THE GOVERNANCE THRESHOLD IN INTERNATIONAL TRADE FLOWS

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Marta Felis-Rota*

Abstract

This paper studies the flows of international trade from an institutional comparative advantage perspective. It establishes a good governance threshold necessary for the well-functioning of commerce. The paper incorporates institutional quality into the gravity equation of trade through an iceberg transaction cost. Then, it replicates accessibility to foreign markets based on bilateral distance and geographical characteristics as suggested by Redding and Venables (2004) in order to estimate the GDP equation incorporating the World Bank Governance Matters indicators. The results show that only when a country enjoys high enough government effectiveness can it effectively benefit from accessibility to markets. Attributing good governance to a country that has not could imply an increase in GDP of around 20 percent.

Keywords: international trade, gravity, institutions, governance matters

JEL classification: F1, O43

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1. Introduction

Recently, there has been a proliferation of the institutional comparative advantage literature, based on explaining comparative advantage with institutional differences across countries (See Costinot, 2009; Acemoglu, Antràs and Helpman, 2007or Nunn, 2007). Helpman, Melitz and Rubinstein (2008) examine the extensive versus the intensive margin, and reveal that the number of exporting firms for a given pair of countries varies according to the country characteristics.

Some factors previously studied are natural endowments or technology related arguments. Redding and Venables (2004) tried to answer this question by incorporating geographical location into the analysis. The mechanism in which they focus is distance to markets. Both distance to inputs (capital and intermediate goods) and distance to output markets are considered. Under given technology and internationally set prices (except wages), firms located further away from markets bear extra costs to trade that force wages downwards in order to remain competitive. This mechanism would explain why there are not more firms moving to low-wage countries under increasing world economic integration.

Redding and Venables (2004) found statistically significant effects of geographical location on per capita income, after controlling for primary resource endowments, and some basic socio-institutional characteristics. The magnitude of these effects is important. Halving a country's distance to markets would result in about a 25 percent increase in per capita income. But, can one generalise this result? Moving countries that are very far away from the main world markets into a central location can result into much larger income effects. For instance, performing the experiment of hypothetically moving Zimbabwe to central Europe results into an almost 80 percent rise in Zimbabwe's GDP per capita. But, can one really move any country in the world to Europe and make it work?

There are some studies underlying the relevance of cultural or psychological distance for foreign trade. Some consumers might be more inclined to purchase goods with some bias depending on where they come from, due to cultural affinities (Felbermayr and Toubal, 2010) or associated to migratory flows (Combes, Lafourcade and Mayer, 2005). Alternatively, this paper focuses on the insights of Redding and Venables (2004), measuring geographical distance between trading partners, and shows that their results are non-robust and particularly sensitive to the institutional setup, in particular, to governability.

Why is governability important for trade? Well, trading requires transacting. Transacting implies dealing with the established rules, which may differ between countries, dealing with the way and quality of the trading partner's administration. To sum up, trade is not immune to corruption,

effectiveness of the regulatory framework and the quality of institutions in general. A certain value of the good to be traded is lost in the transaction because of these frictions or transaction costs, which will differ across countries.

Clarida and Findlay (1991 and 1992) stressed the role of the government some years ago. They brought up the idea of a government-related endogenous comparative advantage other than in the Ricardian sense of technology differences or the Heckscher-Ohlin relative factor endowments. They stressed the role of the government through provision of a public input leading to comparative advantage.

There has also been some recent evidence illustrating how corrupt governments impact negatively on competition (Emerson, 2006) and on investment (see earlier work by Mauro, 1995). In particular, corruption is lower in countries that are more open to foreign trade (Clarke and Xu Colin, 2002 and 2004). Edwards (2006) explains how sugar producers lobby to establish restrictions on the importation of sugar, introducing a market friction which operates as a transaction cost:

> "Corruption in foreign trade is illustrated by restrictions on the importation of sugar. Those controls have created an entrenched and wealthy sugar producers' lobby that dishes out millions of dollars of campaign contributions to protect the industry's monopoly profits at the expense of sugar-consuming businesses and average families" (Edwards, 2006).

Beyond a corrupt government, Levchenko (2007) explores other aspects of good governance, such as rule of law, on US imports. He develops a theoretical model presenting a transmission mechanism between rule of law and US imports as an extra cost in an imperfect contracting environment. Anderson and Marcouiller (2002) claim that ineffectiveness of institutions dramatically reduces international trade. They stress the role of insecurity, captured by aspects such as imperfect contract enforcement. They claim that Latin American trade would rise by 30 percent if they were to have the quality of Western European institutions. Also de Groot et al. (2004) and Francois and Manchin (2007) have stressed the importance of good governance for an underlying gravity model; but either without developing a theoretical model (the former) or encapsulating all factors affecting the cost of trade into a generic G (the latter).

The extra transaction/frictional cost caused by poor governance is introduced in my model as an iceberg type of cost, where some proportion of the value of the traded good is lost in the transaction. An institutional quality threshold is established below which no matter where we are in the world the hypothetical rise in per capita GDP postulated by Redding and Venables (2004) is not going to happen.

2. Model

The theoretical framework used by Redding and Venables (2004) follows the general equilibrium model exposed in Fujita, Krugman, and Venables (1999) on international specialisation, also presented by Overman, Redding, and Venables (2003). This model allows for international specialisation with intermediate goods. The final manufactured good is also used as an input in the production function, thus, acting as well as an intermediate capital good. Production also requires an immobile (non-tradable) factor of production, which can be interpreted as labour.

In the exposition of the model, we follow Fujita, Krugman, and Venables (1999), and introduce some notation changes to match Redding and Venables (2004) application. For instance, we allow for i = 1,…, R countries instead of two in the original Fujita, Krugman, and Venables (1999).

Prices of production factors are w_i for labour and G_i for the intermediate good. When the latter is sold directly to the consumer its price is p_i. These define the indirect production function

$$p_i = w_i^{1-\alpha} G_i^{\alpha}, \qquad 0< \alpha <1 \qquad (1),$$

which is Cobb-Douglas with intermediate manufactured good share α. Equation 1 illustrates the fact that firms set price equal to marginal cost.

In each country i, there are n firms producing n differentiated manufactured products. Therefore, n_i is the number of varieties of the manufactured good produced in country i. The manufactured good enjoys a constant elasticity of substitution (CES) amongst all its varieties. The CES function is

$$G_i = [\sum_{j=1}^{R} n_j (p_j T_{ji})^{1-\sigma}]^{\frac{1}{1-\sigma}}, \qquad \sigma >1 \qquad (2),$$

where T_{ji} stands for the transportation costs from country j to country i. Firms chose to buy all varieties available to produce at internal price G_i, and the more varieties the better. Equally, consumers get best utility by purchasing all varieties available, and the more the better. Their CES utility function is

$$U_j = [\sum_{i=1}^{R} n_i x_{ij}^{\frac{\sigma-1}{\sigma}}]^{\frac{\sigma}{\sigma-1}} \qquad (3),$$

where x_{ij} is the amount of the manufactured good produced in country i which is demanded by county j. In other words, x_{ij} represents the level of exports from i to j, and the level of internal demand in the case of j = i. Aggregating across importing countries we have

$$\sum_{j=1}^{R} x_{ij} = x_i \quad (4),$$

where x_i is the aggregate level of production for a given firm-variety in country i.

