

The trade-development nexus and cross-sections : don't throw out the baby with the bathwater

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1.- The aim of the paper

↳ The trade-development nexus is a crucial question for the conduct of economic policies in the developing countries and Sub-Saharan African countries.

↳ However, there is no consensus about the answer one should give to the following question :

◆ is trade openness good for growth and development ?

↳ The answer to this question is ambiguous :

◆ historical experience (differences among continents)

◆ controversies raised by Rodrik and Rodriguez about the positive or negative links found in some papers.

↳ Criticisms address several issues:

◆ Measures of openness are not always appropriate

◆ Methodological problems (which estimators?)

◆ Problems with data

↳ Concerning the issue of data, several authors have pointed out the limits of cross sections

- ◆ selectivity biases (the conclusions vary with the countries included in the sample)

- ◆ heterogeneity : the trade-growth or trade-development nexus vary across countries

- ◆ dynamic effects not considered

↳ Accordingly, other approaches have been proposed (panel data, nonparametric methods, etc...)

This paper argues that :

- when conveniently used, cross-sections can help us to examine the trade-development nexus.

↳ We apply an estimator based on quantile regressions.

Advantages :

- ◆ help to deal with the heterogeneity problem and avoids selectivity bias,

- ◆ allows to consider a trade-development nexus that vary across countries according to their degree of openness and level of per-capita income.

The presentation is organized as follows :

1/ The model

2/ Data and sources

3/ Methodology : principle of quantile regression and main advantages

4/ Our main results

5/ An illustration: the experience of the West African Economic and Monetary Union in Sub-Saharan Africa.

I. THE MODEL

Two recursive equations :

Per-capita income as a proxy of the level of development

$$\begin{aligned} y_i = & \overset{(+,-)}{\alpha_1} OPEN_i + \overset{(+)}{\alpha_2} HUMAN_i + \overset{(+,-)}{\alpha_3} INVEST_i + \overset{(+,-)}{\alpha_4} INSTIT_i + \\ & \overset{(+)}{\alpha_5} RESERVES_i + \overset{(+)}{\alpha_6} CREDIT_i + \varepsilon_i, \quad i=1,..N \end{aligned} \quad (1)$$

Degree of openness

$$\begin{aligned} OPEN_i = & \overset{(-)}{\beta_1} ACCESS_i + \overset{(+)}{\beta_2} INFRAST_i + \overset{(+,-)}{\beta_3} TARIFF_i \\ & \overset{(+)}{\beta_4} REGIONAL_i + \overset{(-)}{\beta_5} EXPORTCONC_i + \varepsilon_i, \end{aligned} \quad (2)$$

In equation (1) we consider three types of variables :

1/ Control variables : Human capital and investment rate

HUMAN CAPITAL : per-capita expenditure in health and education. We expect a positive sign, since more developed countries usually have higher investment expenditure in human capital.

INVESTMENT RATE : the impact on the level of development is mitigated in the LDC's, depending upon several factors (capital efficiency, productivity, ...).

2/ Macroeconomic policy variables

These are pre-requisites for a positive trade-growth nexus

INSTITUTIONS AND VARIABLES : in regards to the vast empirical literature both on developed and developing countries, we would expect a positive sign. But, one has to take into account the adjustment costs when reforming the institutions

RESERVES : captures balance of payment constraints. For the low income countries a variable reflecting the amount of aid could be substituted for this variable.

CREDIT : indicator of financial development (credit to the private sector in % of total credit).

3/ A Trade variable. The latter is supposed to be endogenous in order to control for several aspects of trade openness :

- trade policy (role of custom taxes, regional agreements)
- trade policies by the partners (the access to foreign market)
- the role of infrastructures

Hence the exogenous variables considered in equation (2) where trade openness is explained by the following variables :

ACCESS : barriers to trade that reduces foreign market access. They are expected to have a negative influence on domestic trade.

INFRAST : the level of infrastructure have a positive impact on trade by reducing the trade costs.

TARIFF : protectionism as a mean to protect the domestic markets. Historical experience show a mitigated effect of tariff barriers to trade.

