Interdependence of preferential trade agreements in Latin America

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Abstract

The aim of this paper is to identify the main sources of interdependence that have taken place in Latin America and that may have influenced the signing of a high number of PTAs in this region. That is, we study empirically whether the signing of a new preferential trade agreement or the expansion of existing ones creates incentives for other countries or pairs of countries in the region to join or form new PTAs.

To achieve this goal we are going to apply two empirical strategies: on the one hand, the one used by Egger and Larch (2008) and Baldwin and Jaimovich (2012) and on the other, the one applied by Baier, Bergstrand and Mariutto (2014). A probit is estimated in both strategies, as the dependent variable reflects the existence or absence of an agreement between a given pair of countries. To predict both, PTA membership levels and changes, the two methodologies use panel data where the explanatory variables are lagged to avoid a bias associated with feedback effects.

Keywords: Preferential Trade Agreements, Domino Effect, Panel Data, Spatial Econometrics, Own PTA Effect, Cross PTA Effect

JEL Code: F14, F15

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I- Introduction

The last three decades have witnessed an undeniable contrast in the world trade system. While multilateral talks at the World Trade Organization level have been stalled for years, global economy has become increasingly integrated through a growing number of Preferential Trade

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Agreements (PTAs). Such behavior, known as regionalism, has drawn the attention of international trade specialized economists and has produced a literature of theoretical and empirical models that seek to explain why countries sign PTAs. A common feature of these theoretical models is the recognition that countries make decisions about PTA participation taking into account other countries' actions rather than in isolation. Baldwin's Domino theory of regionalism stresses that trade diversion resulting from the signing or deepening of one PTA triggers political economy forces in excluded nations. In fact, these countries may seek to sign PTAs as a means of offsetting this negative effect.

Although the concept of PTA domino effect or interdependence exists since Baldwin (1995), the empirical literature quantifying its importance is rather scarce. Egger and Larch (2008), hereinafter EL, have examined the determinants of bilateral PTA formation emphasizing the impact of pre-existing PTAs; they have also considered whether this impact is larger when the members of pre-existing PTAs are geographically close to the pair of countries involved. In turn, Baldwin and Jaimovich (2012), hereinafter BJ, have proposed to test the domino effect empirically using a measure of contagion theory, by calculating an index that considers bilateral exports related to total exports, thus capturing the spatial dependence in a different way. Last but not least, Baier, Bergstrand and Mariutto (2014), hereinafter BBM, have deeply searched into the PTA interdependence sources and have identified an "own PTA" effect and a "cross PTA" effect. The former refers to the impact of a PTA between two countries owing to either of them already having other PTAs; the latter measures the impact of a PTA between the pair of countries owing to other PTAs existing in the rest of the world (third country-pair effect).

Although the three studies mentioned have thrown light into the field of PTA domino effect or interdependence, their conclusions cannot necessarily be extended to a particular region such as Latin America. Given the fact that North-North trade represents a very important part of the world exports, the study of the case of a region that has little participation in global trade (around 6%) becomes necessary. In this line, Florensa et al. (2014, 2015) have found that, in Latin America, PTAs effects on intensive and extensive trade margins as well as the effect of institutional variables and the quality of trade agreements are noticeably different from those found for the whole world.

The aim of this paper is to focus on Latin America to identify the main sources of interdependence that may have influenced the signing of a large number of PTAs over the period. In other words, we aim to study empirically whether the signing of a new preferential

trade agreement or the expansion of existing ones leads other countries or pairs of countries in the region to join or form new PTAs.

The present study focuses exclusively on Latin America and aims to test: a) whether the results differ when such a region is analyzed; b) whether the results are robust to the different ways of measuring interdependence; and c) whether the own effect is more important than the cross effect at Latin America level.