In equilibrium, the supply capacity of country i, s_i is

$$s_i = n_i p_i^{1-\sigma} \quad (5)$$

If we weight the internal price by the iceberg transportation costs from country i to country j, the resulting expression will be expressed in terms of the price of domestically produced goods placed at the foreign market j. Adding up over all countries we get the resulting supplier access of country j.

$$SA_j = \sum_{i=1}^{R} n_i (p_i T_{ij})^{\sigma-1} \quad (6)$$

How much is the expenditure of country i on manufactured goods? If we define Y_i as income in country i and μ as the share of manufactures that go to final consumption, then total expenditure of country i on manufactured goods, E_i is equal to the sum of consumers' demand plus intermediate good's demand on behalf of producers.

$$E_i = \mu Y_i + \alpha n_i p_i x_i \quad (7)$$

In equation 7, μY_i is the proportion of income that goes to direct consumption of manufactures and $\alpha n_i p_i x_i$ is the proportion of total production that is devoted to the purchase of intermediate goods.

The structure of the price equation is the same as in Fujita, Krugman, and Venables (1999) and Redding and Venables (2004), but, unlike them, we initially allow for a higher number of countries, R. The referred previous models consisted of a world of two countries only.

Moving to the exports' market, the market capacity of country j, m_j, is defined as

$$m_j = E_j G_j^{\sigma-1} \qquad (8)$$

and the corresponding market access of country i, MA_i, is defined as the sum of all market accesses across countries, expressed in terms of the price once the good is placed in country j. i.e. weighted by the iceberg transportation cost from country i to country j.

$$MA_i = \sum_{j=1}^{R} E_j (G_j T_{ij})^{\sigma-1} \qquad (9)$$

X_{ij} is defined as the value of exports from county i to country j.

$$X_{ij} = n_i p_i x_{ij} \qquad (10)$$

Then, the value of exports gives rise to the following trade equation:

$$n_i p_i x_{ij} = n_i p_i^{1-\sigma} T_{ij}^{1-\sigma} E_j G_j^{\sigma-1} \qquad (11)$$

which, in terms of the above definitions, can be written as

$$X_{ij} = s_i T_{ij}^{1-\sigma} m_j \qquad (12)$$

3. Econometric specifications

This section goes from the theoretical model to econometric specifications; it deals with the issue of how to approach econometric specification for empirical estimation of the Market Access and Supplier Access indicators.

First, we take logarithms at both sides of the trade equation.

$$\ln X_{ij} = \ln s_i + (1-\sigma)\ln T_{ij} + \ln m_j \qquad (33)$$

Following Redding and Venables (2004), the supply capacity of the exporting country is estimated with exporting country characteristics (cty_i). The importing partner market capacity is

estimated with importing country characteristics (ptn_j). The transportations costs between the two countries are estimated with the distance between capitals ($dist_{ij}$) and a common border dummy ($bord_{ij}$).

$$\ln X_{ij} = \theta + \mu_i cty_i + \lambda_j ptn_j + \delta_1 \ln dist_{ij} + \delta_2 bord_{ij} + u_{ij} \qquad (34)$$

In equation 34, all explanatory variables are dummy variables but distance between capitals; u_{ij} is the error term. Considering that, by nature, trade data are censored at 0, we prefer a Tobit estimation over ordinary least squares.

The Market Access and Supplier Access indicators are defined as follows:

$$MA_i \equiv \sum_{j=1}^{R} m_j T_{ij}^{1-\sigma} \qquad (35)$$

$$SA_j \equiv \sum_{i=1}^{R} T_{ij}^{1-\sigma} s_i \qquad (36)$$

and, according to the econometric specification in equation 34, they are calculated as

$$\ln \hat{MA}_i = \sum_{j=1}^{R} (\hat{\lambda}_j ptn_j + \hat{\delta}_1 \ln dist_{ij} + \hat{\delta}_2 bord_{ij}) \qquad (37)$$

$$\ln \hat{SA}_j = \sum_{i=1}^{R} (\hat{\mu}_i cty_i + \hat{\delta}_1 \ln dist_{ij} + \hat{\delta}_2 bord_{ij}) \qquad (38)$$

Now, the following step is to calculate the market and supplier access indicators empirically.

4. Empirical data estimation

The NBER-UN International Trade Data on-line archive provides bilateral trade data for a given year since 1962 and until 2000. All bilateral trade data available for 1994 were extracted. This on-line archive is an updated version of the Canadian Statistics trade data archive. There is a change of approach in the new version. The latter compile information primarily from the importer side instead of from the exporter side, since this is supposed to be more reliable (Feenstra et al. 2005).

The Redding and Venables (2004) market access indicators for 1994 were replicated using their method[1]. Full series of foreign and domestic market access and supplier access were generated for a cross section of countries around the world. Total market access is calculated by adding up foreign and domestic market access. Given that the interest of this paper is to account for the effects of access to markets, the focus of the rest of this paper is on market access rather than supplier access.

Redding and Venables (2004), actually, did not use the NBER-UN trade database in their calculations, but an adapted version of these data, cleaned up by the CEP. The next step was to get hold of the CEP database they actually used. The CEP World Trade Database incorporates some changes described in detail in Stewart (2001). These lead to the existence of two alternative datasets: on the one hand, the original UN international trade dataset as the NBER presents it and, on the other hand, the CEP revised version. Although calculations are done for the two alternative databases to check robustness, the CEP cleaned up version of the bilateral trade data is preferred, because of the refinements it incorporates and because it is the one used in the Redding and Venables' study. The appendix contains the full new series created and the differences between the two alternative sources listed country by country. The world distribution of foreign market access generated by the two alternative datasets can be found in the final maps. Because the final impact in the results is not considerable, it is preferable to operate with just one database, the CEP one, for the reasons outlined above. However, some results using the NBER database can be found in the appendix.

The rest of the paper will make use of the market access series derived from the CEP database. GDP series are taken from the Penn World Table version 6.1 for consistency with Redding and Venables (2004), and geography related control variables are taken from their same source for the same reason.

5. Robustness tests with more standard socio-institutional variables

In this section, the robustness of the effect of access to markets on GDP is explored. This is done by means of replicating the results with alternative socio-institutional control variables.

Regression (1) in table 1 corresponds to Redding and Venables (2004); regression (2) is my replica[2]. The results go in the same direction, although there are some observed discrepancies of unknown nature. These are the baseline equations.

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[2] I show 4 significative ciphers throughout, independently of the number of decimals. This is why, in some cases, equation (1) shows only 3 ciphers while the rest of equations tend to show 4 ciphers.

The rest of the equations in the table illustrate how changes in the choice of socio-institutional variables alter the sign of the key variable (access to markets). The sign of foreign market access changes depending on whether we run the regression on risk of expropriation (specification 2), or property rights (specification 3). These two

Table 1– Log current price GDP pc 1996, and foreign market access (CEP)