REGIONAL : intra-regional trade. We expect a positive sign through a regional labor division

EXPORT CONC : export concentration

II.- DATA SOURCES

1/ Countries : a cross-section of 75 LDC's countries

Africa (27): Algeria, Benin, Botswana, Burkina Faso, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Ghana, Mauritius, Kenya, Madagascar, Malawi, Mali, Morocco, Mozambique, Namibia, Niger, Nigeria, Senegal, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia.

Asia and Pacific (10): Bangladesh, China, Korea (Republic of), India, Indonesia, Malaysia, Nepal, Philippines, Thailand, Singapore

Central and Latin America (26): Argentina, Bahamas, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Ecuador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Papua New Guinea, Pakistan, Paraguay, Peru, Sri-Lanka, Trinidad and Tobago, Uruguay, Venezuela, Viet Nam.

Arab and Middle East(9) : Bahrain, Iran Islamic Republic, Jordan, Kuwait, Lebanon, Oman, Saudi Arabia, Syrian Arab Republic, Yemen,

Europe(3) : Albania, Armenia, Moldova (Republic of)

2/ Year : 2005. This exercise could be replicated for the previous years (work in progress);

3/ Definition of the variables and sources

↳ Control and macroeconomic policy variables

GDP : per-capita GDP in terms of PPP, source WDI

OPEN : trade (sum of imports and exports in % of GDP), source WDI

HUMAN : average of two variables : health expenditure per capita (% of GDP) and Education expenditure per capita (% of GDP), source UNDP and WHO

INVEST : gross capital formation (% GDP), source WBI

INSTIT : institutional quality. Average of two variables : bureaucratic quality (scale 0 to 4) and corruption (scale 0 to 6), source International Country risk guide,

RESERVES : total reserves minus gold (current US \$), source WBI

CREDIT : domestic credit to private sector (% GDP), source WBI

↳ Trade openness variables

ACCESS : we use three variables reflecting barriers to foreign markets, source UNCTAD

- applied trade-weighted average imposed by trade partners (%)
- share of lines with international peaks in trade partners (%), ie lines with tariff that exceed 15%
- share of lines with tariffs by trade partners (%)
- share of lines with domestic peaks in trade partners (%), ie tariff rates that exceed three times the average tariff

INFRAST : we use two indicators :

- paved roads (% total roads), source World Road Statistics
- air transport freight (millions of tonnes /km), source Civil aviation statistics

TARIFF : we consider the following variables, source UNCTAD

- applied trade-weighted average tariff (%)
- share of lines with national peaks (%)
- share of line with international peaks (%)

REGIONAL : intra-trade of groups as percentage of total exports of each regional group, source UNCTAD

EXPORTCONC : merchandises export concentration index, source UNCTAD.

III.- PRINCIPLE OF QUANTILE REGRESSION AND MAIN ADVANTAGES

↳ Both equations are estimated using the quantile regression approach. (2) is estimated first, and then the forecasts are substituted for OPEN in equation (1).

This allows to deal with the endogeneity criticisms

↳ Quantile regression approach : proposed by Koenker and Basset (Econometrica, 1978).

↳ Countries are heterogeneous both in terms of per-capita income and trade openness

Income distribution using a Kernel (Epachenikov) – figure 1

Singapour : the highest GDP per-capita (23093 US \$)
Niger : the lowest GSP per-capita (702 US \$)

The distribution is asymmetric with a high % of countries above the average per-capita income in the sample (which amounts to 4658 US \$). We have a Fisher coefficient equal to 1.80.

We also observe a high dispersion with a Kurtosis equals to 4.02.

The heterogeneity is even more pronounced if we consider the degree of openness with a symmetry coefficient equal to 2.58 and a Kurtosis equal to 9.38. See figure 2

↳ In regard to such an heterogeneity the traditional OLS regression that yields estimates of the mean of the conditional distribution is not convenient.

Moreover, such an heterogeneity may yield a trade-development relationship that differs across countries, depending upon their level of development and their degree of openness.

The basic idea of the quantile regression is to try to minimize the distance between the countries and a ‘representative’ country that is not only the ‘average’ country, but also the country which performs better than 10%, 20%, 30% etc... of the sample in terms of per-capita income .