As regards the methodology of the study, two empirical strategies, the one used by EL and BJ and the chosen one by BBM, will be applied. A probit is estimated in both strategies as the dependent variable reflects the existence or absence of an agreement between a given pair of countries. To predict both PTA membership levels and changes, the two methodologies use panel data where the explanatory variables are lagged to avoid a bias associated with feedback effects. Even though both methodologies control for several economic and political determinants of PTAs formation as in Baier and Bergstrand (2004), these methodologies differ in the way of detecting the existence of interdependence in the formation of trade agreements. EL and BJ, motivated by the domino effect, use spatial econometrics to implement spatial delay to accommodate the contagion effect, whereas BBM construct two indices, called multilateral PTA and Rest of the World PTA, to test the existence of interdependence in the formation and/or enlargement of trade agreements.

The paper is organized as follows: After the introduction, Section II reviews the relevant literature; Section III describes the empirical strategy; Section IV presents the main results and Section V concludes.

II- Previous literature

One of the first studies on the determinants of PTA formation is Baier and Berstrand (2004). Using cross-section data, the study considers only economic determinants (distance, remoteness, country size, language). Among authors who go beyond geographical and economic determinants, we can mention Mansfield et.al. (2002) which holds that pairs of democratic countries are more likely to sign PTAs. Similar results were obtained by Wu (2004), who analyzed 102 regional trade agreements signed between 1965 and 1995, and Florensa et.al (2015), in the case of Latin American countries.

However, the interdependence in PTA's formation and enlargement has had little empirical treatment. The three main contributions in this field are Egger and Larch (2008), Baldwin and Jaimovich (2012) and Baier, Bergstrand and Mariutto (2014).

EL propose an empirical model which allows for interdependence in country pairs' decisions about funding new PTAs and/or joining existing ones. In fact, the study's main goal is to identify the role played by interdependence on countries' decisions given the economic fundamentals. The authors analyzed two large samples of data, a panel data-set of country-pairs in the period 1955-2005 and a cross-sectional data-set for the year 2005, and test three hypotheses: a) The signing of PTAs constitutes an incentive for an outsider country-pair to join an existing PTA; b) There is a similar incentive to found a PTA in response; c) The interdependence among PTA memberships declines in the distance to foreign PTAs due to a lower associated trade diversion. EL trace the history of PTA formation in Europe (European Union) and North America (North American Free Trade Agreement, NAFTA) and conclude that interdependence is highly relevant to predict (ex-post) EU foundation and enlargement, and less important for explaining trade liberalization among NAFTA members.

BJ's main empirical contribution is the construction of a "model-based contagion index" which measures whether the signing of a PTA between two countries changes a third country's interest in signing a new PTA with any of them. By "contagion", it is meant that a government that initially opposes a particular trade agreement, changes its mind due to a trade agreement signed by other nations. These authors present a political economy model that parsimoniously captures four features they believe influence policy makers' decisions: a) some PTA are "political" because they are signed for non-economic reasons; b) many PTAs are "defensive" because they could have been signed to offset discrimination created by PTAs among their trade partners; c) governments sometimes exaggerate the firms' interests when implementing economic policies thus showing a mercantilist attitude, and d) PTAs' signing takes a rather long time.

The first feature is captured by introducing bilateral political parameters that measure the political cost or benefit of signing a PTA. The second feature is captured by the often-observed "loser´s paradox"; to capture the third one, BJ agrees with Krishna (1998) in the fact that governments care only about their firms' profits when considering trade policies' economic impact; finally, countries take their time to negotiate few PTAs at a time. In fact, BJ capture it parsimoniously by assuming that each nation can only sign one PTA per period.

The empirical specification seeks to identify the variables that affect the probability that a PTA will be signed by considering the possibility that contagion plays a role. A dummy as the dependent variable will reflect the existence or non-existence of a PTA; the main explanatory variables are the Contagion Index and controls for several economic, institutional and

geographic determinants of PTAs. Panel data is used following Mansfield and Reinhardt (2003) and Egger and Larch (2008). Following Baier and Bergstrand (2004), BJ includes the traditional gravity geographical and economic variables. Their main finding is that contagion is present in their data and it is robust to various specifications, samples, even considering the inclusion of economic and political controls.

