How does a country's participation in a trading bloc of equal or unequal partners, in terms of GDP/capita, affect its economic growth? Does this effect differ if we look at relatively small or relatively large countries? Are countries in a trading block of equal partners more likely to uniformly grow or does having a large partner help? Are economically powerful countries more likely to draw their partners up the growth scale or use them to advance on that scale themselves? In order to answer these empirical questions I use panel data from 1985 to 2004 on countries that are members of RTAs. I find that membership in trade blocs of unequal partners leads to higher GDP growth rates than membership in trade blocs of equal partners. The results also indicate that large, more developed countries tend to benefit more than developing countries from membership in such agreements.
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I. Introduction

The formation of regional trading blocks is one of the great forces sweeping the developing world. As pointed out by the World Bank (2000) in their Trade Blocs report, “no country is immune from the impact of regionalism as it shapes world economic and political relationships and influences the development of the multilateral trading system. All countries today face policy choices with respect to regionalism, should they enter a regional integration agreement and with what other countries?”¹

The trend points toward trading blocs encompassing most, if not all developing countries. One explanation for this proliferation is to counter the practices of developed countries that are often perceived as seeking markets beyond their borders while putting up non-tariff barriers against goods from developing countries. However, there is little, if any, empirical evidence to support the idea that regional trading blocs in the developing world somehow create a level playing field for these trading partners. Even among developing countries we have different degrees of development and economic power. A trade agreement between India and Nepal may well pass the “developing countries only test” but it fails the “equivalent economic power” test.

When potential member countries perceive that other countries will dominate and receive more benefits, the formation of that particular regional bloc may take place only after protracted and sometimes acrimonious negotiations. Indeed in some cases, these

blocs are formed after the 'dominant' country or countries are able to convince their prospective partners in the bloc that they all stand to gain.

However, sometimes the less dominant countries recognize right from the beginning that, although the gains may accrue unequally, they would be nonexistent without the trading bloc. Thus the economic well-being of the dominant partner may increase at a faster rate due to economic opportunities brought about by the trading bloc, but the less dominant partner(s), may also benefit, albeit by a smaller amount or at a slower rate.

Another possibility is that a country may join a trading bloc not so much out of choice but out of the lack of such choices. For example, a country geographically surrounded by members of a trading bloc will presumably join the bloc weighting the harm inflicted by not joining rather than the potential benefits of joining.

One of the major features of regional trading blocs in recent years is the inclusion of both high-income industrial countries and developing countries joined in agreements designed to bolster the economies of all the member countries. Perhaps the most important example of this is the North American Free Trade Area (NAFTA), formed in 1994 when the Canada-U. S. Free Trade Agreement was extended to Mexico. The European Union has linked with the transition economies of Eastern Europe through the Europe Agreements, and has developed the EU-Turkey customs union and a Mediterranean policy potentially incorporating agreements with nearly every Mediterranean country. There has been discussion of replacing the EU’s trade
preferences under the Lomé Convention\(^2\) with reciprocal regional trade agreements with this group of developing countries.

These examples of groupings of highly diverse countries raises the question as to how does a country's participation in a trading bloc of equal or unequal partners, affect its economic wellbeing? Does this effect differ if we look at relatively small or relatively large countries? Are countries in a trading block of equal partners more likely to uniformly grow or does having a large partner help? Are economically powerful countries more likely to draw their partners up the growth scale or use them to advance on that scale themselves?

In seeking to answer these questions, this thesis evaluates the impact that membership in a regional trading bloc of equal and unequal partners has on the economic welfare of individual member countries. While there are no simple answers to be found, the economic tradeoffs that countries face in making these choices can be identified and the process of decision making made better informed.

\(^2\) The Lomé Convention is an international aid and trade agreement between the ACP (African Caribbean and Pacific Countries) group and the European Union aimed at supporting the "ACP states' efforts to achieve comprehensive, self-reliant and self-sustained development. Four such Conventions have been signed to date. The first Convention (Lome I) was signed on February 28, 1975. Lome II and III were signed in 1979 and 1985 respectively.
II. What We Know and Do Not Know About Regional Trade Blocs

As the World Bank (2000) points out, “the growth of regional trading blocs (RTBs) – also known as regional integration agreements (RIAs)—is one of the major developments of international relations in recent years. Most industrial and developing countries are members of some regional integration agreement; many belong to more than one and more than one-third of world trade today takes place within such agreements. The structure of regional agreements varies considerably, but all have one thing in common— the objective of reducing barriers to trade among member countries. At their simplest, they merely remove tariffs on intra-bloc trade in goods, but many go beyond that to cover non-tariff barriers as well and to extend liberalization to investment. At their deepest level, they have the objective of economic union, and sometimes even the establishment of shared executive, judicial, and legislative institutions”

Frankel, Stein & Wei (1997) find four major causes for the surge in regionalism: the influence of the EU, the reversal in the American position from globalized free trade to a more bilateral, regionalist approach, Canada’s agreement with the US and the abandonment of import substitution as a development strategy in most developing countries today.

“Despite the proliferation, however, the effect of regionalism on the world trading system is still hotly debated. To some, regionalism is a ‘stepping stone’ toward global free trade, while to others it is a ‘stumbling block’, inhibiting progress in multilateral trade

\[\text{Idem 1}\]
liberalization”. Bhagwati and Krueger (1995) argue against such agreements. They consider such arrangements harmful because they contend such arrangements lead to trade diversion, not trade creation. Trade creation defines the case when domestic production of one member is replaced by lower-cost imports from another member. The opposite takes place in the case of trade diversion, when lower-cost imports from a non-member are prevented from entering the trade bloc and are replaced by higher cost imports from a member country. In practice both trade creation and trade prevention effects take place. The efficiency of economic integration is assessed depending on the relative strengths of the two effects.