- Formally, conditional quantile functions are obtained as the solution of a minimization of the sum of weighted absolute deviations, the weight being function of the order of the quantile. The minimization problem is written as follows

$$\min_{\beta(\theta)} \sum_{i=1}^n F_{\theta}(Y_i - \beta X_i)$$

where the function $F_{\theta}(Z) = (\theta)Z^{+} + (1-\theta)Z^{-}$

and $Z^{+} = Z(I(Z > 0))$, $Z^{-} = Z[I(Z < 0)]$.

- Heteroskedasticity and robust standard errors can be handled in several ways : bootstrap method, regressions on transformed variables such as in the classical OLS case.

IV.- Main results

STEP 1.- Quantile regression to estimate the trade equation (2). Take the forecasts.

- Regressions in Tables 1, 2, 3 show the quantile regression of equation (2). The tables differs according to the proxy chosen for the variables describing trade barriers on foreign markets and tariff by the domestic country.

STEP2.- Substitute the forecasts for OPEN in equation (1) and then use quantile regression to estimate equation (1).

Table 1.- Quantile regression

Dependent variable : degree of openness

Exogenous variables	Quantiles				
	0.1	0.25	0.5	0.75	0.90
ACCESS	-	-	0.19	1.38	0.95
	6.06**	4.86**	(0.09)	(0.56)	(0.34)
	(-1.84)	(-1.76)			
INFRAST	1.88*	1.68*	1.70*	1.12*	1.39*
	(5.83)	(6.03)	(8.96)	(4.61)	(5.16)
TARIFF	-9.68*	-3.10	-3.56	-4.38	-2.21
	(-2.72)	(-1.00)	(-1.69)	(-1.63)	(-0.74)
REGIONAL	5.72*	6.43*	5.29*	6.14*	5.06*
	(4.71)	(6.14)	(7.40)	(6.72)	(5.01)
EXPORTCONC	-0.90*	-0.94*	-	1.00*	1.09*
	(-3.10)	(-3.74)	0.31**	(4.60)	(4.52)
			(-1.80)		

Note :

Exogenous variables for

ACCESS : applied trade-weighted average imposed by trade partners (%)

TARIFF : applied trade-weighted average tariff (%) in the domestic country

Standard errors in parentheses.

* Statistically significant at the 5% level of confidence

** Statistically significant at the 10% level of confidence

Comments on Table 1

⇒ Does barriers to foreign markets reduce trade volume ?

A better access to foreign markets (through a reduction of tariffs) has an impact on trade volume in countries with a very small degree of openness. Indeed, the coefficients is statistically significant for the quantiles of orders 0.1 and 0.25.

⇒ The impact of ‘protectionism’

Trade barriers negatively affect a country’s trade with a small degree of openness. Otherwise, there is no impact on the volume of trade. Statistical significance of the coefficient, only for the 10% quantile.

⇒ Impact of infrastructures and regional agreements

Whatever the degree of openness, higher infrastructures and regional agreement yields to a higher trade volume. We observe no significant difference concerning the amplitude of the impact (the estimated coefficients are rather the same at different quantiles).

⇒ Impact of export concentration

Export concentration does affect trade volume through two effects:

- in those countries with a small degree of openness, one observes a negative impact (negative coefficients for the quantiles of orders 0.1, 0.25 and 0.5). This illustrates the negative impact of the lack of diversification in domestic production;
- in those countries with a higher degree of openness, a higher index of concentration may reflect a strategic specialization on a few products with a high international demand. Hence the positive signs for the quantiles 0.75 and 0.9.