BBM goes deeper into the sources of interdependence distinguishing an "own-PTA" effect and a "cross-PTA" effect. The first one is defined as the impact on the net welfare gains of a PTA between two countries owing to either already having other PTAs; the cross-PTA effect is the impact on the net welfare gains of a PTA between the pair owing to other PTAs existing in the rest of the world (ROW). BBM formulate and estimate a parsimonious logit model to predict the probability of two countries having an PTA as a function of pair of countries GDP sizes, GDP similarities, bilateral distance, remoteness and additionally "multilateral and ROW PTA indexes" to capture the own-PTA and cross-PTA effects, respectively. Their approach is simpler than using spatial econometrics. Their results suggest that own-PTA effects (domino) have exceeded cross-PTA effects (competitive liberalization) during the proliferation of PTAs process due to two reasons: in the first place, own-PTA (cross-PTA) effects reflect positive (negative) terms-of-trade effects that tend to increase (decrease) the net utility gains from PTA and, in the second place, own PTA effects additionally include a role for "tariff-complementarity" which increase the net utility gains from PTA, and which cross-PTA effects do not have.

III- Empirical strategy

The empirical strategy requires firstly the statement of the different definitions of interdependence that will be used in this study; secondly, the selection of the econometric specification and, finally; the definition of the explanatory variables and data sources.

III- 1) Interdependence in a panel data framework

BBM consider three indexes to estimate the influence on the likelihood of a particular country-pair *ij* forming an PTA of other PTAs: the first two involve each of *i*'s and *j*'s other PTAs named as own-PTA effects and an index of all PTAs other than those with *i* or *j,* referred to as cross-PTA effects.

Based on these considerations, and assuming N countries, they define the following multilateral index:

$$OwnPTA_i = \sum_{k \neq j}^{N} PTA_{ik} \qquad (1)$$

where PTA_{ik} is a binary variable assuming the value 1 if *i* and *k* have an PTA , and 0 otherwise. This is i's own-PTA effect. Analogously, they define for *j* its own-PTA effect:

$$OwnPTA_j = \sum_{h \neq i}^{N} PTA_{hj} \quad (2)$$

Finally, the cross-PTA index for country-pair *ij* is defined as

$$CrossPTA_{ij} = \sum_{h \neq i,j}^{N} \sum_{k \neq i,j}^{N} PTA_{hk} \quad (3)$$

That is to say, to estimate the marginal impacts on the probability of a PTA between countries *i* and *j* it is taken into account the count of *i*'s PTAs with other (non-*j*) countries, the count of *j*'s PTAs with other (non-*i*) countries and the count of all PTAs in the world that exclude *i* and *j.*

In turn, EL and BJ use an interdependence measure coming from the spatial dependence literature for dyadic data. In this setting, dependence is modeled as a weighted sum of PTAs involving other pairs of countries.

In particular, EL define interdependence for country-pair *ij* as:

$$Interdependence_{ij} = \sum_{hk \in \Omega_{ij}} w_{hk} \, PTA_{hk} \quad (4)$$

where Ω_{ij} is the set of all country-pairs *hk* having PTA satisfying the condition *hk≠ij.* The connectivity elements w_{hk} are defined in the following way:

$$w_{hk} = \begin{cases} e^{-D_{hk}/500} & if \quad D_{hk} < 2000 \\ 0 & if \quad D_{hk} \geq 2000 \end{cases} \quad (5)$$

where $D_{hk} = \sum_{l \in \{i,j\}} \sum_{m \in \{h,k\}} distance_{lm}$ .The variable $distance_{lm}$ measure the great circle distance between *lm*-trade-partner's capitals. Like the new literature on trade models, EL assume that interdependence should be a decreasing function of trade costs. Therefore, they hypothesize that the elements w_{hk} are inversely related to the distance (proxy of trade costs) between country-pairs *ij* and *hk*. They use an upper bound value for distance equal to 2000 km to avoid problems related with a large memory requirement for elements that are close to cero anyway. Additionally, they divide D_{hk} by 500 to ensure that the decay of interdependence be slow enough.