However, some economists have defined trade diversion so broadly as to rule out any beneficial effects, leading some to point out that this flirtation with tautology only makes the term less useful (R. Wonnacott 1994, 1996). Nevertheless, the trade diversion/trade creation approach to determining the efficiency effects of trade blocs or preferential trade agreements (PTAs) does omit other important effects, particularly those transmitted through the terms of trade—that is, the relative price of a country’s exports and imports. According to Mundell (1964), this effect is generally beneficial for members of the PTA, but harmful to nonmembers.

Scott (1991) notes that members of successful trade blocs usually share four common traits: similar levels of per capita GNP, geographic proximity, similar or compatible trading regimes, and political commitment to regional organization, with the first being the most important. These are the characteristics that are also often linked to the claim that such agreements favor the larger, more economically powerful members of the bloc over the smaller, less developed members. Thus the best member for a trading
bloc, including among developing countries are those countries at a similar level of development.

A World Bank study (2000) finds that trade divergence is more likely in “South-South” regional agreement schemes between economically small low-income countries. “Changes in trade flows induce changes in the location of production between member countries of a regional agreement. In some circumstances, relocations can be a force for convergence of income levels between countries. Labor-intensive production activities may move toward lower-wage countries, raising wages there. In other circumstances, relocations can be a force for divergence. Industry may be pulled toward a country with a head start or with some natural advantage, driving up incomes ahead of other countries.”

It is argued that this can create tensions that lead to failure of the agreement. However, “North-South” regional agreements are considered more likely to generate useful technology transfers for southern members, particularly if the northern member is an important producer of knowledge. Krishna (1997) also argues that regional trade blocs are less likely to be trade diverting and thus “natural” if they are comprised of significantly large trading partners, because of an estimated higher impact on welfare.

Porche (2004) argues that regional trade agreements have a significant impact on the welfare of a country if the RTA is sufficiently large. However, his results do not support the argument that RTAs foster more rapid income convergence among nations. Most importantly Porche finds that different RTA institutions produce different welfare effects.

De Melo, Panagariya and Rodrick (1992) find that RTAs have no growth effects. Using OLS on Cross-Sectional Data, they estimate a linear regression of income growth

5 Idem 1
rates with dummies for six RTAs, they find that the only significant dummy coefficient is the one for the South African CU, which by the way is positive, but in any case the authors’ conclusions suggest that the effect of the agreement on growth can be considered negligible.

Another study by De Melo, Montenegro and Panagariya (1993) surveys the ambiguous economies of customs unions, emphasizing that the traditional dichotomy between "trade creation" and "trade diversion" is not particularly helpful for policy. Their empirical evaluation of existing schemes produces no evidence that membership in integration schemes has any effect on growth. Finally, the authors note that recent attempts at regional integration have different starting points and objectives than past efforts - so history is a poor guide to the future of regional integration.

Unfortunately, formal trade theory does not provide any clear answers to the question of how particular members of a trade bloc benefit, if at all, when the economic size of other members is significantly different. What we do have are a handful of case studies and some assessments mostly drawn from the popular media. This thesis is intended to fill this lacuna.
III. Conceptual Framework

Ever since Adam Smith’s Wealth of Nations the study of what brings about such welfare to people, later reframed into the study of development, has been the central focus of multiple social sciences. Possible determinants of economic growth have been extensively explored both in the political science and economics literature. Few questions have been more vigorously debated in the history of economic thought, and none is more central to the vast literature on trade and development than the nature of the link between trade and economic welfare.

Do countries with lower barriers to international trade experience faster economic progress? Twenty years ago a consensus had emerged that trade liberalization strongly promoted growth. The intervening period has seen a large wave of trade liberalization in the developing world. There has also been a surge of research on openness, growth and poverty reduction. The literature on trade and growth is almost as vast as that on growth itself, since openness is a part of much recent theory and most empirical work.

One aspect of trade policy however has been relatively neglected in the literature. The formation of regional trade agreements and the link between such trading blocs and growth has received considerably less attention than other “hot” trade topics, such as liberalization, openness etc.

The following section is divided in two parts, the first one aimed at answering what the link between trade blocs and economic growth is. Here I review the literature that touches on the subject and also try to investigate potential ways in which trade agreements can, directly or indirectly, influence growth. The second part is dedicated to
analyzing the differences between a trade bloc of equal partners and one of unequal partners, and how these differences might impact economic welfare of the respective countries.

A. The Link Between Trading Blocs and Growth

Baldwin and Venables (1995) point out that the difficulty of the empirical evaluation of a trade bloc arises from the fact that the goal to reach is quite ambitious: the aim is to shed some light on the effect of the policy change, although it is very hard to disentangle the effect of the trade bloc from other changes in the economy.

However, common economic principles, as well as empirical evidence, indicate that the impact of membership in a trading bloc on growth can be derived from four different sources: (i) Gains from trade itself; (ii) Domestic policies; (iii) Technological spill-overs; and (iv) Access to new markets and investment.