Table 2.- Quantile regression

Dependent variable : degree of openness

Exogenous variables	Quantiles				
	0.1	0.25	0.5	0.75	0.90
RECIPROC	-2.12* (-3.08)	-1.41* (-2.37)	-0.21 (-0.39)	-1.28** (-1.76)	-1.85** (-1.78)
REGIONAL	1.86* (4.75)	1.20* (3.56)	-0.85* (-2.77)	0.147 (0.35)	1.42* (2.27)
EXPORTC	-0.24 (-1.25)	-0.22 (-1.33)	0.43* (2.88)	0.97* (4.91)	1.27* (4.21)
INFRAST	1.34* (10.00)	1.43* (12.30)	1.37* (12.98)	1.06* (7.49)	0.89* (4.15)

Note :

Exogenous variables for

RECIPROC : Difference between the applied trade-weighted average tariff (%) in the domestic country and the applied trade-weighted average tariff (%) by its trade partners;

Standard errors in parentheses.

* Statistically significant at the 5% level of confidence

** Statistically significant at the 10% level of confidence

Comments on Table 2

Main difference :

- a variable reflecting bilateral trade agreements.

⇒ Effect of bilateral trade agreements on trade

- the proxy used : difference between the applied trade-weighted average tariff (%) by a country and the applied trade-weighted average tariff (%) by its trade partners

- a positive or negative difference indicate asymmetric bilateral agreements.

- the quantile regressions show an U effect : asymmetric bilateral agreements have a positive impact on trade if a country has, either a small degree of openness, or a high degree of openness. There is no impact in countries with a 'medium' degree of openness (see that the 0.5 quantile is not statistically significant).

- the effect is more beneficial for the less opened countries (note that the coefficients of the 0.1 and 0.25 quantiles are significant at the 5% level of confidence, while they are significant only at the 10% level for the other two quantiles (0.75 and 0.90)).

⇒ Impact of the other variables : similar to those observed in Table 1.

Table 3.- Quantile regression

Dependent variable : degree of openness

Exogenous variables	Quantiles				
	0.1	0.25	0.5	0.75	0.9
PARTNERS	-0.19 (-0.63)	-0.05 (-0.17)	-0.03 (-0.09)	2.37* (4.44)	4.54* (4.24)
DOMESTIC	-10.1* (-3.54)	-11.6* (-3.93)	-11.3* (-3.86)	9.61 (1.62)	4.30 (0.43)
INFRAS	1.53* (13.40)	1.59* (13.50)	1.60* (13.64)	0.58* (2.10)	-0.38 (-0.9)
EXPORTCONC	0.18 (0.87)	0.10 (0.47)	0.08 (0.36)	0.43 (1.15)	1.47** (1.95)

Note :

Exogenous variables for

PARTNERS : share of lines with domestic peaks in trade partners (%)

DOMESTIC : share of lines with national peaks (%)

Standard errors in parentheses.

* Statistically significant at the 5% level of confidence

** Statistically significant at the 10% level of confidence

Comments on Table 3

Main difference : domestic and international peaks as a measure of trade barriers

⇒ Impact of domestic national peaks by trade partners

National peaks imposed by trade partners reduce the volume of trade in countries with a small or ‘medium’ degree of openness, but the reduction is not significant (see the negative coefficients for the quantiles of order 0.1, 0.5 and 0.75).

In contrast, we find positive and significant coefficients for the more opened economies. This may illustrate the fact that these countries adopt strategies that allow them to get round the tariff peaks (for instance, differentiation by the quality of the product, foreign implantation, etc.

⇒ Role of diversification

One explanation of the positive signs above can be that the countries have a comparative advantage on a few product with a small demand elasticity (for instance, clothes for the Asian countries). In this case, the export concentration index in the regression is positively correlated with trade openness (as is the case for the 90% quantile).

⇒ Does protectionism help ?

Domestic peaks reduce the imports (and thus the volume of trade) in countries with a small degree of openness and have no impact on trade in the countries with the highest degree of openness.

Is there a trade-development nexus ? (Tables 4 through 6)

⇒ Note that the coefficients on the variable OPEN are semi-elasticities due to the fact that the variable describing trade forecast is a truncated variable (0 if the forecasts are negative and the forecasts if the value is positive).

Elasticities of the variable OPEN when using the raw data vary between 0.1 and 0.3

⇒ Two main conclusions from tables 4 through 6

- In the LDC's, trade does not seem to have a significant impact on per-capita GDP, unless the countries have achieved a 'minimum' level of development. There seems to be a threshold effect (the variable OPEN is statistically significant only for the quantile of the higher order (0.75 and 0.95)).

