

Trade Policies, Investment Climate, and Export Performance

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Abstract

International trade is a significant source of dispersion in income levels and growth. Although trade liberalization policies during the past 60 years has led to an almost 30-fold growth in the volume of international trade, the increase has been unequal among countries. This study investigates how improvements in the investment climate relate to increased export performances of countries. It shows that improvements in regulatory quality, customs efficiency, quality of infrastructure, and access to finance are associated with the competitiveness of firms in international markets. Furthermore, it shows that countries that are relatively more constrained in accessing to foreign markets benefit more from improvements in investment climate. Hence, policies that improve the investment climate have a greater benefit for export sales of countries with lower foreign market access.

Keywords: export performance, trade policy, investment climate, institutions, cross country analysis.

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

Ticaret Politikaları, Yatırım Ortamı ve İhracat Performansı

Özet

Uluslararası ticaret gelir seviyelerinde ve büyümede ülkelerin farklı performans göstermelerinde önemli bir etkidir. Geçtiğimiz 60 yıl boyunca ticareti serbestleştiren politikalar global ticaret hacmini 30 kat arttırmış olsa da, bu artış ülkeler arasında büyük farklar göstermektedir. Bu çalışma, yatırım ortamındaki iyileşmelerin ülke ihracat performansları ile nasıl ilişkilendiğini incelemektedir. Çalışmada, düzenleyici kanunların kalitesi, gümrüklerin verimliliği, altyapı kalitesi, finansman kaynaklarına kolay erişim gibi yatırım ortamını iyileştirecek politikaların firmaların uluslararası piyasalarda rekabet gücü ile nasıl ilişkilendiği gösterilmektedir. Bu tür yatırım ortamını iyileştiren politikalar uluslararası piyasalara erişimde güçlük çeken ülkelerde ihracat gelirlerine nispi olarak daha fazla katkı sağlamaktadır.

Anahtar Kelimeler: ihracat performansı, ticaret politikaları, yatırım ortamı, kurumlar, ülkeler arası analiz.

JEL Sınıflandırması: F13, F14, F15, F4, O1.

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There is a large collection of theoretical and empirical literature that explores trade as a potential source for the dispersion in income levels across countries. The achievements by several Asian countries of sustained growth while pursuing a strong focus on exports has made these trade-led growth policies highly desired. Studies like Frankel and Romer (1999), Alcalá and Ciccone (2004), and Wacziarg and Welch (2008) among many others find positive causal link between openness and high economic performance.⁽¹⁾ 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 global 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 - three times faster than the growth in global GDP. However, this increase has not been uniform across countries. Countries in East Asia have posted a greater than 800 percent increase in real exports since the early 1970s, whereas countries in Sub-Saharan Africa have only had a 70 percent increase. The large variation in export performance of countries shows that benefits from being engaged with world markets have been limited to a small number of countries. This study investigates one of the reasons that prevent many countries from reaching the same levels as successful export-oriented countries. It shows in addition to improvements in trade policies, a favorable investment climate is crucial for achieving high export performance.

Many factors affect the export performance of countries, such as being land-locked, far from the global markets, poor in natural resources or having a small size. Limitations caused by these factors are unlikely to be affected by economic policies. For a long time, trade policies including tariff rates, quotas, non-tariff barriers have been the major policy tools to improve export performance. Studies like Hoekman and Nicita (2011) and Anderson and Marcouiller (2002) show that bilateral tariff rates significantly reduce export performance. One purpose of this study is to show how two recently constructed measures of trade restrictiveness affect export performance. Both indices which are based on theoretical foundations are constructed by Kee et al. (2009).⁽²⁾ 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 (MA-TTRI) which shows the ease of foreign market access of the country. Both indices have advantages over simple tariff rates because they are well grounded in trade theory and provide sound aggregate measures of trade restrictiveness.

Despite the substantial decreases in tariff rates since 1960s, the gap in trade performance across countries has not closed. Clarke (2005) and Morrissey (2005) show that the adoption of significant trade liberalization policies in the majority of African countries has resulted in a reduction of import tariff rates from 33% in the early 1980s to 15% in 2002. However Gupta and Yang (2006) shows that the share of manufactured

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

(2) 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).

goods in total exports remains at about 30% during the same period. Focusing on the low export performance of African countries, Iwanow and Kirkpatrick (2009) conclude that liberalizing trade is not sufficient to achieve high export performance.

Research on the factors that contribute to achieving high export performance other than the traditional trade policies has shown that an investment climate that is conducive to private sector development is crucial for success. One group of studies has looked at the critical role that investment climate plays on the effectiveness of openness for economic development and growth. The macro-level studies by Rodriguez and Rodrik (2000) and Rodrik et al. (2004) show that excluding 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 with the conditions of investment climate.

Building on the work of North (1990), a second group of studies investigates the impact of investment climate 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 (2013) analyze the influence of institutions, infrastructure, and trade policies on the patterns of bilateral trade. They empirically show that the dependence of export performance on indicators of investment climate is far more important than the dependence on tariff rates in explaining the variations in North-South trade relationship.