Most studies examine regional trade agreements (RTAs) from the perspective of the first source of potential wealth creation, thus leading to the debate on trade creation versus trade diversion. It is not the intent of this paper to further the debate in this particular area. Instead we will concern ourselves more with the other three potential links between RTAs and growth.

Maoz, Peled and Sarid (2009) underline the relevant but sometimes overlooked fact that among the most important properties of any trade agreement are the trade policies that each member country is to employ. They also note that, while such policies
might not affect trade in a direct manner by affecting the commodity’s price, the effect on production and national output is equally significant and at times more long lasting.

Porche (2004) points out that RTAs - while economic institutions - often serve broad political purposes. Some countries use membership within RTAs to lock in domestic policies, which are unpopular in the short-term. Mexico after NAFTA is often cited as a case where an agreement locked a country into domestic policies that had a positive effect on liberal political and economic reforms pursued after the agreement.

Harrison (1996) and Sachs and Warner (1995) both argue that rising levels of trade have a direct impact on increasing the pace of technological change. Technology transfer occurs via the importing of high-tech capital goods, production facilities, patents and licenses, as well as knowledge-intensive services.

The import of new technologies also stimulates the development of domestic technology via the imitation and enhancement of imported products. So trade accelerates technological progress, which in turn is the key source of long-term economic expansion according to growth theory.\(^6\) Dollar (1992) argues that, when technology can be easily transferred across boarders, economic growth may accelerate in less-developed countries through improved comparative advantages in production.

Last but not least, trade leads to more efficient resource allocation through increased specialization and competition from abroad. Park & Park (2006) claim the spread of regional trade agreements (RTAs) is strongly motivated by the desire for more foreign direct investment (FDI) flows. According to the authors the net benefits from freer capital flows are expected to trigger a domino effect of new regionalism. They test

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\(^6\) The link between technological progress and economic growth was first established in Solow/Swan’s neoclassical growth model and refined in the new endogenous growth models of Romer, for example. See Solow (1956), Swan (1956) and Romer (1986, 1990).
their hypothesis and try to estimate the investment creation and diversion effects of RTAs by using an extended gravity equation focusing on domestic reform as a commitment device for RTA membership. They find that reform-creating RTA membership, larger market size, better skilled labor, and lower trade costs all contribute positively and significantly to inward FDI stock and also that reform-prone developing countries tend to attract more FDI in addition to the investment creation effect of their RTA membership;

**B. The Impact of Equal versus Unequal Trade Blocs on Growth**

At the time of the ratification of the North American Free Trade Agreement, protests were being organized in all three signatory countries. Canadian protesters feared the trade agreement, signed by what they called “blatantly pro-business governments” would wipe out the regulatory legislation from workers’ rights to the environment. In Washington NAFTA adversaries invoked the eminent damage caused by cheap Mexican labor and heavily subsidized Canadian products. In Mexico City the fight against NAFTA was the fight against cheap, mass-produced, and subsidized farm produce from the U.S., something poor, unsubsidized peasants could not compete with.

These simultaneous protests organized on the verge of entering a regional trade agreement with one another depict very well the different expectations and possible outcomes for countries joining a trade bloc where future partners are countries at different stages of economic development. In spite of the fact that regional trade agreements of unequal partners have become more and more popular recently, very little
empirical research focuses on the growth impact of membership in trade agreements of either equal or unequal partners on the member countries.

Park & Park (2006) conclude in their study that, at least in the case of East Asia, both South-North and North-North RTAs prove to be more preferable membership combinations to South-South RTAs. Similarly, but based on more qualitative than quantitative judgment, Mishor (2006) links Israel’s successful economic development to its strategy to join big regional blocs, mostly formed by developed nations.

Madani (2001) tests the impact of membership in the Andean Pact on industrial growth in Ecuador, Colombia and Bolivia. Using panel data the author measures the impact of the agreement by a dummy variable that takes the value of one from 1991 on. She finds that membership has, at best, a mixed effect and that, at a disaggregate level, industrial growth in the poorer member countries may be adversely affected.

At the other end of the debate, Lo Turco (2003) investigates the impact of South-South agreements on growth. She does so by looking at three RTAs in Latin America. Her main results of the analysis show that the Andean Pact, CACM and MerCoSur have not improved dramatically the economic performance of the participating countries. Even if the results from this analysis cannot be generalized, the author maintains that trade agreements among small and developing states should probably be avoided in favor of agreements with more developed partners.

Vamvakidis (1998) finds similar results using a cross section data set for the decades 1970-1990. His empirical research shows that the presence of more developed members in the trading agreement has a positive effect on growth. However these results
are to be taken with a grain of salt as his RTA’s dummy is significant only in the case of the European Union.

De Melo, Montenegro and Panagariya (1993) review past and recent regional integration arrangements and conclude that, after controlling for differences in investment, countries that integrated grew no faster than their comparator group. However they find evidence of catch-up, suggesting benefits for the least-developed members of the new wave of arrangements that emphasize North-South membership.

Given such different results coming out of empirical research it is difficult to estimate the way membership in a trade bloc of unequal partners as opposed to membership in a trade bloc of equal partners will influence growth, especially as most of the above mentioned studies are run within specific regions. By including a world wide sample of countries, the present thesis aims to enrich the existing literature and to offer some answers regarding the potential impact on growth of membership in a trade bloc of either equal or unequal partners.
IV. Empirical Model, Estimation Methods and Data

This thesis evaluates the impact that membership in a regional trading bloc of equal and unequal partners has on the growth rates of individual member countries. Do countries in an equal partner trading bloc grow faster than countries in an unequal partner trading bloc? Does the impact differ if we look at relatively small or relatively large countries?