This conclusion holds, whatever the measure of trade

- The level of development is mainly explained by the control and macroeconomic policy variables

Hence the importance of accompanying policies, structural reforms, etc...

Table 4.- Quantile regression
 Dependent variable : Per-capita GDP

Exogenous variables	Quantiles				
	0.1	0.25	0.5	0.75	0.9
OPEN	0.0006 (0.29)	0.00045 (0.35)	-0.4E-4 (-0.36)	0.002 (1.33)	0.007* (2.94)
HUMAN	0.802* (2.11)	0.44** (1.74)	0.82* (3.54)	0.75* (2.89)	1.12* (2.98)
INVEST	0.94* (2.19)	0.243 (0.87)	0.02 (0.08)	0.57* (2.04)	0.63 (1.55)
INSTIT	0.49* (2.46)	0.44* (3.28)	0.43* (3.57)	0.39* (2.93)	0.23 (1.16)
RESERVES	0.05 (0.81)	0.204* (4.78)	0.24* (6.30)	0.178* (4.02)	0.133* (2.10)
CREDIT	0.31** (1.82)	0.247* (2.13)	0.21* (1.99)	0.16* (1.40)	0.294** (1.75)

Note :

We use forecasts for OPEN using the regressions in Table 1

Standard errors in parentheses.

* Statistically significant at the 5% level of confidence

** Statistically significant at the 10% level of confidence

Table 5.- Quantile regression

Dependent variable : Per-capita GDP

Exogenous variables	Quantiles				
	0.1	0.25	0.5	0.75	0.9
OPEN	0.002 (0.60)	0.0008 (0.38)	0.002 (1.12)	0.007 (2.85)	0.009 (3.05)
HUMAN	0.55 (1.50)	0.44** (1.76)	0.85* (3.92)	0.67* (2.53)	0.81* (2.46)
INVEST	0.72** (1.81)	0.23 (0.87)	0.06 (0.26)	0.28 (0.95)	0.65** (1.80)
INSTIT	0.57* (3.05)	0.44* (3.46)	0.43* (3.91)	0.42* (3.08)	0.44* (2.63)
RESERVES	0.09 (1.56)	0.21* (5.00)	0.22* (6.15)	0.21* (4.81)	0.14* (2.60)
CREDIT	0.24 (1.42)	0.25* (2.13)	0.21* (2.06)	0.178 (1.47)	0.20 (1.38)

Note :

We use forecasts for OPEN using the regressions in Table 2

Table 6.- Quantile regression

Dependent variable : Per-capita GDP

Exogenous variables	Quantiles				
	0.1	0.25	0.5	0.75	0.9
OPEN	0.002 (0.60)	0.0008 (0.38)	0.002 (1.12)	0.007* (2.85)	0.009* (3.05)
HUMAN	0.55 (1.50)	0.44** (1.76)	0.85* (3.92)	0.67* (2.53)	0.81* (2.46)
INVEST	0.72** (1.81)	0.23 (0.87)	0.06 (0.26)	0.28 (0.95)	0.65** (1.80)
INSTIT	0.574* (3.05)	0.44* (3.46)	0.43* (3.91)	0.42* (3.08)	0.44* (2.63)
RESERVES	0.09 (1.56)	0.21* (5.00)	0.22* (6.15)	0.21* (4.81)	0.14* (2.60)
CREDIT	0.24 (1.42)	0.25* (2.13)	0.21* (2.06)	0.178 (1.47)	0.20 (1.38)

Note :

We use forecasts for OPEN using the regressions in Table 3

What can we conclude from these results for the low income countries ?

- As a first point, trade openness does not seem to be a key determinant of the level of per-capita income. Rather, other macroeconomic fundamentals are at play : human capital, institutions, financial constraints.

- As a second point, the low degree of openness may be the results of several factors : lack of regional integration, lack of infrastructures, trade barriers on foreign markets

To illustrate these facts, we examine the case of a group of Sub-Saharan African countries, namely the WAEMU countries.

V. – The trade-development nexus in the WAEMU countries

↳ The WAEMU countries : Benin, Burkina Faso, Côte D'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo.