Among the various aspects of investment climate 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. Djankov et al. (2010) find that each additional day a product is delayed prior to being shipped reduces trade by at least one percent. Limao and Venables (2001) and Iwanow and Kirkpatrick (2009) show 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. All these studies present evidence that points to the importance of a favorable investment climate comprised of efficient institutions, good trade facilitation, and high quality infrastructure to attain high competitiveness in international markets. High costs of trade transactions due to inefficiencies in investment climate attenuate the ability of countries to establish strong links with global markets.

Combining data from a variety of sources and including a diverse group of countries with different income levels and from different regions of the world, I analyze how economic policies on investment climate affect the export performance of countries. I focus on six indicators each representing a different aspect of investment climate: regulatory

quality, trade facilitation, entry regulations, access to finance, infrastructure, and property rights. Although a number of studies analyze how some of these indicators affect export performance individually, there is no study that investigates them under the same setup; neither is there work that shows how these investment climate factors interact with the restrictiveness of foreign market access in affecting export performance. Moreover, this is the first study that uses two new measures of trade restrictiveness (TTRI and MATTRI) to investigate the relationship between trade policies and investment climate. 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 highlights the importance of reforms in investment climate for countries with lagging trade performance.

The rest of the paper is organized as follows. Section 2 explains the methodology and specifications used in the analysis. Section 3 describes the data and section 4 presents the analysis results. Alternative specifications and robustness tests are presented in section 5. Section 6 concludes.

Methodology and Variables of Interest

The empirical model investigates the role of investment climate in alleviating the distortions on export performance caused by restrictive trade policies. The data used in the analysis are from a short panel of three years of observation from 2006 to 2008 for 137 countries. 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, homoscedasticity 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 for 2006 and 2007 to control for the aggregate year effects. The estimation equation that is used in the analysis is presented below in which subscript i represents country and t represents time,

$$Export_{it} = \beta_0 + \beta_1 Re\,alGDP_{it-1} + \beta_2 Area_i + \beta_3 Re\,moteness_i + \beta_4 Export\,Growth_{it-1,t-2} + \beta_5 TTRI_{it-1} + \beta_6 MATTRI_{it-1} + \beta_7 Indicator_{it-1} + \beta_8 MATTRI_{it-1} * Indicator_{it-1} + \beta_9 d_{2006} + \beta_{10} d_{2007} + \varepsilon_{it}.$$

In this equation export performance of countries is measured by log of export sales (Export) in constant 2005 US dollars which is obtained from World Bank Development Indicators (WDI). By measuring exports in constant US dollars, like Dollar and Kraay (2003), I assume that exported goods' prices are roughly equalized across countries. In the estimation, real export sales at period t is regressed on the independent variables at period $t-1$ and at $t-2$.

In the equation *MATTRI* shows the log of market access-trade tariff restrictiveness index (shortly market access index). Kee et al. (2009) construct this index as a measure of trade barriers imposed by trading partner countries on the products of the exporting country. The index is presented in World Trade Indicators (WTI) of the World Bank from 2005 to 2007 and it measures the equivalent uniform tariff of trading partners facing the exporting country that would maintain the imports of the trading partners at a constant level, 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 abroad. I use this index as a measure for restrictiveness of trade policies in accessing foreign markets.

In the equation *TTRI* is the log of trade tariff restrictiveness index (shortly tariff index). This index is also constructed by Kee et al. (2009) and presented in WTI.⁽³⁾ Tariff policies adopted at home can also contribute to the export performance of a country if exporters are likely to use imported intermediate goods. In an analysis of U.S. firms, Bernard et al. (2007) find that 41% of exporting firms also import while 79% of importers also export. Using a firm level dataset from 43 developing countries, Şeker (2012) shows that 35 percent of firms that are engaged with international markets through exporting or importing perform both activities. He notes that there could be complementarities between two activities that generate productive and fast-growing firms. There are studies that relate imports to higher productivity such as Halpern et al. (2015), Amiti and Konings (2007) and Kasahara and Rodrigue (2008). Halpern et al. (2015) using firm level data from Hungary, find that two-thirds of productivity increase caused by importing is attributable to an increase in the variety of intermediates used. Amiti and Konings (2007), using data from Indonesia, show that reducing input tariffs increases productivity three times more than a reduction in output tariffs. Thus, low domestic tariff rates decrease the cost of imports which could increase productivity and as a result can stimulate exports.

Tariff indexes (*TTRI*) summarize the impact of each country's non-discriminatory trade policies on its aggregate imports. *TTRI* 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 and expressed as a tariff rate. In the empirical analysis, I show how both *MA-TTRI* and *TTRI* distort export performance of countries and investigate how various investment climate factors interact with this relationship. This is the first paper that uses these indices to analyze their direct effects on export performance and at the same time shows how they affect the contribution of investment climate on export performance.

