Export Growth _{t,t-1}	-0.131 (0.062)**	-0.097 (0.092)	-0.134 (0.082)	-0.121 (0.066)*	-0.079 (0.072)	-0.117 (0.064)*
Size of Trade	0.130 (0.018)***	0.074 (0.024)***	0.106 (0.023)***	0.116 (0.018)***	0.111 (0.020)***	0.124 (0.019)***
log(TTRI)	-0.090 (0.083)	-0.394 (0.099)***	-0.329 (0.100)***	-0.307 (0.077)***	-0.295 (0.087)***	-0.271 (0.079)***
log(MATTRI)	-0.223 (0.055)***	-1.557 (0.494)***	0.163 (0.217)	0.609 (0.320)*	-0.825 (0.271)***	-0.830 (0.208)***
log(MATTRI)*Indicator	0.195 (0.065)***	0.373 (0.138)***	-0.037 (0.021)*	-0.260 (0.098)***	0.548 (0.210)**	0.111 (0.034)***
Indicator	0.302 (0.099)***	-0.085 (0.183)	-0.006 (0.032)	-0.360 (0.149)**	0.416 (0.270)	0.090 (0.045)*
Constant	3.162 (1.415)**	5.066 (2.219)**	2.842 (1.880)	6.144 (1.543)***	3.629 (1.643)**	3.850 (1.491)**
Observations	99	84	99	99	95	95
R-squared	0.975	0.955	0.957	0.972	0.967	0.973

* OLS results using the averages of variables between 2005 and 2007. All regressions control for year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

Table 12 Linear Panel Method (Population Average Estimator)

	Regulations	Finance	Entry	Time to Export	Infrastructure	Property
RealGDP(PPP)	1.004 (0.031)***	1.044 (0.041)***	1.085 (0.031)***	1.057 (0.032)***	0.985 (0.033)***	1.050 (0.035)***
Log(Area)	-0.119 (0.038)***	-0.138 (0.043)***	-0.182 (0.043)***	-0.152 (0.041)***	-0.112 (0.038)***	-0.154 (0.042)***
Remoteness	-0.396 (0.168)**	-0.408 (0.204)**	-0.480 (0.194)**	-0.618 (0.182)***	-0.565 (0.174)***	-0.637 (0.178)***
Export Growth _{t,t-1}	0.036 (0.018)**	0.039 (0.021)*	0.027 (0.018)	0.031 (0.018)*	0.035 (0.020)*	0.039 (0.021)*
log(TTRI)	-0.118 (0.051)**	-0.200 (0.064)***	-0.219 (0.058)***	-0.170 (0.058)***	-0.095 (0.033)***	-0.168 (0.054)***
log(MATTRI)	-0.051 (0.019)***	-0.171 (0.097)*	0.065 (0.045)	0.151 (0.086)*	-0.099 (0.035)***	-0.155 (0.057)***
log(MATTRI)*Indicator	0.054 (0.021)**	0.031 (0.026)	-0.012 (0.004)***	-0.063 (0.024)***	0.055 (0.023)**	0.018 (0.008)**
Indicator	0.315 (0.065)***	0.115 (0.098)	-0.018 (0.008)**	-0.145 (0.083)*	0.997 (0.153)***	0.084 (0.028)***
Constant	3.516 (1.683)**	2.583 (1.952)	3.439 (1.891)*	5.155 (1.884)***	4.205 (1.766)**	4.576 (1.834)**
Observations	205	175	204	203	193	189
Number of Countries	98	82	98	97	90	88

Panel regression. Robust standard errors clustered by country are in parentheses. All regressions control for year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

Table 13 Random Effects Estimator with Autoregressive Error Term

	Regulations	Finance	Entry	Time to Export	Infrastructure	Property
RealGDP(PPP)	1.007 (0.029)***	1.044 (0.039)***	1.088 (0.029)***	1.035 (0.030)***	0.984 (0.029)***	1.031 (0.029)***
Log(Area)	-0.123 (0.031)***	-0.139 (0.037)***	-0.185 (0.032)***	-0.133 (0.031)***	-0.108 (0.030)***	-0.137 (0.031)***
Remoteness	-0.408 (0.161)**	-0.408 (0.184)**	-0.491 (0.177)***	-0.573 (0.164)***	-0.542 (0.154)***	-0.582 (0.160)***
Export Growth _{t,t-1}	0.034 (0.016)**	0.038 (0.019)**	0.026 (0.016)	0.034 (0.019)*	0.042 (0.016)**	0.045 (0.019)**
log(TTRI)	-0.104 (0.052)**	-0.195 (0.057)***	-0.203 (0.053)***	-0.216 (0.058)***	-0.162 (0.050)***	-0.220 (0.055)***
log(MATTRI)	-0.044 (0.022)**	-0.170 (0.130)	0.060 (0.063)	0.174 (0.152)	-0.145 (0.067)**	-0.202 (0.076)***
log(MATTRI)*Indicator	0.049 (0.025)**	0.031 (0.036)	-0.011 (0.006)*	-0.074 (0.045)*	0.077 (0.051)	0.023 (0.012)*
Indicator	0.310 (0.060)***	0.115 (0.092)	-0.018 (0.010)*	-0.214 (0.089)**	0.938 (0.144)***	0.110 (0.027)***
Constant	3.562 (1.585)**	2.579 (1.816)	3.489 (1.746)**	5.342 (1.638)***	4.162 (1.521)***	4.282 (1.579)***
Observations	205	175	204	203	193	189
Number of Countries	98	82	98	97	90	88

Panel regression. Standard errors are in parentheses. All regressions control for year fixed effects. ***
 $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.