The growth regression model presented here tested these hypotheses. Specifically I expect that membership in a trading bloc of equal or unequal partners impacts differently a country’s growth rates. I also expect a difference in effect when it comes to comparing a relatively small to a relatively large country.

As the dependent variable is economic growth, I control for the usual important determinants as suggested in the literature, including: investment climate, governance, macroeconomic stability, as well as human capital variables.

The model is as follows:

\[ \text{GDP growth per capita} = b0 + b1 \times \text{EP trading block} + b2 \times \text{large country in trading bloc} + b3 \times \text{law} + b4 \times \text{bureaucracy} + b5 \times \text{govtdebt} + b6 \times \text{current} + b7 \times \text{life expectancy} + b8 \times \text{school} + b9 \times \text{investment profile}. \]

To test this hypothesis a multiple OLS regression model is estimated using panel data from a sample of 153 countries worldwide. All of the countries included are members of regional trade agreements. Given the current nature of RTA data, it is
appropriate to utilize panel-data modeling for two reasons. First, breaking a long period of time down into smaller units of time, which are still long enough to observe growth without distorting cyclical effects, should provide a richer econometric picture by increasing the available observations. Second, the RTA data requires special consideration for proper modeling because of the staggered development of RTAs across the globe.

The sample is composed of countries that were active members of regional trade agreements between 1985 and 2004. However, observations were recorded into the database from the time a country joined a trade agreement. For example, if a country joined an RTA in 1989, observations previous to that date were recorded as missing. In order to construct the data points, averages were taken for three five year periods: 1986-1990; 1991-1995 and 1996-2000. Because growth effects take time to manifest, the dependent variable was lagged by a five year period. Thus the data points for GDP/capita growth were the averages for 1991-1995; 1996-2000 and 2001-2005.

With a cut-off of 2004, newer regional trade agreements are not be represented in the study. Also, the newest member countries of the European Union are not included. Countries created/declared independent after 2004 (Montenegro, Kosovo) are represented in the paper unde Serbia & Montenegro. For countries with membership in more than one regional trade agreement – the case for most African countries – the most active, in terms of volumes of trade, was used.
A. Dependent variable

To measure the economic impact of membership in a particular regional trading bloc, which is the dependent variable, I use economic growth as reflected by *average annual GDP per capita growth*. The rationale for using growth as the dependent variable to reflect the impact of trade bloc participation on economic well being is discussed in Section III. The growth rate is the average of GDP per capita growth rates between 2005 and 2007. The data source for this variable is the World Bank database of World Development Indicators.

B. Independent variables

**Equal Partner Regional Trading Agreement**

This is one of the two main variables of interest. It reflects whether a country is part of a trading bloc composed of relatively equal partners or relatively unequal partners. The terms “unequal” and “equal” refer to a country’s level of economic development, measured by GDP per capita. In order to create this variable I used the World Bank’s general country income categories (table 4). These categories are as follows: low-income economies; lower middle income economies; upper middle income economies; high income economies.

The variable is a categorical dummy. It is coded 1 for equal partner RTA and 0 for unequal partner RTA. I expect this variable to be statistically significant. It is however uncertain what the sign of the coefficient is likely to be.
Large Country in Regional Trading Agreement

This is the second main independent variable of interest. It reflects whether a country member of a regional trade agreement is a large country – ranked so in terms of GDP per capita – or not. This variable was introduced in order to measure a potential difference in impact of RTA membership for a relatively small or relatively large country. In order to create this variable I again used the World Bank’s general country income categories described above. Countries in the first two categories were ranked as small, while countries in the latter 2 categories were ranked as large. Population or geographical characteristics were not taken into account in determining the value of this variable.

The variable is a categorical dummy. It is coded 1 for a large country and 0 for small country. I expect this variable to be statistically significant and I expect it to be positive, thus showing that larger countries – in terms of GDP/capita – grow at a faster pace than their smaller trade partners.

Sometimes the impact of a given independent variable may depend (or be conditional on) the level of another independent variable. A reasonable question to ask in the context of this paper is whether participation in equal or unequal trade blocs affects GDP growth differently by country size. I aim to answer this question by using an interactive variable between the two main independent variables of interest: equal partner trading bloc and large country in trading bloc. I construct the interactive variable by multiplying observations for equal partner trading blocs by observations by country size.
Governance

Governance is one of the usual explanatory variables that appear in most growth regressions; I use it here as a control variable. As defined by the World Governance Indicators “governance consists of the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them. The institutional environment is determined by the legal and administrative framework within which individuals, firms, and governments interact to generate income and wealth in the economy.”

In order to measure the quality of governance I use two variables based on the International Country Risk Guide of the Political Risk Services Group: law and order and bureaucracy quality.

The Law and Order variable ranges from 0 to 6. Law and Order are assessed separately, with each sub-component comprising zero to three points. The Law sub-component is an assessment of the strength and impartiality of the legal system, while the Order sub-component is an assessment of popular observance of the law. Thus, a country can enjoy a high rating – 3 – in terms of its judicial system, but a low rating - 1 – if it suffers from a very high crime rate of if the law is routinely ignored without effective sanction (for example, widespread illegal strikes).