Dollar et al. (2006) show that a favorable investment climate decreases the sunk costs of exporting and eventually leads to higher participation in export markets. Such an environment can also increase export volumes by reducing the distortions of the

⁽³⁾ The *TTRI* index used here is for the most favored nation which is the commonly used tariff measure in the literature.

restrictive market access policies. The ability of a country to improve its foreign market access is limited to making multilateral and bilateral agreements with potential partner countries. When there is limited room to improve these market access policies, attaining a favorable investment climate can contribute to increase comparative advantage and can achieve high export performance. I focus on several aspects of investment climate. The choice of these indicators was motivated by the existing studies in the literature. As it was briefly discussed in the introduction, there are studies that show how institutions, infrastructure, trade facilitation, and regulations affect export performance. I choose the following six indicators for the analysis (denoted as *Indicator* in the estimation equation): regulatory quality, financial development, business entry regulations, exports facilitation, quality of infrastructure, and property rights.

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 macro level indicator of financial development. 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 time to export, which is a measure of a country's customs efficiency. It is measured as the log of the duration (in days) of the goods to be exported. It is also collected through the "Doing Business" surveys. The fifth indicator is the quality of overall infrastructure (e.g. transport, telephone, and energy). This indicator is collected by the World Economic Forum's Global Competitiveness report. The last indicator measures protection of property rights. It is obtained from the Economic Freedom of the World database. However the original data is collected by the World Economic Forum. The last two indicators vary between 1 and 7 where 1 corresponds to lowest rating. Each investment climate factor is included separately in regressions which are represented by *Indicator* in the estimation equation above.

In the estimation, in addition to trade policy variables and indicators for investment climate, I control for the size of the country with two measures: log of real GDP (*RealGDP*) and log of its area (*Area*). Real GDP is measured in constant 2005 US dollars at PPP. I follow Dollar and Kraay (2003) and Alcalá and Ciccone (2004) in using 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) show that area has a significantly negative impact on openness. Large countries are less likely to trade with others because of relatively higher domestic demand and higher transport costs of exporting. 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.⁽⁴⁾ This index also partially controls for the regional differences of countries. The log of this index -labeled as *Remoteness*- is included in the estimation. Finally, I control for the past export growth performance of the country (*Export Growth*) which is computed as the log of past real export growth rate between periods t-1 and t-2. 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.

Endogeneity is a major concern in the estimation of cross-sectional or short-panel datasets. 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 GDP levels 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 trade openness. Short nature of the panel prevents application of certain panel estimation methods like fixed effects or GMM methods. To mitigate the endogeneity problems I use lagged independent variables in the estimations.

The main hypothesis I test in the analysis is whether the interaction of market access index with the investment climate indicator is significantly negative. The negative interaction term shows that any improvement in investment climate is associated with higher export performance of countries with more difficult foreign market access.

Data

The dataset covers three years of observations between 2005 and 2007 for 137 countries. The list of countries is given in Table 1. However there are variables which have missing observations for some of the countries. The data include countries from six regions of the world and five income groups. These groups are constructed according to World Bank classifications. The regional and income distribution of the countries included in the dataset for 2005 is presented in Table 2.⁽⁵⁾ In Table 3, I present the list of variables included in the analysis and their sources. The export data was 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 reports 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.

(4) 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.

(5) In 2005 there are 136 countries. Data for Namibia is available for 2006 and 2007.

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, variation is quite small compared to the overall variation which is due to the few number of time periods.

Analysis and Results

Collinearity between the explanatory variables could bias the estimation results and make it difficult to identify the relationship between each explanatory variable and 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 estimation results with the pooled OLS method are presented in Table 6. GDP is a strong correlate of high export performance - a common finding of gravity models. On the other hand, large and remote countries export less. A ten percent increase in the remoteness of a country is associated with a decrease in export sales of 4-5 percentage points across the specifications. These findings are in accordance with the results from Djankov et al (2010) and Iwanow and Kirkpatrick (2009). Past export growth is also a strong correlate of current export performance. Lastly, the trade restrictiveness index, which measures the stringency of domestic trade policies on imports, is negatively related to exports. This could be explained by the complementarity between importing and exporting activities resulting from 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, MA-TTRI shows the effects of foreign market access. In four of the six specifications, the coefficient of this index is negative and significant, which shows that difficulties in market access is significantly associated with decrease in export performance. A ten percent increase in market access relates to 2 to 8 percentage points increase in exports. Among the investment climate indicators, the ones that have significant coefficients 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 investment climate indicators are significant with the expected signs in all specifications. They show that improvements in investment climate are associated with larger contributions to increasing export performance of countries with low foreign market access relative to those with high foreign market access. In countries with difficult access to foreign markets, firms that export need to be more competitive and have higher efficiency levels than those in easier market access (because they are facing higher fixed and sunk costs to export). When the investment climate improves, these more constrained firms can start to export and thus the benefit to

them is higher than to those firms with easier market access (countries with lower fixed and sunk costs). Improving investment climate helps all exporters but the contribution is relatively higher to those that are relatively more constrained.