Log GDP pc	(1)	(2)	(3)	(4)	(5)	(6)
Obs	91	91	58	91	25	91
Year	1996	1996	1996	1996	1996	1996
Log MA 1994	.215**	.1281	-.0200	.0985	-.0023	.0083
	(.063)	(.0835)	(.1655)	(.0683)	(.0570)	(.0665)
Log hydroc	.019	.0402***	.0405**	.0543***	.0042	.0518***
pc	(.015)	(.0150)	(.0193)	(.0142)	(.0125)	(.0128)
Arable Land	-.050	-.0462	-.0870	-.0446	-.0581	-.0495
	(.066)	(.0500)	(.0705)	(.0432)	(.0348)	(.0430)
N minerals	.016**	.0051	.0053	.0061	.0019	.0053
	(.008)	(.0108)	(.0122)	(.0109)	(.0120)	(.0083)
% Tropics	-.057	-.1901	-.4083**	-.3150	.1375	.1196
	(.239)	(.2131)	(.1870)	(.2017)	(.2954)	(.1660)
Malaria 1994	-1.107**	-1.159***	-1.315***	-.7670***	-2.152***	-1.044***
	(.282)	(.2135)	(.2401)	(.2226)	(.2555)	(.1835)
Property rights	-.445** (.091)	-.4517*** (.0824)	-	-	-	-.1508* (.0829)
Risk exprop	-	-	.2078*** (.0511)	-	-	-
Econ Free	-	-	-	-.8216*** (.1387)	-.7680*** (.1690)	-
Socialist	-.210	-.0995	-.0419	.0097	(dropped)	-
	(.191)	(.1739)	(.2690)	(.1980)		
War dummy	-.052	-.0183	-.0336	-.0768	(dropped)	-
	(.169)	(.1614)	(.1485)	(.1737)		
Trust	-	-	-	-	.0171*** (.0058)	-
Gvt Effective	-	-	-	-	-	.5307*** (.0839)
Estimation	OLS	OLS	OLS	OLS	OLS	OLS
R^2	.766	.7702	.7119	.7920	.9298	.8402
F(.)	47.77	40.62	20.79	42.11	76.59	55.96
Prob>F	.000	.0000	.0000	.0000	.0000	.0000

Constant not shown. Heteroskedasticity corrected White-robust standard errors in parentheses. *Statistically significant at the 90% level. **Statistically significant at the 95% level. ***Statistically significant at the 99% level.

variables are conceptually opposed and therefore, should be capturing the same effect, although with reversed sign. The fact is that including one or the other reverses the sign of the key variable (foreign market access). The sample is much smaller under “risk of expropriation”, so the phenomenon could be due to sample selection bias (studied in the next section). “Property rights” seems to be the one Redding and Venables (2004) actually used, because of the sample size exact coincidence. It has a wider sample than “risk of expropriation”. However, the latter covers the same concept and enjoys a much more detailed scale, so it could be

considered preferable if there were no sample size restrictions. Because of the wider sample size "property rights" is preferred.

Regressions (4) and (5) substitute the risk of expropriation and property rights variables by the Index of Economic Freedom, which is a wider concept that includes the former. This index gives strongly significant coefficients, but the sign of foreign market access still depends on which other socio-institutional control variables do we include. At this respect, regression (5) incorporates the concept of social capital into the regressions. This is done through the variable "trust" as it appears in Knack and Keefer (1997), —hence it is labelled trust—. It measures the general feeling of trust amongst people in a certain country. The variable trust is not included further down in the paper despite its significance and high explanatory power due to the shortness in sample size.

The truth is that the variables "socialist rule" and the war dummy return non-significant coefficients in all instances. So, what happens if we run the same regression with more standard socio-institutional variables? Incorporating the Index of Economic Freedom and trust, shows that the latter are strongly significant and makes the variables "socialist rule" and the war dummy be automatically dropped from the regression. At the same time, the r-squared is drastically increased[3]. More interestingly, the foreign market access coefficient is reversed. So the sign of the coefficient is also sensitive to the selection of socio-institutional variables. Again, this could be due to a sample selection bias; so it needs further exploration.

Finally, including the Governance Matters V variables, reverses again the sign of the foreign market access coefficient. These indicators include: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption[4]. When all of these variables are included simultaneously in the regression, substituting the poor performing "socialist rule" and war dummy, the sign of foreign and total market access is positive (not shown in the table). It is worth noticing that only one of the Governance Matters variables remains statistically significant throughout: government effectiveness. This is why the effect of this variable as institutional control is analysed in a separate regression (specification 6 in Table 1). Government effectiveness turns out to be strongly significant and produces an only slightly positive foreign market access coefficient. Intriguingly enough, if we run the same regression with total market access instead of foreign market access the sign of market access turns negative[5]. The effects of individual Governance Matters variables on total market access (which incorporates the domestic market as well as foreign) are presented in Table 2.

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[3] The same is true for total market access (including domestic market as well as foreign), not shown in the table.

[4] Data and detailed explanation of each variable can be obtained from the World Bank (Kaufmann, Kraay and Mastruzzi, 2006).

[5] Table 1b in the appendix reproduces the same results as in Table 1, –except regression 1 in Table 1, which corresponds to Redding and Venables' published results–, but this time using the original NBER-UN data. It produces similar results on the market access coefficient except

Table 2– Log of current price real GDP pc 1996 (PWT 6.1), Market Access (CEP), and Governance Matters V

Log GDP pc	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Obs	45	45	45	45	45	44	44
Year	1996	1996	1996	1996	1996	1996	1996
Log MA	.0204	-.0066	-.0131	.0539	.0068	.0186	.0944
1994	(.1138)	(.1198)	(.1208)	(.1195)	(.1200)	(.1377)	(.1209)
Loghydroc	.0829***	.0804***	.0750***	.0781***	.0750***	.0722***	.0631**
pc	(.0231)	(.0236)	(.0220)	(.0232)	(.0247)	(.0233)	(.0291)
Arable Land	-.0848	-.1229	-.0830	-.0621	-.0866	-.0483	.0565
	(.1013)	(.1068)	(.1154)	(.1108)	(.1094)	(.1433)	(.1238)
N minerals	-.0088	.0006	-.0034	-.0061	-.0066	.0007	-.0029
	(.0181)	(.0180)	(.0162)	(.0200)	(.0191)	(.0176)	(.0186)
% Tropics	-.2743	-.3233	-.0488	-.2969	-.3033	-.1221	.0716
	(.2552)	(.2855)	(.2778)	(.2797)	(.2675)	(.2728)	(.3211)
Malaria	-.9439***	-.9820***	-.9677***	-.8030***	-1.007***	-1.067***	-1.052***
1994	(.2448)	(.2628)	(.2493)	(.2676)	(.2524)	(.2704)	(.3140)
Property	-.3603***	-.3858***	-.2498*	-.2979**	-.4557***	-.3168**	-.1023
right	(.1182)	(.0953)	(.1243)	(.1285)	(.1194)	(.1302)	(.1508)
Voice	.2594***	-	-	-	-	-	.1192
	(.0901)						(.2972)
Pol stability	-	.1890**	-	-	-	-	.0129
		(.0856)					(.1279)
Gvt Effective	-	-	.3955***	-	-	-	.5216**
			(.1401)				(.2124)
Regulatory	-	-	-	.3569*	-	-	.1920
				(.1771)			(.2575)
Rule of Law	-	-	-	-	.1036	-	-.2146
					(.1253)		(.1750)
Contrl	-	-	-	-	-	.2496**	-.1082
corrup						(.1193)	(.2393)
Estimation	OLS	OLS	OLS	OLS	OLS	OLS	OLS
R^2	.8285	.8253	.8433	.8299	.8145	.8253	.8599
F(.)	37.41	35.98	48.94	40.28	30.53	37.76	44.00
Prob>F	.0000	.0000	.0000	.0000	.0000	.0000	.0000

Constant not shown. Heteroskedasticity corrected White-robust standard errors in parentheses. *Statistically significant at the 90% level. **Statistically significant at the 95% level. ***Statistically significant at the 99% level.

The effect of the Governance Matters indicators deserves a deeper exploration. Table 2 shows the individual effect of Governance Matters variables into total market access. Including the Governance Matters indicators one by one in the regressions produces switching signs of total market too. The sign of access to markets alternates depending on the choice of institutional variable. For voice and accountability, regulatory quality, rule of law, and control of corruption, the effect of access to markets into GDP is positive. For political stability and government effectiveness (the most statistically significant by far when all are included simultaneously), the effect of access to markets into GDP is negative[6]. The problem of working with total instead of

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for the regression incorporating the trust variable, which switches the sign of the market access coefficient once more. This may be due to the small sample available for this particular specification.