According to the International Country Risk Guide the institutional strength and quality of the bureaucracy is another shock absorber that tends to minimize revisions of

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policy when governments change. High points are therefore given to countries where the 
bureaucracy has the strength and expertise to govern without drastic changes in policy or 
interruptions in government services. As defined by the International Country Risk 
Guide, the bureaucracy of low-risk countries tends to be somewhat autonomous from 
political pressure and to have an established mechanism for recruitment and training. As 
a result, the countries that lack the cushioning effect of a strong bureaucracy receive low 
points. It is estimated that for these countries a change in government tends to be 
traumatic in terms of policy formulation and day-to-day administrative functions. This 
variable ranges from 0 to 4, with a mean value of 2.33.

I expect both variables to be statistically significant and have a positive impact on 
GDP per capita growth.

**Macroeconomic Stability**

Macroeconomic stability is another control variable, present in one form or 
another in most growth regressions. The stability of the macroeconomic environment is 
important for business and, therefore, is important for the overall growth of a country. 
Although it is certainly true that macroeconomic stability alone cannot increase the 
productivity of a nation, it is also recognized that macroeconomic disarray harms the 
economy.

In order to assess macroeconomic stability I use two variables: current account 
balance and government debt as percentage of GDP. The variables are based on World 
Bank’ World Development Indicators, the Balance of Payments and Debt Indicators 
section.
The current account is one of the two primary components of the balance of payments and it is the sum of the balance of trade (exports minus imports of goods and services), net factor income (such as interest and dividends) and net transfer payments (such as foreign aid). The sign of the relationship between this variable and the dependent variable is expected to be positive.

Government debt, also known as public debt or national debt, is money or credit owed by any level of government. It is measured as percentage of GDP. A negative association is expected between GDP per capita growth and this variable.

**Investment Climate**

This is another control variable present in most growth regressions. In this study the investment climate is expressed through the number of days necessary to enforce contracts. It is based on a sub-index of the International Country Risk Guide of the Political Risk Services Group. This is an assessment of factors affecting the risk to investment that are not covered by other political, economic and financial risk components, acknowledging that the business environment has a decisive say in the growth of any economy.

The risk rating assigned is the sum of three subcomponents, each with a maximum score of four points and a minimum score of 0 points. *The subcomponents are:* Contract Viability/Expropriation, Profits Repatriation, Payment Delays. A score of 4 points equates to Very Low Risk and a score of 0 points to Very High Risk. I expect a strong negative correlation between the dependent variable and this control variable, as
the higher the number of days needed to enforce a contract the more difficult it is for the businesses to act and the lower the confidence of potential investors.

Beyond the macro and micro economic aspects, as well as the institutional aspect of growth, human capital is now recognised as playing an essential part in the growth equation. The three independent variables that follow are meant to measure precisely this aspect of growth.

**Life Expectancy at Birth**

Life expectancy at birth is the expected years of life of a healthy adult. It is considered to be a measure of health, but also an overall measure of the quality of life in a country. It can also be thought of as indicating the potential return on investment in human capital. I constructed this variable based on World Bank’ World Development Indicators, the Social Indicators section. It is expressed in years and in this sample it ranges from 42 to 81 years.

**Incidence of Tuberculosis**

Incidence of tuberculosis is a measure of health, as an expression of human capital. Tuberculosis is a disease associated with developing countries, as the virus causing it is enhanced by low living standards, improper sanitation and a high incidence of TBC also points to a poor health care system. I constructed this variable based on World Bank’ World Development Indicators, the Social Indicators section. It is expressed in number of individuals with TBC out of 100,000 individuals.
Secondary School Enrollment Rates (Gross)

The secondary school enrollment rate is a measure of educational attainment and it is also an element of human capital. Along with the literacy rate it is one of the most used control variables in growth regression. I constructed this variable based on World Bank’ World Development Indicators, the Social Indicators section. It is expressed in percentage points, indicating the percentage of children enrolled in secondary school out the total secondary school-age children. For the countries present in the sample it ranges from 4 to 98 percentage points. I expect a positive association between enrollment rates and the dependent variable.

Age Dependency Ratio

The dependency ratio is an age-population ratio of those typically not in the labor force (the dependent part) divided by those typically in the labor force (the productive part). In published international statistics, the dependent part usually includes those under the age of 15 and over the age of 64. The productive part makes up the population in between, ages 15 – 64. It is normally expressed as a percentage and it is a measure of the level of economic opportunity offered to the individuals in a country. I constructed this variable based on World Bank’ World Development Indicators, the Social Indicators section. I expect to see a negative association between this variable and the dependent variable, the higher the dependency ratio, the lower the GDP per capita growth rate.
Trade to GDP ratio

Trade in goods and services is an important indicator of economic integration and the driving force behind it. An easy way to measure it is to look at the trade to GDP ratio, which is the sum of imports and exports of goods and services at current prices as a percentage of GDP.

Economic theory and data indicates that international trade tends to be more significant for small countries, surrounded by neighbors with free trade regimes than for large, relatively self-sufficient countries or those that are geographically isolated and thus penalized by high transport costs. Other factors influencing the trade to GDP ratio are related to the structure of economy, presence of multinational companies etc.

The trade to GDP ratio is not one of the usual explanatory variables included in the average growth regression. However, it is included here because this ratio is a good measure of a country’s economic integration and degree of activity within its a trade bloc. As such the relationship between the dependent variable and trade to GDP ratio should indicate whether the impact of membership in an equal and unequal partner trading bloc on the country’s GDP growth is somehow dependent not only on country size or degree of economic development but more importantly on how actively the country is taking advantage of its membership within the trading bloc.