We can compare the total impacts of each investment climate indicator on export performance. Using the estimation results from Table 6, I compute total impacts of one standard deviation change in investment climate indicator on growth rates of export sales.⁽⁶⁾ To show how countries with different levels of foreign market access benefit from this improvement, I compare the 25th and 75th percentiles of foreign market access restrictiveness index which correspond to 2 and 5.5 percent tariff rates respectively.⁽⁷⁾ The difference between growth rates of export sales generated by the change in each investment climate 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. Similarly the difference in the gain of export revenues between the countries that are in 75th and 25th percentiles of market access index distribution from a one standard deviation improvement in business entry regulations is 12.4 percentage points. The impacts of the other investment climate indicators are of similar magnitudes. These results show that improvements in investment climate are associated with reducing the barriers of trade and the relation between these investment climate variables and export performance is stronger in countries with lower foreign market access.

The interaction terms also allow us to measure how distortions caused by restrictive market access policies vary with different levels of investment climate measures. A comparison of the 25th and 75th percentiles of the distribution for each investment climate indicator shows that one standard deviation decrease in foreign market access (which means an increase in MA-TTRI) leads to almost a 19 percentage points decrease in export sales for a country in the 25th percentile of the distribution for regulatory quality. However this decrease is only 5 percentage points for a country in the 75th percentile. Similarly, the decrease in export sales for a country in the 25th percentile of the distribution for starting a business indicator is almost 2 percentage points, whereas in the 75th percentile, the decrease is almost 18 percentage points. The differences between the 75th and 25th percentiles for all investment climate indicators are presented in Table 8. These findings show that a strong investment climate works as a cushion and reduces the distortions caused by unfavorable foreign market access.

It is intuitive to expect that improvements in IC would also help reduce the impact of trade restrictions applied at home. Thus the interaction between TTRI and IC could be significant. Alternatively I analyze three specifications including⁽⁸⁾ : i-) only MATTRI and its interaction term with IC variables, ii-) excluding MATTRI from the analysis

(6) 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.

(7) The formula applied is as follows:

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

(8) All these alternative estimation results are available upon request.

and including only TTRI and its interaction term with IC variables, iii-) including both MATTRI and TTRI but only the interaction between TTRI and the IC variables.

Estimation results of specification (i) continue to hold as in Table 6. In none of the other specifications the interaction terms between TTRI and IC variables are significant. Tariffs and other non-tariff barriers applied at home (proxied by TTRI) are constrains on imports. Yet, there is a complementarity relation between imports and exports, as exporters usually form a big part of importers (this finding is analyzed in Şeker (2012)). That's the reason why TTRI had negative and significant coefficient in all specifications in Table 6. However, the interaction term aims to capture how much improving investment climate at home help alleviate trade barriers faced by exporters. Trade barriers faced by exporters are the tariffs and other non-tariff barriers imposed by the importing country, not the exporting country (proxied by MATTRI in our analysis). Hence it is appropriate to use MATTRI as the main variable of interest since we focus on export performance of the home country.

I used alternative indicators for some of the investment climate factors introduced above to see whether the results were specific to the variables used. These alternative variables are rules 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.⁽⁹⁾ 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. This indicator is also standardized between -2.5 and 2.5 with high scores corresponding to better outcomes. The second indicator is the logistic performance index (LPI), which reflects the overall performance of a country's logistics environment.⁽¹⁰⁾ It is collected by the WTI. For this standardized variable, higher values correspond to a better logistic performance. Although the methodology applied to collect the data is similar to time to export data from DB, the content of LPI is much broader. The third indicator is an alternative for infrastructure measure which is obtained from the Enterprise surveys of the World Bank.⁽¹¹⁾ These surveys are conducted only to firms in developing countries. The question used in the analysis is the log of the percentage of sales lost due to power outages in each country. The final alternative indicator is a measure of property rights from the Index of Economic Freedom database. It measures the degree to which a country's laws protect

⁽⁹⁾ The rule of law is an exception. Although it is 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.

⁽¹⁰⁾ 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.

⁽¹¹⁾ See www.enterprisesurveys.org for the methodology and data coverage. Each country is surveyed once and the survey year varies across countries.

private property rights and the degree to which its government enforces these laws. Each country is graded in a 0-100 scale where higher grade means better property rights. In the analysis log of this indicator is used. This measure differs from the property rights measure in Economic Freedom of the World in its source of collection.⁽¹²⁾ 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 of these alternative investment climate indicators are presented in Table 9. Since all of these indicators except the rule of law are obtained from different sources, it is not possible to compare their contribution with those variables presented in Table 6. However, in all specifications, investment climate indicators have the expected signs and the interaction terms are significant which is in accordance with results in Table 6.