[6] Table 2b in the appendix repeats all the regressions in Table 2 using the original NBER-UN data instead. Once more, the sign of the market access coefficient switches from positive to negative in two occasions (both when we choose "voice" and when we choose "political

foreign market access is that the number of observations is reduced drastically to almost only half the sample size. This is why foreign market access is the preferred market access indicator.

So, overall, the evidence shows that Redding and Venables' results about the impact of the market access indicator are not robust. The original NBER database does not help to replicate their results, nor does the use of more standard institutional quality measures. The regressions above show how sensitive the direction of the effect of access to markets into GDP is. Then, what is the real sign of the effect of access to markets? Given the impact and relevance of the paper by Redding and Venables (2004) introducing the market access indicators, it seems worth exploring what is driving the sensitivity of the results. The next section explores this issue with the aid of partition regressions.

6. What leads the results? Partition regressions

Why are the Redding and Venables (2004) results so sensitive? What is the real effect of access to markets? This paper has shown how standard socio-institutional controls produce switching signs of the market access indicator, which turns out to be not so robust. In other words, the Redding and Venables result on the relevance of the market access indicator is not unconditional. In this section, the paper explores the varying degrees of intensity and direction of the effect of government effectiveness on foreign market access.

Government effectiveness, taken from the Governance Matters V indicators, encloses some valuable information to be added to the analysis of access to markets. Limao and Venables (2001) point out that infrastructure is an important element of the costs of transportation, and it takes special relevance in the inland African countries. Their analysis of bilateral trade flows in African countries reveals that their poor volumes of trade are due to poor infrastructures (Limao and Venables, 2001:467). Other authors had already focused on the infrastructural component of high transportation costs and pointed out at inappropriate policies (Amjadi and Yeats, 1995). Inappropriate transport policies or the lack of effectiveness in implementing them cause poorer infrastructures for facilitating transport and trade. So, it seems reasonable to suggest that government effectiveness can play a role in explaining trade volumes.

Government effectiveness is the institutional variable that shows more robustness of all Governance Matters indicators. Recall, it is the only one that remains statistically significant when simultaneously regressing on all 6 of them. Overall, it has a positive effect on GDP per capita. Surprisingly, it produces a negative market access coefficient in both cases, foreign and total market access. A negative market access coefficient means that the more accessibility to markets a country has the poorer it is. This is the contrary of what one would have expected

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stability" as controls) and from negative to positive when we include all the Governance Matters indicators simultaneously in the regression.

(Redding and Venables 2004 obtain a positive association between access to markets and GDP using alternative institutional variables); and, furthermore, it is counterintuitive. Therefore, it seems interesting to explore what is driving this result. Recall that other variables like political stability, risk of expropriation, or Index of Economic Freedom together with the variable "trust" also return negative market access coefficients. So, it is not an isolated phenomenon. This section focuses on the effect of one representative institutional variable (government effectiveness) into foreign market access.

Now, the question is the following: Is there an institutional quality threshold that countries need to reach before benefiting from good access to foreign markets?

There are a total of 181 observations for government effectiveness. The total sample of countries has been divided into several sub-samples according to their government effectiveness. Then, regressions (1) and (6) in Table 1 are run for each one of these sub-samples, corresponding to Redding and Venables' preferred specification with property rights protection, socialist and war dummies as institutional variables; and the author's preferred specification with property rights and government effectiveness, respectively. For extra robustness checks, both foreign and total market access have been tested, and both for NBER and CEP databases. A summary of results is presented in Table 3.

Table 3 – Exploring the government effectiveness threshold with several sub-samples: Is Market Access significant?

SAMPLE	10%	5%	1%	also CEP
19/163 (all but upper and lower 10%)	✗	✗	✗	No
1/45 (lower 25%)	✗	✗	✗	No
1/135 (lower 75%)	✗	✗	✗	No
46/181 (upper 75%)	✓	✓	✗	No
1/90 (lower 50%)	✓	✓	✗	No
91/181 (upper 50%)	✓	✓	✗	No
136/181 (upper 25%)	✓	✓	✓	Occasionally
1/162 (all but upper 10%)	✗	✗	✗	No

There is a total of 181 observations for government effectiveness. Columns represent 10, 5, and 1 percent significant levels respectively. Results hold for both foreign and total market access. Last column means "Also using the CEP database?", which has a narrower sample. "Occasionally" means "Yes" for Foreign Market Access at 10% only.

Table 3 displays the significance of the results using Redding and Venables' preferred institutional controls (property rights protection, socialist past, and recent war dummy) as in Table 1, equation (1)[7].

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[7] If I use my preferred institutional variables (property rights and government effectiveness), as in Table 1, equation (6), I get non-significance throughout. This means that the market access coefficient is not significant, except for Redding and Venables' choice of institutional variables.

It derives from the table that the upper quartile of the observations enjoys the most significant effect of geographical access to markets, while the lower 75% of the sample never gets a significant coefficient when analysed separately. Therefore, the whole sample of countries has been partitioned into 2 groups: those scoring highest in the government effectiveness indicator (upper quartile of the observations), which corresponds to .50 or above in the government effectiveness index, ranging from -2.5 to 2.5 approximately (Kaufman, Kraay, and Mastruzzi, 2006); and the rest (lower 3 quartiles). The division between the two groups of observations according to the government effectiveness ranking has been made effective through the creation of a dummy variable operating in the upper quartile of the sample. Then, an interaction term between market access and the government effectiveness dummy has been introduced in order to account for the distinctive nature of the upper sub-sample. This interaction term operates as a slope dummy on the market access coefficient.

Table 4– Log of current price real GDP pc 1996 (PWT 6.1), Foreign Market Access (CEP), and partitioned government effectiveness

Log GDP pc	(1)	(2)	(3)	(4)
Obs	92	92	92	92
Year	1996	1996	1996	1996
Log MA 1994	.1323	.0337	.0114	.0035
	(.0839)	(.0663)	(.0666)	(.0639)
LogMAeff high	-	.0795***	-	.0505***
		(.0104)		(.0146)
Log hydroc pc	.0415***	.0543***	.0529***	.0561***
	(.0150)	(.0126)	(.0128)	(.0118)
Arable Land	-.0446	-.0481	-.0481	-.0483
	(.0502)	(.0388)	(.0432)	(.0399)
N minerals	.0060	-.0063	.0060	-.0015
	(.0107)	(.0087)	(.0083)	(.0086)
% Tropics	-.1802	.1499	.1291	.1963
	(.2113)	(.1614)	(.1645)	(.1485)
Malaria 1994	-1.184***	-1.240***	-1.065***	-1.144***
	(.2072)	(.1758)	(.1793)	(.1641)
Property rights	-.4490***	-.2253***	-.1472*	-.1376*
	(.0823)	(.0773)	(.0828)	(.0795)
Socialist	-.0984	.0077	-	-
	(.1748)	(.1761)		
War dummy	-.0126	-.0768	-	-
	(.1599)	(.1187)		
Gvt Effective	-	-	.5322***	.2996***
			(.0837)	(.1108)
Estimation	OLS	OLS	OLS	OLS
R^2	.7753	.8487	.8437	.8605
F(.)	42.41	61.26	59.32	63.26
Prob>F	.0000	.0000	.0000	.0000

Constant not shown. Heteroskedasticity corrected White-robust standard errors in parentheses. *Statistically significant at the 90% level. **Statistically significant at the 95% level. ***Statistically significant at the 99% level.