↳ These countries have the lowest Trade and development indices (TDI) in the World (Table 7)

Table 7.- TDI indices

	TDI	Rank over 110 countries
Benin	225	104
Burkina Faso	195	106
Côte d'Ivoire	254	99
Mali	161	109
Niger	136	110
Senegal	332	87
Togo	230	102
Denmark	874	1
France	774	11
Thailand	563	38
South Africa	557	41
Brazil	488	54

Source : CNUCED 2005, Trade and Development Report

↳ The low TDI reflects weak performance both in terms of growth/development and trade

Some explanations to the weak performance in trade openness :

↳ Structural heterogeneity that does not facilitate regional integration and impedes trade within the WAEMU:

◆ 2 countries with an industrial base that account respectively for 40% and 20% of the WAEMU's GDP (Côte d'Ivoire and Senegal);

◆ Differences between coastal countries with an important transit trade (Benin and Togo) and landlocked countries with an important agricultural sector (Burkina Faso, Mali and Niger).

◆ The ratio of intra-zone exports total is 9.2% (with Côte d'Ivoire accounting for 70% of the exports and Senegal for 16%); the ratio of intra-zone imports to total imports is 8.2% with Mali accounting for 36% of the imports and Burkina Faso for 24%;

CIV and Senegal exports manufactured goods to the WAEMU, but buy very little from the zone;

Burkina Faso and Mali (the landlocked countries) represent about 60% of the regional imports.

↳ No diversification of the export base

◆ most countries export a limited number of primary commodities (the share of two main commodities in total exports is about 40% for the WAEMU, with a high ratio for Burkina Faso and Benin (75%)).

Main cause : supply constraints (the agriculture sector amounts for 40% of GDP in many country, no industrial base), but also the structure of distribution networks (most of which are inherited from the post-colonial period);

↳ Lack of infrastructures implying high transportation costs (The WAEMU countries share this characteristic with all the West African countries).

◆ the countries are trapped in a vicious circle where weak exports induce high transport costs (maritime costs), which in turn results in a low traffic that increase the costs.

↳ Non tariff barriers (this increases the costs of transport), see table 8

Table 8.- Frequency of checkpoints on transit axes

Course	Distance (km)	Number checkpoints	Frequency (km)
Lagos-Abidjan	992	69	14
Niamey-Ouaga	337	20	17
Lome-Ouaga	989	34	29
Cotonou-Niamey	1036	34	30
Abidjan-Ouaga	1122	37	30
Accra-Ouaga	972	15	36

Source: OECD, Sahel Club

↳ Access to foreign markets

◆ the WAEMU countries, just as the ACP countries benefit from Cotonou agreements and also from the clause ‘all except arms’ that applies to the least developed countries;

◆ However, they face tariff peaks on exports that are strategic for them (examples : sugar, corn, wheat, ...) + trade distortions caused by the subsidies.

Main products of the WEAMU countries :

Benin: cotton, tuber (manioc, yam), cereals (corn, millet), Paddy Rice

Burkina : cotton, tuber (sorghum), cereals (corn, millet), Paddy Rice, groundnut, sugar

Côte d’Ivoire : cotton, coffee, cocoa, cereals (corn), paddy rice, tuber, sugar

Guinea-Bissau : cotton, Rice, cashew nut,

Mali : cotton, groundnuts, cereals (millet, corn), paddy rice, gold

Niger : uranium, cotton, cereals (millet, sorghum), Paddy rice

Senegal : groundnuts, cotton, cereals (corn, millet), paddy rice

Togo : cotton, coffee, cocoa, groundnuts, tuber, cereals (corn), cement

- Although trade openness is low in the countries, it is not the main cause of the low level of per-capita income. The correlation between trade and per-capita GDP is explained by factors that are common to both :

- knowledge, capacities, governance, credit restrictions, etc.

- As an illustration, weak institutions are sources of investment inefficiencies in the WAEMU countries and this is a hindrance for growth and a higher per-capita income (see table 9 – panel regressions).