Alternative Specifications and Panel Estimation Methods

In this section, I perform several tests to show the robustness of the findings and to alleviate the endogeneity problem. There are several linear models for panel data that can be applied. 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. In fact, Table 4 showed that over time, variation in each variable was quite low relative to the cross-sectional variation. Thus, using fixed effects method would give imprecise results. Since the number of periods is only three for most of the countries, I use pooled feasible generalized squares (FGLS) and random-effects models. In these models, the unobserved country specific effect is assumed to be purely random. The FGLS methods, which are also known as population-averaged estimators and random-effects models are appropriate to use when the error terms are heteroscedastic and serially correlated over time. These estimators allow over time correlation for each country. For both specifications, I assume a first order autoregressive process on error terms which allows the correlation of error terms over time. I also present robust standard errors.

Estimation results with the population averaged estimator are presented in Table 10 and the results with random effect model are presented in Table 11.⁽¹³⁾ Both panel estimation methods give similar results. They are in accordance with the pooled OLS results. In both methods, magnitudes of the coefficients of market access rates, the investment climate indicators and their interaction are much smaller when compared to the results in Table 6. Also, the standard errors decrease in panel methods, which shows the improvement in the efficiency of the results.

Next, I include additional variables and test the results with different sub-samples to show the robustness of the results. The Economic Freedom of the World report publishes

⁽¹²⁾ See Berg and Krueger (2003) and Hallaert (2006) for literature surveys on the link between trade and growth.

⁽¹³⁾ In population-averaged estimator method, infrastructure variable did not converge; hence it is excluded from the table.

an index for the size of the 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.⁽¹⁴⁾ The level of knowledge capital in the country, the percentage of population speaking a major global language such as English, and the legal origin of the country could affect the country's export performance. Expected size of trade could be used to alleviate the omitted variable bias by controlling for these factors that are likely to affect trade but cannot be controlled by factors like geography, size, and trade policies.

Dollar and Kraay (2003) show that in countries like China, a large share of exports come from firms with foreign direct investment. Moreover, UNCTAD (2002a, b) reports illustrate that FDI can be expected to contribute to enhancing a country's competitiveness in 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 induce technological spillover to domestic firms which can increase their competitiveness. Fugazza (2004) shows that contribution of FDI to capital formation has a positive impact on export performance. I include net inflows of foreign direct investment (FDI) to the country in the estimations. The data for FDI is obtained from the WDI. Estimation results including both expected size of trade and FDI investment are presented in Table 12. Results show that both variables are significantly related to export sales and do not distort the relationship between market access and the investment climate indicators. These two variables are included in all the robustness tests through the rest of the paper.

Firms incur additional costs to export their products. As Dollar et al. (2006) shows, improvements in investment climate reduce these costs. However, it might take longer than a year for firms to respond to some of these improvements. Although responding to improvements in reductions of time to export could be fast, it would take longer to see the effects of improvements in regulatory quality or property rights. I use two year lag values of the explanatory variables instead of one year to control for the possible lag in responding to changes in investment climate factors. The result of this specification is presented in Table 13. Although the sample size drops almost by half, the interaction terms are still significant with the expected signs.

Trade agreements can reduce the barriers to exporting and increase engagement with the rest of the world. Thus MA-TTRI is likely to be high in a country that is excluded from such agreements. The World Trade Organization collects data on number of reciprocal preferential trade agreements both regional and bilateral in goods and services. This data is available after 2006. The median number of trade agreements for

⁽¹⁴⁾ See Economic Freedom of the World Report for construction and a description of this index.

2006 and 2007 period is three. Average MA-TTRI in countries that have less than three agreements is 4.3% and in countries that have at least three agreements, it is 3.4%. Not controlling the trade agreements in the analysis could bias the estimation results and could inflate the negative relationship between MA-TTRI and export sales. In the first test with subsamples, I perform the analysis restricting the sample to those countries that have more than three trade agreements. The results are presented in Table 14. They show that even among countries that have established trading relationships with partner countries, improvements in investment climate are still associated with a relatively larger contribution to export performance of countries with lower market access. Similar results are obtained if the analysis is restricted to countries that have a higher than average number of trade agreements, which is 7.5. In this alternative specification, although the interaction terms for infrastructure and property rights have the expected signs the coefficients are no longer significant.

The second test with the sub-sample is performed for the income groups. The income level of country can affect market access. Richer countries would have relatively easier access to foreign markets and they export more. Average MA-TTRI in high and upper-middle income countries in 2005 is 4.8%, which is 2.3 percentage points lower than the levels in low and low-middle income countries. Although the difference diminishes over the years, it could affect the estimation results. To control for the effect of the income level, in Table 15, I restrict the sample to upper-middle and high income group countries. The results show that the relationship between market access and investment climate still holds for countries that are relatively richer.