In contrast, BJ obtained a theoretically motivated rather than an ad-hoc interdependence measure, called contagion index, define as follows:

$$Contagion_{ij} \equiv \sum_{k \in \Omega_j} \left(\frac{bilateral\ exports_{ij}}{total\ exports_i}\right)\left(\frac{bilateral\ exports_{kj}}{total\ imports_j}\right) PTA_{jk} \qquad (6)$$

Where $Contagion_{ij}$ is the contagion effect from nation-*j*'s PTAs on *i*-nation and Ω_j is the set of nations with which nation-*j* has a PTA. It is expected that the more important country-*j* is in nation-*i*'s export pattern the greater nation-*i*'s concern will be over discrimination in nation-*j* , and the larger is the share of nation-*i*'s competitor in market-*j* the larger will be the negative effect on country-*i* of the PTA between this competitor and nation-*j.*

Another remarkable difference between the EL interdependence variable and the BJ variable is that $Contagion_{ij}$ tends to be different from $Contagion_{ji}$ (except when both are zero) thus reflecting the fact that the negative effect of trade diversion will be different for each nation in the dyad. Instead, $Interdependence_{ij}$ will be always equal to $Interdependence_{ji,t}$.

III-b) Econometric specification

Given the dynamic nature of the interdependence effect, the starting point is McFadden's (1975, 1976) framework of qualitative choice analysis, in a panel data setting. Following Wooldridge (2002), let PTA^*_{ijt} denote an unobservable (or latent variable) representing the percentage difference in utility levels from an action (in our case the signing of a PTA) between countries *i* and *j* in year *t*:

$$PTA^*_{ijt} = x_{ijt}\beta + \epsilon_{ijt} \qquad (7)$$

where, x_{ijt} is a vector of explanatory variables (i.e. economic fundamentals, political factors, etc.), β is a vector of parameters and ϵ_{ijt} is the error term (it is assumed to be independent of x_{ijt}). In this model $PTA^*_{ijt} = \min(\Delta U_{it}, \Delta U_{jt})$, where $\Delta U_{i(j)t}$ is the percentage change in utility for the representative consumer in country *i*(*j*) in year *t*. This specification implies both countries' consumers need to benefit from an PTA for their governments to sign one.

Since PTA^*_{ijt} is unobservable, an indicator variable PTA_{ijt} is defined, which assumes the value 1 if two countries have a PTA in year *t* and 0 otherwise. The probability this variable is 1 is defined as:

$$\Pr(PTA_{ijt} = 1) = \Pr(y^*_{ijt} > 0) = \Phi(x_{ijt}\beta) \qquad (8)$$

where $\Phi(\cdot)$ is the normal cumulative distribution function, ensuring that $\Pr(PTA_{ij} = 1)$ is between 0 and 1.

With panel data, lags of the explanatory variables are generally used on the right-hand side to avoid a parameter bias associated with feedback effects of new PTAs in the future on ones in the past. Additionally, we follow Chamberlain(1980) and Wooldridge (2002) by including time-meaned fixed effects in probit equations, as a way to control for time-invariant unobserved heterogeneity and avoiding the incidental parameters problem presented in fixed effects probit analysis.

Then, we propose the following econometric specifications:

$$\begin{aligned} PTA^*_{ijt} &= \rho_1 OwnPTA_{it-5} + \rho_2 OwnPTA_{jt-5} + \rho_3 CrossPTA_{ijt-5} + x_{ijt-5}\beta_1 \\ &+ \overline{\rho_1}\,\overline{OwnPTA_i} + \overline{\rho_2}\,\overline{OwnPTA_j} + \overline{\rho_3}\,\overline{CrossPTA_{ij}} + \overline{x_{ij}}\,\overline{\beta_1} + \epsilon_{ijt} \end{aligned} \quad (9)$$

$$PTA^*_{ijt} = \rho Interdependence_{ijt-5} + x_{ijt-5}\beta_1 + \overline{\rho}\,\overline{Interdependence_{ij}} + \overline{x_{ij}}\,\overline{\beta_1} + \epsilon_{ijt} \quad (10)$$

$$PTA^*_{ijt} = \rho Contagion_{ijt-5} + x_{ijt-5}\beta_1 + \overline{\rho}\,\overline{Contagion_{ij}} + \overline{x_{ij}}\,\overline{\beta_1} + \epsilon_{ijt} \quad (11)$$

to apply BBM, EL and BJ interdependence methodologies respectively. Bars indicate time average variables and the corresponding parameters. In these three methodologies $PTA_{ijt} = 1\left[PTA^*_{ijt} > 0\right]$.