Table 4 shows the baseline regressions, (1) and (3), augmented with the market access-government effectiveness interaction term, in (2) and (4), respectively[8] . Notice that foreign market access has a small and non-significant coefficient, while the interaction term (logMAeff high) enjoys a positive and highly significant coefficient of the magnitude of .05 to .08. Recall the interaction term is the result of multiplying the foreign market access index by the government effectiveness dummy operating in the upper quartile of the observations, and should be interpreted as extra slope for those observations within the upper 25 percent sub-sample. Therefore, most of the effect captured by foreign market access overall is due to those observations concentrated on the upper government effectiveness quartile. So, institutional quality matters and there seems to be a threshold below which a country is not able to effectively enjoy the benefits of good location.

7. Empirical counterfactuals: changes in country characteristics

We know from last section that if one would perform the hypothetical experiment of moving Zimbabwe to Europe its potential 80 percent rise in GDP per capita would not be effective, because Zimbabwe is not a high government effectiveness country.

In this section, Market Access has been computed based on specific country characteristics instead of country dummies, so that one can evaluate the effect of a specific characteristic (for instance, what is the isolated effect of distance to markets?). I did this for foreign and domestic market access, foreign and domestic supplier access, and all of them using the two alternative datasets UN and CEP (the latter shown in tables, for consistency with Redding and Venables, 2004). The table is based on the preferred control variables specified by Redding and Venables, with the intention of getting comparable results[9].

Table 5 displays the percentage changes in predicted GDP levels when one does the experiment of hypothetically moving a given country to central Europe. Four countries have been selected for this experiment: Zaire, Sri Lanka, Zimbabwe, and New Zealand; ordered according to their government effectiveness indicator. Zaire and New Zealand represent one very low and one very high government effectiveness observations, respectively. The 2 middle-ranged countries are case studies by Redding and Venables (2004). Regressions using country characteristics where used to compute the changes in predicted GDP, which give a slightly

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[8] Running the regressions with Foreign Market Access calculated with the NBER-UN data instead of with the CEP data adds a few more observations to the effective sample. Regressions have also been run for total market access (NBER-UN data) and results are again similar. Detailed results are available from the author upon request.

[9] Redding and Venables (2004:76) demonstrated that the use of alternative parameters for intermediate goods share (α) and elasticity of substitution (σ) produces very small changes in predictions.

negative (but not significant) coefficient to foreign market access[10]. This is why the GDP changes with no slope dummy are slightly negative. Columns (1) and (2) show the potential rise in GDP, as calculated by Redding and Venables (2004: Table 7). This methodology does not make a difference between good and bad institutions' countries. Potential increases in GDP are very high, often above 100 percent with respect to predicted GDP with actual distances and common borders. Columns (3) and (4) take into account institutional handicaps. Poor and middle-range government effectiveness countries below the 75 percent threshold practically do not change their GDP even after endowing them with European borders and distances. Even slight falls in per capita GDP are predicted because of the slightly negative (though not significant) coefficient of the market access coefficient in the regressions by country characteristics (not shown). Columns (4) and (6) show the percentage rise (or fall) in GDP per capita after endowing a given country with high- (or low-) quality government effectiveness. Among all the 4 countries studied only New Zealand belongs to the upper government effectiveness quartile. This is reflected in the drastic fall in GDP (above 88 percent fall) when its privileged institutional quality is experimentally removed[11].

Table 5- Percentage changes in predicted *levels* of GDP per capita 1996

Countries, from less to more government effectiveness	(1) Distance only of Central Europe	(2) Distance &common borders of central Europe	(3) Distance only of Central Europe), Instit. threshold considered	(4) Distance only to Central Europe, Instit. threshold considered → Instit. change	(5) Distance &common borders of central Europe, Instit. threshold considered	(6) Distance &common borders of central Europe, Instit. thresthold considered → Instit. change
Zaire	81.59	100.51	-2.80	105.35	-2.50	103.89
Sri Lanka	103.33	132.63	-3.30	107.72	-3.39	108.15
Zimbabwe	96.91	108.96	-3.28	104.94	-2.82	102.73
New Zealand	131.22	146.02	20.83	-88.67	19.42	-88.37

Notes: Specification as suggested by Redding and Venables 2004 (Table 5, column 3), including Foreign Market and Supplier Access and control variables, with no constant and parameters constraint as in their equation (21), $\alpha = 0.5$, $\sigma = 10$. Market and Supplier access calculated using country characteristics instead of country dummies in order to allow for specific feature effects. Calculations based on CEP database. Distance to central and Central Europe consist of imputing the distances (and common borders when specified) corresponding to Hungary. The institutional change in columns (4) and (5) consists of giving value 1 when the government effectiveness dummy is 0, and giving it value 0 when it is 1 (the latter only for New Zealand).

[10] The set of estimations with specific country characteristics is not displayed, but can be made available upon request.

[11] Changes in distances and borders have been performed both from the exporter and the importer perspectives. If changes as an exporter only are considered, the magnitudes of the change in GDP per capita are much more moderate. For instance, Table 5, column (2), Zimbabwe would be 34.73 and New Zealand 45.52. Nevertheless, I understand changing a given country characteristics should be performed at both ends: both from the exporter and the importers' perspective.

Overall, these four country cases illustrate how the possibility of a potential rise in GDP per capita when moving closer to markets being actually realised is very sensitive to institutional quality (in particular, to government effectiveness).

8. Conclusions

This paper shows that the effect of access to markets on GDP per capita is less robust than what we initially thought. The original Redding and Venables (2004) results cannot be replicated with the NBER database, nor can they with alternative control institutional measures. The income regressions produce a switching sign of the coefficient depending on which institutional variables does one choose as controls.

Partition regressions show that the benefits of geographical access to markets operate with varying degrees of intensity, and sometimes negatively. So, the Redding and Venables (2004) results cannot be generalised. The institutional setup of a country is not neutral, and can operate as to enhance or deprive a country from the benefits of a good geographical positioning. Countries with low government effectiveness do not show an ability to benefit from a good geographical location, while countries with high government effectiveness (above the .50 threshold on a -2.5 to 2.5 scale) are more sensitive to good access to markets.

List of variables appearing in the tables

Self constructed

lfma ln of foreign market access 1994, constructed from the NBER-UN database on bilateral trade and the STATA code from Redding and Venables (2004)[12].

lma_c ln of total market access 1994, calculated as the logarithm of the sum of domestic plus foreign market access[13].

lfmaCEP ln of foreign market access using the CEP cleaned up version of the NBER-UN database

lma_cCEP ln of total market access using the CEP cleaned up version of the NBER-UN database.

lfmaccCEP ln of foreign market access calculated using country characteristics instead of country dummies (CEP database).

lfsaccCEP ln of foreign supply access calculated using country characteristics instead of country dummies (CEP database).

Partition variables: dummy and interaction term

From data sources

lcgdp ln of current price real GDP per capita in 1996, from the Penn World Tables 6.1

distcap Bilateral distance capital to capital, in thousands of kilometres, from the CEPII.

land Arable land area per capita (ln is used in the regressions), from Gallup, Sachs and Mellinger (1999) [GSM99].

lhcpc ln of hydrocarbons per capita, from GSM99.

nminerals Number of minerals in the country, from *The National Cultures of the World* (Parker, 1997).

tropicar Fraction of land in the geographical tropics, from GSM99.

malfal Prevalence of malaria; the Falciparam Malaria Index form 1994, from GSM99.

landlocked Takes value 1 if country is landlocked, 0 otherwise, from GSM99.

island Takes value 1 if country is an island, 0 otherwise, from Parker (1997).

open Openness to trade for the period 1965-1990, as in Sachs and Warner (1995).

re Risk of expropriation index; 0 to 10 scale (real numbers), from GSM99.

pr Property rights, 1 to 5 scale (natural numbers), from the Index of Economic Freedom 1996.

free Score for Index of Economic Freedom 1996, from The Heritage Foundation.