There is no specific cause and effect relationship between the trade to GDP ratio and the economic welfare of a country or funds that invest in the country, therefore it is uncertain what the sign of the relationship between this variable and the dependent will be.
A summary of all the variables in the model, their definitions and the data sources are presented in Table 1 below. For descriptive statistics please consult Table 5 on page 37.

### Table 1. Definition of Variables

<table>
<thead>
<tr>
<th>Dependent</th>
<th>Name</th>
<th>Definition</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Per Capita GDP growth rate</strong></td>
<td>Average annual Per Capita GDP growth rate between 1990-2005</td>
<td>World Bank, World Development Indicators</td>
<td></td>
</tr>
<tr>
<td><strong>Independent</strong></td>
<td>EP trading bloc</td>
<td>Type of trading bloc. Equal partners trading bloc = 1 Unequal partner trading bloc = 0.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC in Trading bloc</td>
<td>Type of country in trading bloc. Large country in trading bloc = 1; Small country in trading bloc = 0.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EP trading bloc*LC in trading bloc</td>
<td>Interaction variable, measuring the additional effect of a large country in an equal partner trading bloc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bureaucracy Quality</td>
<td>Measure of governance quality. Ranges from 0 to 4</td>
<td>International Country Risk Guide</td>
</tr>
<tr>
<td></td>
<td>Law and order</td>
<td>Measure of governance quality. Assessment of the strength and impartiality of the legal system and of popular observance of the law Ranges from 0 to 6</td>
<td>International Country Risk Guide</td>
</tr>
<tr>
<td></td>
<td>Current account balance</td>
<td>Measure of macroeconomic stability. The sum of the balance of trade, net factor income and net transfer payments.</td>
<td>World Bank, World Development Indicators</td>
</tr>
<tr>
<td></td>
<td>Government debt</td>
<td>Measure of macroeconomic stability. Proportion of debt to GDP owed by any level of government.</td>
<td>World Bank, World Development Indicators</td>
</tr>
<tr>
<td></td>
<td>Age dependency ratio</td>
<td>Proportion of dependents to working age population</td>
<td>World Bank, World Development Indicators</td>
</tr>
<tr>
<td></td>
<td>Investment Climate</td>
<td>Assessment of factors affecting the risk to investment that are not covered by other political, economic and financial risk components Ranges from 0 to 4</td>
<td>International Country Risk Guide</td>
</tr>
<tr>
<td></td>
<td>Life Expectancy at birth</td>
<td>Average number of years a child is expected to live, given the particular country circumstances, 1-100</td>
<td>World Bank, World Development Indicators</td>
</tr>
<tr>
<td></td>
<td>Secondary school enrollment (gross)</td>
<td>Percentage of children enrolled in secondary school out the total secondary school-age children.</td>
<td>World Bank, World Development Indicators</td>
</tr>
<tr>
<td></td>
<td>Incidence of Tuberculosis</td>
<td>Number of individuals with TBC out of 100,000 individuals</td>
<td>World Bank, World Development Indicators</td>
</tr>
<tr>
<td></td>
<td>Trade to GDP ratio</td>
<td>Sum of imports and exports of goods and services at current prices as a percentage of GDP</td>
<td>World Bank, World Development Indicators</td>
</tr>
</tbody>
</table>
V. Econometric Results

Table 2 below shows the results of the regression model. The first thing to be mentioned is that the F score of the regression, is above the critical value for all models presented, indicating that the overall models are statistically significant.

Table 2. OLS Growth Effects Regression Results (Models 1 to 3)

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
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<tbody>
<tr>
<td>gdp</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>EPWB</td>
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<td>-1.517***</td>
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<tr>
<td></td>
<td>(1.81)</td>
<td>(1.89)</td>
<td>(2.64)</td>
</tr>
<tr>
<td>LCWB</td>
<td>1.009</td>
<td>0.890</td>
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</tr>
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<td>(1.57)</td>
<td>(1.37)</td>
<td>(1.53)</td>
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<td>-0.016***</td>
<td>-0.022****</td>
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<td>(3.02)</td>
<td>(3.74)</td>
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<td>0.169</td>
<td>0.019</td>
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<tr>
<td></td>
<td>(0.95)</td>
<td>(1.02)</td>
<td>(0.12)</td>
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<tr>
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<td>-1.328***</td>
<td>-1.088***</td>
</tr>
<tr>
<td></td>
<td>(3.07)</td>
<td>(3.12)</td>
<td>(2.72)</td>
</tr>
<tr>
<td>law</td>
<td>0.757**</td>
<td>0.725**</td>
<td>0.646**</td>
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<tr>
<td></td>
<td>(2.60)</td>
<td>(2.52)</td>
<td>(2.40)</td>
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<td>-</td>
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</tr>
<tr>
<td></td>
<td>(0.74)</td>
<td>-</td>
<td>-</td>
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<tr>
<td>tuberc</td>
<td>-</td>
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<td>0.000</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>(0.44)</td>
<td>(0.07)</td>
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<tr>
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<td>0.005</td>
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<td>(0.63)</td>
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<td>(0.31)</td>
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<td>-0.018</td>
<td>-0.019</td>
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<tr>
<td></td>
<td>(1.79)</td>
<td>(1.59)</td>
<td>(1.66)</td>
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<tr>
<td>current</td>
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<td>-0.101</td>
<td>(1.73)</td>
</tr>
<tr>
<td>trade</td>
<td></td>
<td>0.011</td>
<td>(1.64)</td>
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<tr>
<td>Constant</td>
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<td>3.511**</td>
<td>3.933**</td>
</tr>
<tr>
<td></td>
<td>(2.49)</td>
<td>(2.44)</td>
<td>(2.63)</td>
</tr>
<tr>
<td>Observations</td>
<td>108</td>
<td>108</td>
<td>104</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.30</td>
<td>0.30</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Absolute value of t statistics are in parentheses
* significant at 10% **significant at 5%; *** significant at 1%
Looking at the two main independent variables of interest we can see that, for Models 1 and 2, while membership in equal partner RTAs has a significant impact on growth at the 10% level, being a large country in the bloc does not have a significant impact.