III-c) Variables and data sources

In this study, we rely on variables that are similar to those of Baier and Bergstrand (2004). The authors show the importance of gravity-like variables as well as different measures of dissimilarity of economic sizes. To control for these influences, we choose the same variables as in BJ: the sum of the logs of real GDP (GDP Sum), the absolute value of the difference in the logs of real GDP of countries in the dyad (GDP Difference) and the absolute value of the log difference in real GDP per capita[2] (GDPpc Difference). We expect that the larger and more similar the economic sizes of a pair of countries, the higher the net welfare gain from a PTA between them.

We also take into account political determinants. Political distance is defined as the absolute difference in the Polity 4 Index[3] of countries in the dyad. We expect that countries with similar political regimes will be more prone to sign agreements. We include in the BJ specification a

[2] GDPpc Difference is a proxy of the difference in factor endowments.

[3] Polity 4 is an index that ranges from -10 to 10 and it is increasing in democratic level.

dummy variable, democracy, which is equal to 1 if the exporting country has a positive level in the Polity 4 index.

The variables GDP Growth and the relative real GDP growth (with respect to the average) are included as a way to test that economic crisis may promote trade reforms.

Nominal bilateral trade flows are from the World Bank's World Integrated Trade Solution (WITS)[4]. Real Gross Domestic Product and Populations are from World Bank's World Development Indicators[5]. Polity 4 Index is from Center for Systemic Peace[6].

For the dependent variable, data on PTAs comes from the Baier and Bergstrand database which contains the list of economic integration agreements that have been notified to the World Trade Organization between 1950 and 2015. This database lists 6 different types of economic integration agreements: One-way or Non-Reciprocal Preferential Trade Agreements (NRPTA), Two-way or Preferential Trade Agreements (PTA), Free Trade Areas (FTA), Customs Unions CU), Common Markets (CM) and Economic Unions (EU)[7]. We exclude one-way and two-way preferential trade agreements because they involved only partial liberalization, not "free" trade, so the variable PTA for a *ij*-country-pair is equal to 1 in the case of an FTA, CU, CM and EU and zero otherwise.

In this work, we consider 186 countries arranged in dyads, in such a way that at least one of them is a founding country of the Latin America Integration Association, LAIA[8] (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay and Venezuela). The Annex contains the list of countries and the absolute frequency statistics for the different specifications.

Due to lack of comprehensive data on our right hand side variables, the number of available observations for the BBM and EL regressions is 8,241 and 15,802 for the BJ specification. The period considered is 1962-2015.

IV. Main Results

The main results of our empirical work are presented in Table 1. Column 1 presents the results from BBM specification given by equation (9); column 2 shows the estimates coming from EL

[4] http://wits.worldbank.org/
[5] http://datos.bancomundial.org/
[6] http://www.systemicpeace.org/inscrdata.html
[7] Latin American countries have not signed CM or EU.
[8] The sample includes 1980 country-pairs.

specification (equation (10)), and column 3 shows the results from BJ specification, given by equation (11).

We obtain a positive coefficient on the different measures of interdependence in PTA formation that are significant at the 1% level except in the case of BBM's Own-Pta for country i. Column 1 shows that the own effect for country j is larger than Cross effect as BBM predicted. This is due to the fact that Own-PTA effects reflect bigger positive terms-of-trade and tariff-complementarity that tend to increase net utility gains from a PTA, than the included in Cross-PTA effects. The positive coefficient obtained for the interdependence variable means that memberships in year t-5 exert a positive impact on the probability of other memberships to take place in year t. Finally, the coefficient on contagion variable is also positive, showing there is robust evidence in favor of interdependence in Latin America PTA formation.

In terms of dyad level, GDP Sum is positive, as expected, and is significant under all specifications; however, GDP Difference and GDPpc Difference were not significant. These later results are similar to those found by BJ, who also obtained non robust estimates. Regarding Political Distance, we find that similarity in political regimes encourages PTAs, because the coefficient is always negative and significant.