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[13] For domestic market access, MA(3) as in Redding and Venables (2004) is used; this is, the outcome to the TOBIT specification which contemplates the truncated nature of the bilateral trade data.

socialst Socialist rule; dummy taking the value 1 if the country was under socialist rule during the period 1950-1995, from GSM99.

wardum External war; dummy taking the value 1 if the country was involved in an external war during the period 1960-1985, from GSM99.

trustkk Trust (several years) as in Knack and Keefer (1997).

The following institutional variables are extracted from "Governance Matters V", have zero mean and standard deviation of 1 and vary within a range of around -2.5 and 2.5 (Kaufamnn, Kraay and Mastruzzi, 2006). See Kaufmann, Kraay and Zoido-Lobatón (1999) for a detailed methodology:

voice Voice and accountability 1996, from the World Bank "Governance Matters V" database.

polsta Political stability 1996, from the World Bank "Governance Matters V" database.

effec Government effectiveness 1996, from the World Bank "Governance Matters V" database.

reg Regulatory quality 1996, from the World Bank "Governance Matters V" database.

RoL Rule of law 1996, from the World Bank "Governance Matters V" database.

contrl Control of corruption 1996, from the World Bank "Governance Matters V" database.

List of countries and territories

In alphabetical order according to the ISO3 World Bank classification code:

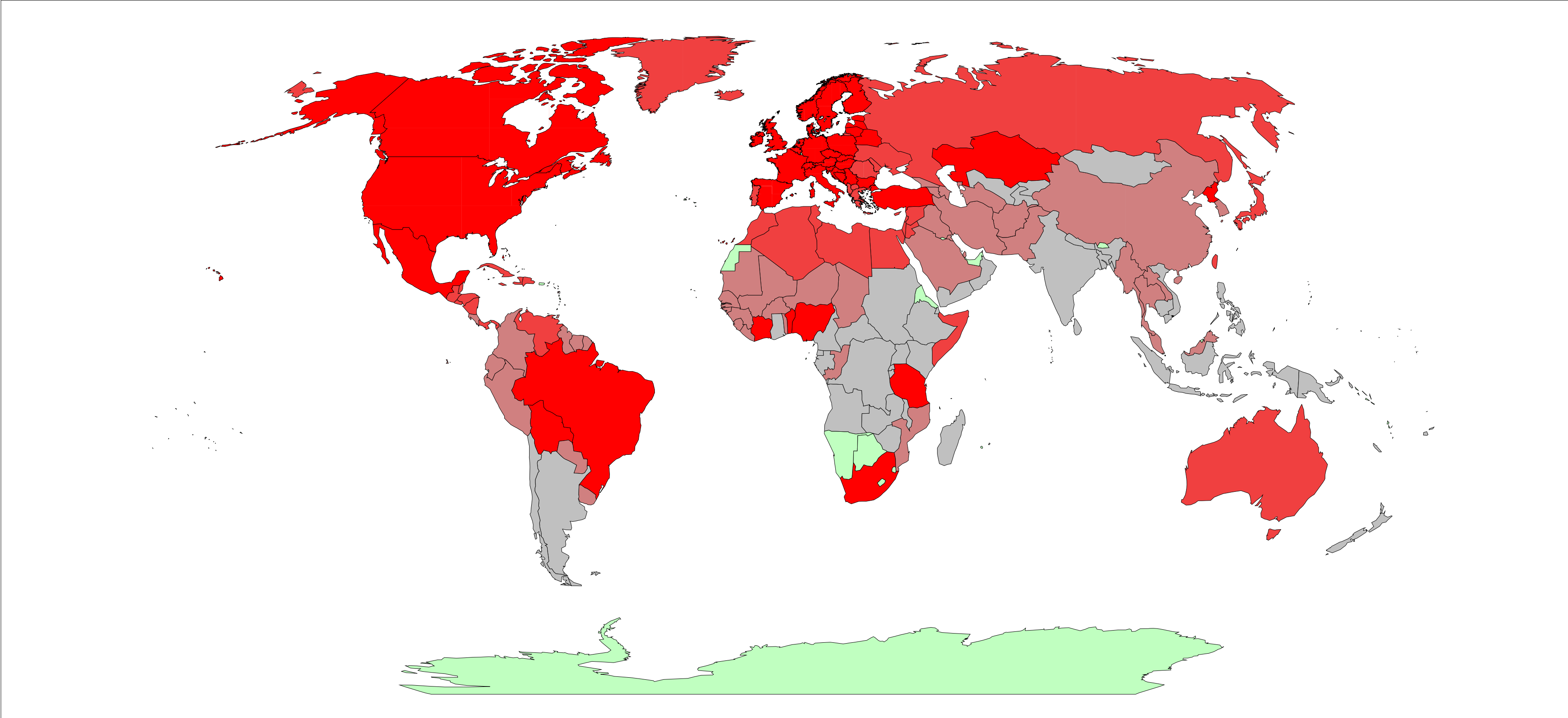
iso3	name of country/territory
ABW	ARUBA,
AFG	AFGHANISTAN
AGO	ANGOLA
AIA	ANGUILLA
ALB	ALBANIA
AND	ANDORRA
ANT	NETHERLANDS ANTILLES
ARE	UNITED ARAB E.
ARG	ARGENTINA
ARM	ARMENIA
ASM	AMERICAN SAMOA
ATF	FRENCH SOUTHERN TERRITORIES
ATG	ANTIGUA AND BARBUDA
AUS	AUSTRALIA
AUT	AUSTRIA
AZE	AZERBAIJAN
BDI	BURUNDI
BEL	BELGIUM
BEN	BENIN
BFA	BURKINA FASO
BGD	BANGLADESH
BGR	BULGARIA
BHR	BAHRAIN
BHS	BAHAMAS
BIH	BOSNIA AND HERZEGOVINA
BLR	BELARUS
BLX	BELGIUM (INCLUDES LUXEMBURG)
BLZ	BELIZE
BMU	BERMUDA
BOL	BOLIVIA
BRA	BRAZIL
BRB	BARBADOS
BRN	BRUNEI
BTN	BHUTAN
BWA	BOTSWANA
CAF	CENTRAL AFR.R.
CAN	CANADA
CCK	COCOS (KEELING) ISLANDS
CHA	CHANNEL ISLANDS
CHE	SWITZERLAND
CHL	CHILE
CHN	CHINA
CIV	IVORY COAST
CMR	CAMEROON
COG	CONGO
COK	COOK ISLANDS
COL	COLOMBIA
COM	COMOROS
CPV	CAPE VERDE IS.
CRI	COSTA RICA
CUB	CUBA
CXR	CHRISTMAS ISLAND
CYM	CAYMAN ISLANDS
CYP	CYPRUS
CZE	CZECH REPUBLIC
CZS	CZECHOSLOVAKIA
DDR	GERMAN DEMOCRATIC REPUBLIC
DEU	GERMANY, WEST
DJI	DJIBOUTI
DKF	DENMARK (INCLUDES FAEROE ISLANDS)
DMA	DOMINICA
DNK	DENMARK
DOM	DOMINICAN REP.
DRG	GERMANY, EAST