Table 9

GLS regression (maximum likelihood) – Dependent variable: Investment / *GDP*

	Model 1	Model 2	Model 3	Model 4	Model 5
Investment(-1) / GDP(-1)	0.94* (37.60)	0.93* (35.85)	0.51 (1.50)	0.91* (31.34)	0.51 (1.51)
Urbanization	0.001 (0.06)	-0.001 (-0.09)	0.29 (0.40)	0.005 (0.31)	0.29 (0.41)
Credit	0.03 (2.32)	0.04* (2.98)	-0.79* (-3.04)	0.049* (3.24)	-0.79* (-3.04)
Growth	0.02 (29.63)	-	-	-	-
Rule of law × growth	-	-0.009* (-3.68)	-	-0.008* (-2.27)	-0.019* (-3.61)
Political violence × growth	-	-	-1.46* (-2.63)	-	-1.46* (-2.63)
Regulatory burden × growth	-	-0.006* (-3.74)	-	-	-
Property rights × growth	-	-	-0.007* (-3.61)	-0.004* (-2.83)	-

FIGURES

Figure 1
Estimated unconditional distribution - Per-capita gdp

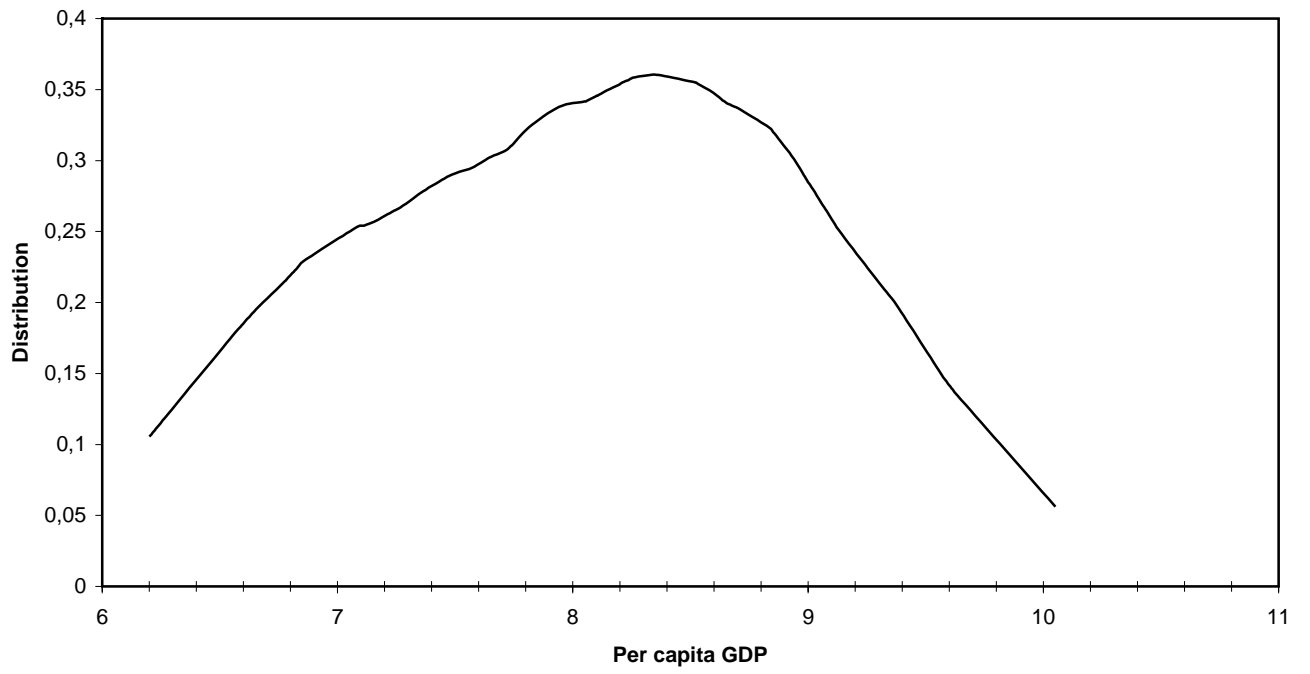


Figure 2
Estimated unconditional distribution - Openness