The tariff rates and market access rates used in the analysis do not include non-tariff barriers. However, they can play a significant role in obstructing firms from exporting. WTI constructs two indices overall: trade restrictiveness index (OTRI) and market access-overall tariff trade restrictiveness index (MA-OTRI) which include non-tariff measures such as price control measures, quantity restrictions, monopolistic measures, technical regulations, and agricultural support. Both indices are measured as a tariff rate. These indices provide a more comprehensive measure of barriers to international trade. The results of using these alternative indices are presented in Table 16. A comparison of the results from Table 16 and Table 12 shows that MA-OTRI is more distortive for export sales for most of the investment climate indicators. In Table 16, four of the six investment climate factors are significantly related to reduction in the losses of exports that are caused by difficulties in market access. The relationship is no longer significant for access to finance and for entry regulations. The results with overall indices show that improvements in investment climate are related to reductions in the distortions caused by both tariff and non-tariff related barriers.

The potential endogeneity problem between aggregate GDP and export sales was briefly discussed in section 2. I use lagged value of GDP in the estimation to alleviate this problem. To provide further robustness on the relationship between GDP and exports, I perform two tests. First, I apply a distributed lag model to show the long term effects of GDP on export performance. I include both one year and five years (and in another specification one year and ten year) lag values of GDP. The results show that

long term effects of GDP on export are significantly positive. In a second test, 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 from Table 6.⁽¹⁵⁾ Finally, to alleviate the concerns with serial correlation and the possible effects of the noise in the data over time, I use average values of the dependent and all explanatory variables included in the analysis for years 2005 to 2007 and perform simple OLS estimation. The results of these estimations, which are available upon request, are in accordance with the main findings. Investment climate factors are significantly related to export performance and they reduce the distortions cause by restrictive market access.

Conclusion

Trade volumes in the last 60 years have increased significantly. The vast trade liberalization policies undertaken around the world have substantial contribution to this increase. Policy makers now have to make more complex decisions, as policies solely focused on eliminating trade barriers are no longer sufficient to attain high competitiveness in international markets. To improve competitiveness, emphasis must be given to policies that will improve investment climate. 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 that complement trade liberalization policies in creating higher success in international markets.

In this paper I show that restrictions in foreign market access and domestic tariff policies are negatively related to 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 are not only related to an increase in export sales but are also related to a reduction in the distortions caused by restrictive foreign market access policies. Although the estimation results are robust and they show the strong correlation between trade barriers and export performance, they should be evaluated with care as it is difficult to derive a causal relationship using such a limited cross-sectional data. The significant interaction between investment climate indicators and market access measure shows that reforms that improve investment climate enhance countries' abilities to respond to the export market opportunities and they contribute more to countries with low levels of market access.

⁽¹⁵⁾ This should be expected as the elasticity of export with respect to GDP is close to one in all specifications.

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Tables

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	Upper Middle	Lower Middle	Low Income	Total
East Asia & Pacific	4	3	1	5	3	16
Europe & Central Asia	21	4	13	7	3	48
Latin America & Carib.	2	1	12	8	-	23
Middle East & North Afr.	-	-	2	8	-	10
South Asia	-	-	-	2	1	3
Sub-Saharan Africa	-	-	6	6	24	36
Total	27	8	34	36	31	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	+
MATTRI	Log of MA-TTRI (applied tariff incl. prefs.) - All goods	2005-2007	WTI	-
TTRI	Log of TTRI (MFN† applied tariff) - All goods	2005-2007	WTI	-
MAOTRI	Log of MA-OTRI (applied tariff incl. prefs.+NTMs) - All goods	2005-2007	WTI	-
OTRI	Log of OTRI (MFN applied tariff+NTMs) - All goods	2005-2007	WTI	-
Time to Exp	Log number of days to export 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	+
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.		
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
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
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 Exp	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
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
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
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							

Note: N: Total number of observations; n: Number of countries; T: Number of time periods. The statistics for real export is for 2006-2008 period, for all other variables except infrastructure they are for 2005-2007 period. For infrastructure it is for 2008.

Table 5
Correlation Matrix

	Real Export	RealGDP (PPP)	(MATTRI)	TTRI	Area	Remote	Exp Gr _{t-1,t-2}	Regul.	Finance	Entry	Time to Exp	Infrast.
RealGDP(PPP)	0.95											
MATTRI	0.1	0.03										
TTRI	-0.32	-0.24	0.02									
Area	0.32	0.61	-0.15	0.29								
Remoteness	-0.25	-0.31	-0.06	0.21	-0.09							
Export Gr _{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 Exp	-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
Export Performance and Investment Climate

	Regulations	Finance	Entry	Time to Exp	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)***
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)**
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)***
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)***
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

* Estimation results with pooled OLS method. 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 Exp	Infrastructure	Property
Total Impact	10.1	9.9	12.4	7.9	10	9.6

Note: Improvements in investment climate indicators mean increase in the regulatory quality, access to external finance, quality of infrastructure, and protection of property rights and it means decrease in the number of entry procedures and the number of days to export.