The negative sign associated with the equal partners trading bloc indicates that being a member of such a trade bloc is less beneficial to growth than being a member of a trading bloc of unequal partners. This result supports previous studies that argue a North-South type of RTA is more beneficial than either North-North or South-South RTAs. This result is consistent with trade theories that argue that membership in trade blocs with countries that have complementary economies positively impacts the gains from trade derived by the members.

Being a large country in a trading bloc has a positive sign but this relationship is not statistically significant. The positive sign was expected either because large countries are assumed to have greater bargaining power or better infrastructure which allows them to trade faster, cheaper and more efficiently. However in the context of the present research this does not seem to be the case as the coefficient lacks significance.

Model 3 (Table 2) indicates that if we add to the model a variable that measures the percentage of trade in GDP, the coefficient on the large country dummy decreases in size but stays positive and increases in significance. However the coefficient still lacks sufficient statistical significance at the accepted levels but the fact that the confidence interval increases suggests a potentially interesting relationship: since the coefficient gains significance when size decreases, we can infer that while the gains to large
countries are greater, they are probably very small even when statistically significant.

Thus, what is often attributed to the size of the member country may have more to do with the member’s level of trading activity within the bloc.

Table 3/ OLS Growth Effects Regression Results (Models 3 to 5)

<table>
<thead>
<tr>
<th></th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
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<td>gdp</td>
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<td></td>
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</tr>
<tr>
<td>EPWB</td>
<td>-1.517</td>
<td>-1.607</td>
<td>-1.957</td>
</tr>
<tr>
<td></td>
<td>(2.64)***</td>
<td>(1.59)*</td>
<td>(2.08)**</td>
</tr>
<tr>
<td>LCWB</td>
<td>0.932</td>
<td>0.704</td>
<td>0.738</td>
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<tr>
<td></td>
<td>(1.53)</td>
<td>(0.96)</td>
<td>(1.06)</td>
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<td>equallarge</td>
<td>-</td>
<td>0.761</td>
<td>0.750</td>
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<td>(0.59)</td>
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<tr>
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<td>-0.015**</td>
<td>-0.021***</td>
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<tr>
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<td>(3.74)</td>
<td>(2.93)</td>
<td>(3.57)</td>
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<td></td>
<td>(0.12)</td>
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<td>(0.13)</td>
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<td>-1.088***</td>
<td>-1.281**</td>
<td>-1.040**</td>
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<td>(2.72)</td>
<td>(2.94)</td>
<td>(2.54)</td>
</tr>
<tr>
<td>law</td>
<td>0.646**</td>
<td>0.725*</td>
<td>0.644**</td>
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<td>(2.40)</td>
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<td>(1.44)</td>
<td>(1.54)</td>
</tr>
<tr>
<td>current</td>
<td>-0.101</td>
<td>-</td>
<td>-0.100*</td>
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<tr>
<td></td>
<td>(1.73)</td>
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<td>(1.70)</td>
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<tr>
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<td>-</td>
<td>0.010</td>
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<td>(1.64)</td>
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<td>(1.54)</td>
</tr>
<tr>
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<td>3.467*</td>
<td>3.912**</td>
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<tr>
<td></td>
<td>(2.63)</td>
<td>(2.39)</td>
<td>(2.61)</td>
</tr>
<tr>
<td>Observations</td>
<td>104</td>
<td>108</td>
<td>104</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.34</td>
<td>0.30</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Absolute value of t statistics are in parentheses
* significant at 10% **significant at 5%; *** significant at 1%
It is notable however, that when we add to the model an interaction variable between the two main variables of interest (see Table 3 below), the coefficient for equal partner trade bloc remains significant and negative. When we do not control for share of trade in GDP and the current account balance the coefficient is only significant at the 10% level. However, the country size variables never becomes significant although its significance increases as the coefficient decreases once we control for the interactive variable.

With regard to the control variables in the model most have the expected sign but only a few are statistically significant.

For example, from the two variables used to measure the effect of governance, the law and order variable, displays the expected sign, indicating a positive effect of rule of law on the growth rates of GDP per capita. The coefficient is also statistically significant. However, the other indicator of governance, the bureaucracy quality variable, is negatively associated with GDP/capita growth. This result seems counterintuitive but it could also be reflecting the fact that the middle and upper middle income economies in the sample have quite burdensome bureaucracies.

The macroeconomic stability variable, however is statistically significant and does have the expected sign, indicating that a high level of public debt in relation to the size of the economy negatively affects per capita GDP growth. This is consistent with what economic theory indicates the signs should be. To be noted that the coefficient is statistically significant at all significance levels.
When it comes to human capital control variables, we observe that while secondary school enrollment has a positive effect on the dependent variable, the coefficient is not statistically significant. The coefficient for the age dependency ratio is highly significant and negative, as expected.