DZA ALGERIA
ECU ECUADOR
EGY EGYPT
ERI ERITREA
ESH WESTERN SAHARA
ESP SPAIN
EST ESTONIA
ETF ETHIOPIA (INCLUDES ERITREA)
ETH ETHIOPIA
FIN FINLAND
FJI FIJI
FLK FALKLAND ISLANDS (MALVINAS)
FRA FRANCE
FRO FAEROE ISLANDS
FSM MICRONESIA
GAB GABON
GBC GUINEA-BISSAU (INCLUDES CAPE VERDE)
GBR U.K.
GEO GEORGIA
GER GERMANY
GHA GHANA
GIB GIBRALTAR
GIN GUINEA
GLP GUADELOUPE
GMB GAMBIA
GNB GUINEA-BISS
GNQ EQUATORIAL GUINEA
GPM GUADELOUPE (INCLUDES MARTINIQUE)
GRC GREECE
GRD GRENADA
GRL GREENLAND
GTM GUATEMALA
GUF FRENCH GUIANA
GUM GUAM
GUY GUYANA
HKG HONG KONG
HND HONDURAS
HRV CROATIA
HTI HAITI
HUN HUNGARY
IDM INDONESIA (INCLUDES MACAU)
IDN INDONESIA
IND INDIA
IOM ISLE OF MAN
IOT BRITISH INDIAN OCEAN TERRITORY
IRL IRELAND
IRN IRAN
IRQ IRAQ
ISL ICELAND
ISR ISRAEL
ITA ITALY
JAM JAMAICA
JOR JORDAN
JPN JAPAN
KAZ KAZAKHSTAN
KEN KENYA
KGZ KYRGYZSTAN
KHM CAMBODIA
KIR KIRIBATI
KIZ KIRIBATI (INCLUDES SOLOMON ISLANDS, TONGA, TUVALU)
KNA ST.KITTS&NEVIS
KOR KOREA, REP.
KWT KUWAIT
LAO LAOS
LBN LEBANON
LBR LIBERIA
LBY LIBYA
LCA ST.LUCIA
LIE LIECHTENSTEIN
LKA SRI LANKA
LSO LESOTHO
LTU LITHUANIA
LUX LUXEMBOURG
LVA LATVIA
LWI KOSOVO
MAC MACAO

MAR	MOROCCO
MAY	MAYOTTE
MCO	MONACO
MDA	MOLDOVA
MDG	MADAGASCAR
MDV	MALDIVES
MEX	MEXICO
MHL	MARSHALL ISLANDS
MKD	MACEDONIA
MLI	MALI
MLT	MALTA
MMR	MYANMAR
MNG	MONGOLIA
MNP	NORTHERN MARIANA ISLANDS
MOZ	MOZAMBIQUE
MRT	MAURITANIA
MSR	MONTSERRAT
MTQ	MARTINIQUE
MUS	MAURITIUS
MWI	MALAWI
MYS	MALAYSIA
NAM	NAMIBIA
NCL	NEW CALEDONIA
NCZ	NEW CALEDONIA (INDLUDES FRENCH POLYNESIA, VANUATU)
NER	NIGER
NFK	NORFOLK ISLAND
NGA	NIGERIA
NIC	NICARAGUA
NIU	NIUE
NLD	NETHERLANDS
NOR	NORWAY
NPL	NEPAL
NRU	NAURU
NZL	NEW ZEALAND
OMN	OMAN
PAK	PAKISTAN
PAL	PALESTINE
PAN	PANAMA
PCI	TRUST TERRITORY OF THE PACIFIC ISLANDS
PCN	PITCAIRN
PER	PERU
PHL	PHILIPPINES
PLW	PALAU
PNG	PAPUA N.GUINEA
POL	POLAND
PRI	PUERTO RICO
PRK	KOREA, DEM. REP.
PRT	PORTUGAL
PRY	PARAGUAY
PYF	FRENCH POLYNESIA
QAT	QATAR
REU	REUNION
ROM	ROMANIA
RUS	U.S.S.R.
RWA	RWANDA
SAU	SAUDI ARABIA
SCG	SERBIA AND MONTENEGRO
SDN	SUDAN
SEN	SENEGAL
SER	SERBIA
SGP	SINGAPORE
SHN	SAINT HELENA
SLB	SOLOMON IS.
SLE	SIERRA LEONE
SLV	EL SALVADOR
SMR	SAN MARINO
SOM	SOMALIA
SPM	SAINT PIERRE AND MIQUELON
STP	SAO TOME AND PRINCIPE
SUR	SURINAME
SVK	SLOVAK REPUBLIC
SVN	SLOVENIA
SWE	SWEDEN
SWZ	SWAZILAND
SYC	SEYCHELLES
SYR	SYRIA
TCA	TURKS AND CAICOS ISLANDS

TCD	CHAD
TGO	TOGO
THA	THAILAND
TJK	TAJIKISTAN
TKL	TOKELAU
TKM	TURKMENISTAN
TMP	TIMOR-LESTE
TON	TONGA
TTO	TRINIDAD&TOBAGO
TUN	TUNISIA
TUR	TURKEY
TUV	TUVALU
TWN	TAIWAN
TZA	TANZANIA
UGA	UGANDA
UKR	UKRAINE
URY	URUGUAY
USA	U.S.A.
UZB	UZBEKISTAN
VCT	ST.VINCENT&GRE
VEN	VENEZUELA
VGB	BRITISH VIRGIN ISLANDS
VIR	VIRGIN ISLANDS (U.S.)
VNM	VIET NAM
VUT	VANUATU
WBG	WEST BANK AND GAZA
WLF	WALLIS AND FORTUNA
WSM	WESTERN SAMOA
YEM	YEMEN
YUG	YUGOSLAVIA
ZAF	SOUTH AFRICA
ZAR	ZAIRE
ZMB	ZAMBIA
ZWE	ZIMBABWE
ZZZ	OTHER TERRITORIES

Map 1- World distribution of log foreign market access, using original NBER-UN database