Table 8
Impacts of One Standard Deviation Decrease in Market Access on Exports (in percentage points)

Indicator	Regulations	Finance	Entry	Time to Exp	Infrastructure	Property
Total Impact	13.5	10.3	-16.1	-7	15.1	12.3

Note: One standard deviation decrease in market access means increase in the tariff rates (MATTRI). Recall from Table 3 that larger values of regulatory quality, access to finance, quality of infrastructure, and protection of property rights lead to more export revenues and larger values of number of entry procedures and number of days to export means decrease in trade.

Table 9
Estimation Results with Alternative Indicators for Investment Climate

	Rule of Law	LPI	Property(IEF)	Power Outage
RealGDP(PPP)	0.993 (0.031)***	0.870 (0.037)***	1.017 (0.032)***	1.009 (0.037)***
Area	-0.087 (0.038)**	-0.072 (0.034)**	-0.095 (0.039)**	-0.095 (0.033)***
Remoteness	-0.419 (0.158)***	-0.482 (0.159)***	-0.593 (0.166)***	-0.364 (0.169)**
Export Growth _{t,t-1}	0.106 (0.046)**	0.131 (0.040)***	0.104 (0.048)**	0.104 (0.043)**
TTRI	-0.309 (0.091)***	-0.330 (0.092)***	-0.358 (0.097)***	-0.297 (0.110)***
MATTRI	-0.164 (0.043)***	-0.218 (0.049)***	-0.766 (0.348)**	-0.049 (0.068)
MATTRI*Indicator	0.067 (0.039)*	0.121 (0.056)**	0.157 (0.085)*	-0.093 (0.052)*
Indicator	0.292 (0.054)***	0.376 (0.107)***	0.505 (0.110)***	-0.279 (0.071)***
Constant	3.910 (1.578)**	7.399 (1.438)***	3.187 (1.674)*	3.343 (1.857)*
Observations	205	198	202	110
R-squared	0.954	0.959	0.950	0.960

* Estimation results with pooled OLS method. 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
Population-averaged Estimator with Autoregressive Error Term

	Regulations	Finance	Entry	Time to Exp	Property
RealGDP(PPP)	1.071 (0.039)***	1.080 (0.047)***	1.138 (0.037)***	1.138 (0.038)***	1.093 (0.043)***
Area	-0.166 (0.043)***	-0.168 (0.044)***	-0.210 (0.041)***	-0.213 (0.041)***	-0.201 (0.051)***
Remoteness	-0.458 (0.183)**	-0.439 (0.221)**	-0.521 (0.218)**	-0.577 (0.228)**	-0.583 (0.221)***
Export Growth _{t,t-1}	0.023 (0.018)	0.027 (0.021)	0.018 (0.018)	0.022 (0.018)	0.026 (0.020)
TTRI	-0.050 (0.030)*	-0.092 (0.043)**	-0.073 (0.031)**	-0.062 (0.028)**	-0.090 (0.038)**
MATTRI	-0.022 (0.012)*	-0.143 (0.069)**	0.023 (0.024)	0.132 (0.058)**	-0.113 (0.054)**
MATTRI*Indicator	0.033 (0.015)**	0.032 (0.018)*	-0.005 (0.002)**	-0.047 (0.018)***	0.015 (0.008)*
Indicator	0.235 (0.073)***	0.156 (0.091)*	-0.007 (0.004)**	0.062 (0.041)	0.034 (0.032)
Constant	2.833 (1.869)	1.954 (2.172)	2.417 (2.225)	2.667 (2.374)	3.776 (2.330)
Observations	179	151	177	177	169
Prob>Chi2	0.000	0.000	0.000	0.000	0.000

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

Table 11
Random Effects Estimator with Autoregressive Error Term

	Regulations	Finance	Entry	Time to Exp	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)***
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)**
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)***
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)***
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
R-Squared	0.947	0.921	0.935	0.943	0.947	0.946
Prob>Chi2	0.000	0.000	0.000	0.000	0.000	0.000

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

Table 12
Controlling Size of Trade Market and FDI

	Regulations	Finance	Entry	Time to Exp	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)***
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)***
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)***
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)***
Observations	196	167	195	195	192	189
R-squared	0.972	0.950	0.958	0.967	0.967	0.968

* Estimation results with pooled OLS method. Robust standard errors clustered by country are in parentheses. All regressions include controls for area, remoteness, export growth, and year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