For the economic country level variables, GDP Growth and GDP Relative Growth show the expected sign but only GDP Relative Growth is statistically significant showing the importance of economic cycle in the probability of PTA formation. Finally, Democracy is positive and significant which confirm the role that political regime plays in memberships.

Table 1: Regression Results

	Chamberlain's random effects probit model		
	BBM	EL	BJ
	(1)	(2)	(3)
Own-pta(i)	-0.022		
	(0.030)		
Own-pta(j)	0.132 ***		
	(0.051)		
Cross-pta	0.069 ***		
	(0.017)		
Interdependence		1.494 ***	
		(0.575)	
Contagion			1.517 ***
			(0.151)
GDP Sum	1.895 ***	1.193 ***	1.219 ***
	(0.668)	(0.088)	(0.076)
GDP Difference	0.192	0.000	-0.034
	(0.699)	(0.186)	(0.139)
GDPpc Difference	0.063	-0.049	-0.025
	(0.790)	(0.182)	(0.138)
Political Distance	-0.077 ***	-0.053 ***	-0.030 ***
	(0.023)	(0.013)	(0.010)
Democracy			1.106 ***
			(0.262)
GDP Growth			-0.234
			(0.913)
GDP Relative Growth			-0.021 ***
			(0.008)

Notes: ***, **, * indicate significance at 1, 5 and 10%, respectively. Standard errors are in parentheses.

V-Concluding remarks

The acknowledgement that countries make decisions about PTA participation taking into account other countries' actions has given rise to the study of the determinants of such behavior, which is known in the literature as interdependence in trade agreements formation. In this sense, this paper seeks to obtain empirical evidence using data from trade agreements signed in Latin America in the period 1962-2015. In order to do that and following Baier, Bergstrand and Mariutto (2014); Baldwin and Jaimovich (2012) and Egger and Larch (2008) we have employed a model for discrete choice panel data using a set of economic and political variables as control.

In line with previous studies, the results obtained provide robust evidence about the existence of interdependence in Latin American PTA memberships; however, the own- PTA effect is only significant for one of the countries in the dyad (Own-PTA (i)). Besides, estimates show that economic and political factors are important when countries decide to sign preferential trade agreements whereas differences in size or factor endowments do not seem to exert an influence.

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Annex: Countries and absolute frequency statistics

Bergstrand		Egger and Larch		Baldwin and Jaimovich	
Country	**Freq.**	**Country**	**Freq.**	**Country**	**Freq.**
Albania	2.770	Albania	3.803	Albania	3.571
Algeria	4.937	Algeria	5.066	Algeria	4.888
Argentina	4.783	Argentina	5.076	Argentina	4.898
Armenia	2.125	Armenia	2.664	Armenia	2.563
Australia	4.937	Australia	5.076	Australia	4.898
Austria	4.937	Austria	5.076	Austria	4.898
Azerbaijan	2.125	Azerbaijan	2.664	Azerbaijan	2.563
Bahrain	3.177	Bahrain	3.803	Bahrain	3.571
Bangladesh	4.937	Bangladesh	4.598	Bangladesh	4.355
Belarus	2.125	Belarus	2.664	Belarus	2.563
Belgium	4.937	Belgium	5.076	Belgium	4.975
Benin	4.937	Benin	5.066	Benin	4.687
Bolivia	4.937	Bolivia	5.076	Bolivia	4.898
Botswana	4.937	Botswana	4.984	Botswana	4.619
Brazil	4.937	Brazil	5.076	Brazil	4.898
Bulgaria	3.177	Bulgaria	3.803	Bulgaria	3.571
Burkina Faso	4.937	Burkina Faso	5.066	Burkina Faso	4.888
Burundi	4.937	Burundi	5.066	Burundi	4.687
Cambodia	2.575	Cambodia	2.415	Cambodia	2.194
Cameroon	4.937	Cameroon	5.066	Cameroon	4.888
Canada	4.937	Canada	5.076	Canada	4.898
Cape Verde	3.177	Cape Verde	3.803	Cape Verde	3.370
Chad	4.937	Chad	5.066	Chad	4.687
Chile	4.937	Chile	5.076	Chile	4.898
China	4.937	China	5.066	China	4.888
Colombia	4.937	Colombia	5.076	Colombia	4.898
Comoros	3.177	Comoros	3.803	Comoros	3.370
Costa Rica	4.937	Costa Rica	5.076	Costa Rica	4.898
Croatia	1.484	Croatia	2.161	Croatia	1.941
Cuba	4.106	Cuba	4.679	Cuba	4.234
Czech Republic	2.125	Czech Republic	2.415	Czech Republic	2.319
Denmark	4.937	Denmark	5.076	Denmark	4.898
Djibouti	2.562	Djibouti	2.775	Djibouti	2.362
Ecuador	4.937	Ecuador	5.076	Ecuador	4.898
Egypt	4.544	Egypt	5.076	Egypt	4.829
El Salvador	4.544	El Salvador	5.076	El Salvador	4.628
Equatorial Guinea	4.413	Equatorial Guinea	3.803	Equatorial Guinea	3.370
Eritrea	1.872	Eritrea	2.540	Eritrea	2.319
Estonia	1.484	Estonia	2.161	Estonia	1.941