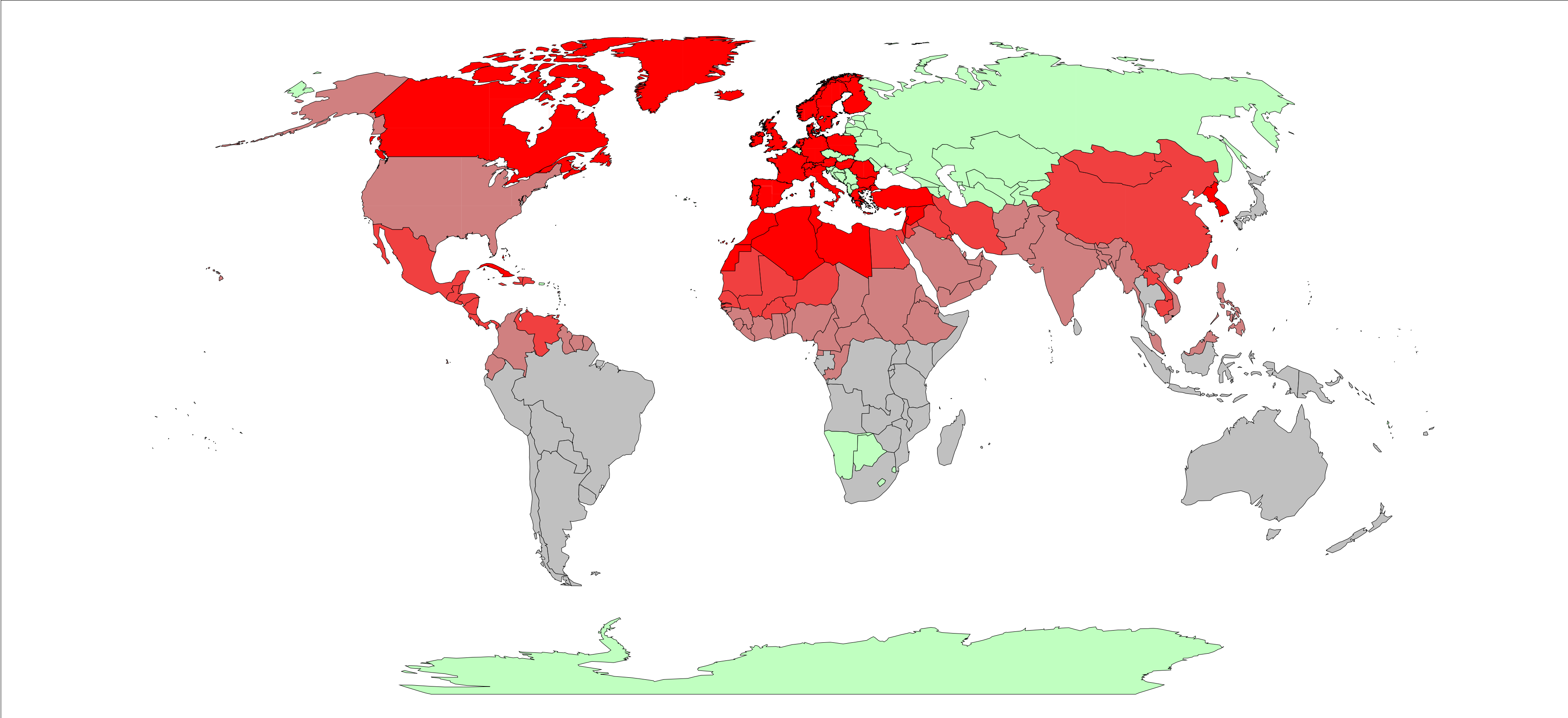


Countries by lfma

11.760.000 to 14.600.000 (43)
11.220.000 to 11.760.000 (41)
10.870.000 to 11.220.000 (43)
10.160.000 to 10.870.000 (45)

Note: Equal count criterion in choosing the range.

Map 2 – World distribution of log foreign market access, using CEP database



Countries by lfmaCEP

- 13.110.000 to 15.380.000 (43)
- 12.710.000 to 13.110.000 (35)
- 12.470.000 to 12.710.000 (41)
- 11.670.000 to 12.470.000 (42)

Note: Equal count criterion in choosing the range.

Tables' robustness checks

Table 1b– Log current price GDP pc 1996, and foreign market access (NBER-UN)

Log GDP pc	(1)	(2)	(3)	(4)	(5)
Obs	95	58	95	27	95
Year	1996	1996	1996	1996	1996
Log MA 1994	.1210 (.0805)	-.2772 (.1718)	.0594 (.0816)	.0155 (.0633)	.0011 (.0685)
Loghydroc pc	.0382*** (.0145)	.0413** (.0179)	.0520*** (.0138)	.0039 (.0119)	.0493*** (.0124)
Arable Land	-.0658 (.0459)	-.0547 (.0695)	-.0581 (.0422)	-.0596* (.0341)	-.0510 (.0420)
N minerals	.0038 (.0101)	.0077 (.0112)	.0043 (.0103)	.0020 (.0094)	.0047 (.0076)
% Tropics	-.2506 (.2006)	-.4165*** (.1460)	-.4021* (.2027)	.1532 (.2655)	.0778 (.1494)
Malaria 1994	-1.145*** (.2156)	-1.412*** (.2382)	-.7723*** (.2198)	-2.182*** (.2258)	-1.056*** (.1833)
Property right	-.4466*** (.0810)	-	-	-	-.1776** (.0823)
Risk exprop	-	.1973*** (.0470)	-	-	-
Econ Free	-	-	-.8120*** (.1450)	-.7566*** (.1695)	-
Socialist	-.1242 (.1774)	-.0575 (.2332)	-.0313 (.2060)	(dropped)	-
War dummy	-.0377 (.1585)	-.0692 (.1614)	-.1220 (.1742)	(dropped)	-
Trust	-	-	-	.0167*** (.0051)	-
Gvt Effective	-	-	-	-	.5101*** (.0862)
Estimation	OLS	OLS	OLS	OLS	OLS
R^2	.7833	.7152	.7982	.9321	.8433
F(.)	48.07	16.99	50.00	80.63	65.07
Prob>F	.0000	.0000	.0000	.0000	.0000

Constant not shown. Heteroskedasticity corrected White-robust standard errors in parentheses. *Statistically significant at the 90% level. **Statistically significant at the 95% level. ***Statistically significant at the 99% level.

Note: Updating the log GDP per capita from Penn World Table 6.1 to the new version 6.2 adds just one more observation into the operative sample. Given that the results are very similar in any case, the use of Penn World Table 6.1 GDP data is preferred for consistency.

Table 2b – Log of current price real GDP pc 1996 (PWT 6.1), Market Access (NBER-UN), and Governance Matters V

LogGDPpc	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Obs	95	95	95	95	95	93	93
Year	1996	1996	1996	1996	1996	1996	1996
LogTMA94	.0104	.0594	.0013	.0617	.0400	.0217	-.00003†
	(.0769)	(.0761)	(.0685)	(.0790)	(.0835)	(.0798)	(.0754)
Lhydroc pc	.0542***	.0463***	.0493***	.0534***	.0500***	.0461***	.0500***
	(.0136)	(.0135)	(.0124)	(.0141)	(.0147)	(.0130)	(.0142)
Arabl Land	-.0683	-.0760	-.0510	-.0722	-.0734	-.0533	-.0384
	(.0431)	(.0441)	(.0420)	(.0418)	(.0447)	(.0417)	(.0400)
N minerals	.0033	.0070	.0047	.0024	.0014	.0082	.0036
	(.0090)	(.0089)	(.0076)	(.0100)	(.0098)	(.0082)	(.0081)
% Tropics	-.1644	-.1686	.0778	-.3200	-.2440	.0663	.1074
	(.1680)	(.1776)	(.1494)	(.1673)	(.1658)	(.1498)	(.1718)
Malaria 94	-1.039***	-1.093***	-1.056***	-.7624***	-1.058***	-1.070***	-1.041***
	(.1903)	(.2016)	(.1833)	(.2171)	(.1966)	(.1872)	(.2403)
Property R	-.3235***	-.3720 ***	-.1776**	-.2189**	-.3658***	-.2506***	-.1344
	(.0831)	(.0693)	(.0823)	(.0888)	(.0815)	(.0789)	(.0835)
Voice	.3351***	-	-	-	-	-	.0281
	(.0790)						(.1892)
Pol stability	-	.2377***	-	-	-	-	.0781
		(.0747)					(.0832)
Gvt Effect	-	-	.5101***	-	-	-	.4775***
			(.0862)				(.1597)
Regulatory	-	-	-	.4965***	-	-	.0400
				(.1157)			(.1872)
Rule ofLaw	-	-	-	-	.2342**	-	-.0133
					(.0908)		(.1370)
Contrl corr	-	-	-	-	-	.4074***	-.0068
						(.0762)	(.1404)
Estimation	OLS	OLS	OLS	OLS	OLS	OLS	OLS
R^2	.8104	.8033	.8433	.8132	.7972	.8246	.8509
F(.)	66.13	60.06	65.09	63.97	50.66	58.11	50.61
Prob>F	.0000	.0000	.0000	.0000	.0000	.0000	.0000

Constant not shown. Heteroskedasticity corrected White-robust standard errors in parentheses. *Statistically significant at the 90% level. **Statistically significant at the 95% level. ***Statistically significant at the 99% level. †5 significant ciphers instead of the regular 4 allowed.

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