Table 13
Estimation Results with Two Period Lags

	Regulations	Finance	Entry	Time to Exp	Infrastructure	Property
RealGDP(PPP)	0.981 (0.031)***	1.030 (0.043)***	1.067 (0.038)***	0.999 (0.035)***	0.988 (0.035)***	0.987 (0.034)***
TTRI	-0.190 (0.093)**	-0.410 (0.124)***	-0.397 (0.114)***	-0.343 (0.098)***	-0.346 (0.096)***	-0.345 (0.113)***
MATTRI	-0.136 (0.044)***	-1.120 (0.326)***	0.215 (0.189)	0.596 (0.341)*	-0.515 (0.188)***	-0.559 (0.183)***
MATTRI*Indicator	0.165 (0.054)***	0.266 (0.095)***	-0.038 (0.016)**	-0.238 (0.101)**	0.303 (0.146)**	0.071 (0.032)**
Indicator	0.238 (0.080)***	-0.262 (0.145)*	0.012 (0.029)	-0.147 (0.163)	0.446 (0.231)*	0.070 (0.043)
Observations	120	107	119	119	118	115
R-squared	0.972	0.950	0.959	0.966	0.967	0.966

* Estimation results with pooled OLS method. Robust standard errors clustered by country are in parentheses. All regressions include controls for area, remoteness, export growth, size of trade, FDI, and year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

Table 14
Results for Countries with more than Median Number of Free Trade Agreements

	Regulations	Finance	Entry	Time to Exp	Infrastructure	Property
RealGDP(PPP)	1.000 (0.026)***	1.048 (0.048)***	1.104 (0.033)***	1.010 (0.034)***	1.009 (0.028)***	1.011 (0.028)***
TTRI	-0.166 (0.082)**	-0.425 (0.114)***	-0.385 (0.104)***	-0.337 (0.083)***	-0.340 (0.084)***	-0.352 (0.098)***
MATTRI	-0.143 (0.046)***	-0.902 (0.362)**	0.112 (0.136)	0.631 (0.257)**	-0.497 (0.132)***	-0.509 (0.146)***
MATTRI*Indicator	0.170 (0.051)***	0.197 (0.103)*	-0.026 (0.012)**	-0.250 (0.077)***	0.301 (0.102)***	0.061 (0.024)**
Indicator	0.258 (0.078)***	-0.035 (0.131)	-0.014 (0.017)	-0.189 (0.111)*	0.494 (0.151)***	0.095 (0.034)***
Observations	168	141	167	167	168	166
R-squared	0.973	0.947	0.958	0.967	0.969	0.969

* Estimation results with pooled OLS method. Robust standard errors clustered by country are in parentheses. All regressions include controls for area, remoteness, export growth, size of trade, FDI, and year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

Table 15
Results for Upper-middle and High Income Countries

	Regulations	Finance	Entry	Time to Exp	Infrastructure	Property
RealGDP(PPP)	0.977 (0.033)***	0.896 (0.044)***	1.041 (0.036)***	0.974 (0.041)***	0.966 (0.031)***	0.955 (0.029)***
TTRI	-0.049 (0.103)	-0.090 (0.122)	-0.147 (0.172)	-0.227 (0.117)*	-0.066 (0.121)	-0.053 (0.122)
MATTRI	-0.154 (0.058)**	-0.965 (0.419)**	0.234 (0.131)*	0.552 (0.248)**	-0.147 (0.182)	-0.470 (0.233)**
MATTRI*Indicator	0.196 (0.071)***	0.254 (0.116)**	-0.030 (0.014)**	-0.203 (0.073)***	0.123 (0.142)	0.070 (0.035)**
Indicator	0.241 (0.092)**	0.237 (0.156)	-0.012 (0.025)	-0.187 (0.115)	0.794 (0.207)***	0.106 (0.044)**
Observations	114	87	113	113	113	113
R-squared	0.969	0.957	0.954	0.963	0.969	0.971

* Estimation results with pooled OLS method. Robust standard errors clustered by country are in parentheses. All regressions include controls for area, remoteness, export growth, size of trade, FDI, and year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

Table 16
Results with Overall Tariff Rates

	Regulations	Finance	Entry	Time to Exp	Infrastructure	Property
RealGDP(PPP)	0.979 (0.029)***	1.011 (0.039)***	1.091 (0.034)***	0.982 (0.032)***	0.998 (0.029)***	1.004 (0.029)***
OTRI	-0.034 (0.066)	-0.225 (0.105)**	-0.171 (0.091)*	-0.239 (0.066)***	-0.243 (0.068)***	-0.256 (0.073)***
MAOTRI	-0.244 (0.058)***	-0.633 (0.376)*	-0.497 (0.243)**	0.630 (0.240)**	-0.660 (0.236)***	-0.644 (0.199)***
MAOTRI*Indicator	0.111 (0.059)*	0.079 (0.107)	0.017 (0.019)	-0.292 (0.081)***	0.323 (0.166)*	0.068 (0.029)**
Indicator	0.230 (0.156)	0.068 (0.272)	-0.103 (0.049)**	0.184 (0.223)	0.031 (0.442)	-0.007 (0.080)
Observations	181	153	180	180	180	177
R-squared	0.973	0.952	0.961	0.971	0.969	0.968

* Estimation results with pooled OLS method. Robust standard errors clustered by country are in parentheses. All regressions include controls for area, remoteness, export growth, size of trade, FDI, and year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.