Finland	4.937	Finland	5.076	Finland	4.898
France	4.937	France	5.076	France	5.117
Gabon	4.937	Gabon	5.066	Gabon	4.687
Gambia	4.460	Gambia	4.994	Gambia	4.546
Georgia	2.125	Georgia	2.664	Georgia	2.563
Germany	4.106	Germany	4.684	Germany	2.668
Ghana	4.937	Ghana	5.066	Ghana	4.888
Greece	4.937	Greece	5.076	Greece	4.898
Guatemala	4.937	Guatemala	5.076	Guatemala	4.898
Guinea	2.560	Guinea	3.196	Guinea	2.775
Guinea-Bissau	4.106	Guinea-Bissau	4.679	Guinea-Bissau	3.983
Haiti	1.999	Haiti	1.762	Haiti	1.344
Honduras	4.937	Honduras	5.076	Honduras	4.697
Hungary	1.999	Hungary	2.664	Hungary	2.442
India	4.937	India	5.076	India	4.898
Indonesia	4.374	Indonesia	5.066	Indonesia	4.888
Iran	4.470	Iran	5.066	Iran	4.888
Iraq	2.156	Iraq	4.839	Iraq	3.687
Ireland	4.937	Ireland	4.684	Ireland	4.439
Israel	4.937	Israel	5.066	Israel	4.888
Italy	4.937	Italy	5.076	Italy	4.898
Ivory Coast	4.937	Ivory Coast	5.066	Ivory Coast	4.888
Jamaica	4.937	Jamaica	5.003	Jamaica	4.755
Japan	4.937	Japan	5.076	Japan	4.898
Jordan	4.544	Jordan	4.250	Jordan	4.013
Kazakhstan	2.125	Kazakhstan	2.664	Kazakhstan	2.563
Kenya	4.937	Kenya	5.066	Kenya	4.888
Kuwait	4.544	Kuwait	2.161	Kuwait	2.068
Kyrgyzstan	2.125	Kyrgyzstan	2.664	Kyrgyzstan	2.563
Laos	2.770	Laos	3.402	Laos	2.977
Latvia	1.484	Latvia	2.161	Latvia	1.941
Lebanon	2.348	Lebanon	2.988	Lebanon	643
Lesotho	4.937	Lesotho	4.984	Lesotho	4.619
Liberia	4.937	Liberia	5.066	Liberia	4.687
Libya	2.125	Libya	1.628	Libya	1.211
Lithuania	1.484	Lithuania	2.161	Lithuania	1.941
Macedonia	2.125	Macedonia	2.664	Macedonia	2.563
Madagascar	4.937	Madagascar	5.066	Madagascar	4.888
Malawi	4.937	Malawi	5.066	Malawi	4.888
Malaysia	4.937	Malaysia	5.066	Malaysia	4.888
Mali	4.374	Mali	4.917	Mali	4.671
Mauritania	4.937	Mauritania	5.066	Mauritania	4.687
Mauritius	3.551	Mauritius	4.162	Mauritius	3.725

Mexico	4.937	Mexico	5.076	Mexico	4.898
Moldova	2.125	Moldova	2.664	Moldova	2.563
Mongolia	3.076	Mongolia	3.704	Mongolia	3.273
Morocco	4.937	Morocco	4.994	Morocco	4.747
Mozambique	3.177	Mozambique	3.803	Mozambique	3.571
Namibia	3.177	Namibia	3.773	Namibia	2.467
Nepal	4.937	Nepal	5.066	Nepal	4.687
Netherlands	4.937	Netherlands	5.076	Netherlands	4.898
New Zealand	4.761	New Zealand	4.073	New Zealand	3.838
Nicaragua	4.937	Nicaragua	5.076	Nicaragua	4.697
Niger	4.937	Niger	5.066	Niger	4.888
Nigeria	4.937	Nigeria	5.066	Nigeria	4.888
Norway	4.937	Norway	5.076	Norway	4.898
Oman	4.544	Oman	5.066	Oman	4.888
Pakistan	4.937	Pakistan	5.066	Pakistan	4.888
Panama	4.937	Panama	5.076	Panama	4.697
Paraguay	4.544	Paraguay	5.076	Paraguay	4.697
Peru	4.937	Peru	5.076	Peru	4.898
Philippines	4.937	Philippines	5.076	Philippines	4.898
Poland	2.125	Poland	2.775	Poland	2.563
Portugal	4.937	Portugal	5.076	Portugal	4.898
Qatar	4.106	Qatar	1.493	Qatar	1.278
Romania	2.456	Romania	2.775	Romania	2.563
Russia	2.237	Russia	2.882	Russia	2.442
Rwanda	4.937	Rwanda	5.066	Rwanda	4.687
Saudi Arabia	4.286	Saudi Arabia	4.839	Saudi Arabia	4.594
Senegal	4.937	Senegal	5.066	Senegal	4.888
Sierra Leone	4.937	Sierra Leone	5.066	Sierra Leone	4.687
Singapore	4.937	Singapore	5.066	Singapore	4.888
Slovenia	1.484	Slovenia	2.161	Slovenia	1.941
Spain	4.937	Spain	5.076	Spain	4.898
Sri Lanka	4.937	Sri Lanka	5.066	Sri Lanka	4.888
Sudan	4.937	Sudan	5.066	Sudan	4.888
Swaziland	4.937	Swaziland	4.669	Swaziland	4.234
Sweden	4.937	Sweden	5.076	Sweden	4.898
Switzerland	3.570	Switzerland	3.803	Switzerland	3.571
Syria	4.533	Syria	4.661	Syria	4.553
Tajikistan	2.125	Tajikistan	2.664	Tajikistan	2.563
Tanzania	2.348	Tanzania	2.988	Tanzania	2.772
Thailand	4.937	Thailand	4.603	Thailand	4.442
Togo	4.937	Togo	5.066	Togo	4.687
Trinidad and Tobago	4.937	Trinidad and Tobago	5.066	Trinidad and Tobago	4.687
Tunisia	4.544	Tunisia	5.066	Tunisia	4.820

Turkmenistan	2.456	Turkmenistan	2.664	Turkmenistan	2.563
UK	4.937	UK	5.066	UK	4.965
USA	4.937	USA	5.066	USA	4.953
Uganda	4.937	Uganda	3.604	Uganda	3.376
Ukraine	2.456	Ukraine	2.664	Ukraine	2.563
Uruguay	4.937	Uruguay	5.066	Uruguay	4.888
Uzbekistan	2.125	Uzbekistan	2.664	Uzbekistan	2.563
Venezuela	4.937	Venezuela	5.066	Venezuela	4.888
Vietnam	2.666	Vietnam	3.402	Vietnam	3.178
Yemen	2.125	Yemen	2.775	Yemen	2.563
Zambia	4.937	Zambia	5.066	Zambia	4.888
Zimbabwe	4.937	Zimbabwe	5.066	Zimbabwe	4.515