Life expectancy at birth however, is not statistically significant and it has an unexpected negative sign. While this relationship seems both strange and unlikely, it may simply reflect the fact that middle and upper middle income economies, with lower life expectancy grow faster than countries with higher life expectancy rates. Another explanation is that the variable might have needed a longer log than the other variables.

Alternatively, in Model 2 the change is made between life expectancy and the incidence of tuberculosis as health indicators. If we use incidence of tuberculosis per 100,000 individuals as a proxy for the health variable, we observe that there is little variation in the other coefficients but this time, the health variable has the expected sign suggesting a negative relationship between incidence of tuberculosis and GDP growth rates. Nevertheless the coefficient lacks significance in this case as well.

A potential source of error and weakness of this model comes from the use of the World Bank’s country classification by income (table 4) in order to divide trading blocs into those comprising equal partners and those of unequal partners and also to divide the countries into large and small. While the World Bank’s country classification by income does follow a clear, consistent methodology for cut-off, frequently members of trading blocs, while in different income groups, have very similar GDP/capita. This is especially the case of trading blocs with members from the middle income and upper middle income
groups. However, as previously mentioned, for the purposes of this research, middle income countries have been categorized as small countries, while upper middle income countries have been labeled as large countries. One possible way to increase the robustness of the model would be to establish a cut off based on the average per capita GDP of each trade bloc and determine what qualifies as reasonable variation around the mean for a trade bloc to be classified as either equal or unequal or for a country to be large or small.
VI. Conclusions and Policy Implications

1. Conclusions

In this paper I construct a dynamic statistical model in order to measure the impact that membership in a regional trading bloc of equal and unequal partners has on the economic welfare of individual member countries. While there are no simple answers to be found, the economic tradeoffs that countries face in making these choices can be identified and the process of decision making made better informed. I find that membership in trade agreements of unequal partners leads to higher GDP growth rates than membership in trade agreements of equal partners. The results also indicate that larger countries tend to benefit more than developing countries from membership in such agreements. It may however be the case that results point this way simply because most equal partner trade agreements which have developing countries as members tend to be located on the African continent that has experienced very low growth rates in the past decades.

2. Policy Implications

The fairly recent expansion of regional trade agreements is the result of a complex mix of factors, internal and external to the country making the decision. The economic, political and security factors vary significantly in nature and over time.

Among other relevant internal factors, the most mentioned are: economic growth resulting from increased internal economic efficiency due to increased competition, and improvement of the institutional framework. Opening up to foreign influences directly
generates incentives to adjust and improve domestic rules and facilities so that opportunities for trade and investment are not wasted. This is mostly the case for developing countries that may lack the political support to adopt unpopular reforms but once they become members in a RTA they use the support and pressure from the more developed members to implement useful but unpopular measures.

Among the external factors relevant for this thesis are the securitization and expansion of markets for domestic companies, thus enabling local producers to reap economies of scale type of benefits. This is an especially relevant factor for small countries. However, perhaps even more crucial is the fact that, given the new rise in regionalism, countries that opt to stay out may pay a very high opportunity cost.

Until recently however many small developing countries have feared the economic domination of more developed RTA members and decided either not to join any RTA or to join only those with countries at a similar level of development. In the light of this research’s findings this behavior seems less than optimal, from a development perspective. The results show that countries in trade blocs of unequal partners experience a higher GDP growth rate. And although the results suggest that larger countries have more to gain than smaller countries, regardless of the type of trade bloc, that result is not statistically significant.

When we control for the proportion of trade in GDP and the current account balance, the effect of country size on growth does become significant. Specifically larger, more developed countries benefit more than less developed countries. This result points to the need for further research. For example, what role does infrastructure play in this regard? Is it the case that developing countries gain less from trade agreements because
they lack the infrastructure needed to take advantage of the opportunities or is it there some other explanation? Is it the case, as some suggest, that due to higher bargaining power, developed countries tend to impose rules which give them an advantage over their smaller poorer partners? If the cause does indeed prove to be infrastructure then perhaps more attention should be given to the WTO’s Aid for Trade program, as it is precisely the aim of this program to finance trade facilitation and infrastructure in developing countries.
Table 4: Country Groups by Income

**Low-income economies (43)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Low-income economies (43)</th>
<th>Low-income economies (43)</th>
<th>Low-income economies (43)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>Afghanistan</td>
<td>Guinea-Bissau</td>
<td>Rwanda</td>
</tr>
<tr>
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<td>Bangladesh</td>
<td>Haiti</td>
<td>Senegal</td>
</tr>
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<td>Benin</td>
<td>Benin</td>
<td>Kenya</td>
<td>Sierra Leone</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>Burkina Faso</td>
<td>Korea, Dem Rep.</td>
<td>Somalia</td>
</tr>
<tr>
<td>Burundi</td>
<td>Burundi</td>
<td>Kyrgyz Republic</td>
<td>Tajikistan</td>
</tr>
<tr>
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<td>Cambodia</td>
<td>Lao PDR</td>
<td>Tanzania</td>
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<td>Central African Republic</td>
<td>Liberia</td>
<td>Togo</td>
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<td>Chad</td>
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<td>Uzbekistan</td>
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<td>Eritrea</td>
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<td>Yemen, Rep.</td>
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**Lower-middle-income economies (55)**

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<th>Lower-middle-income economies (55)</th>
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<td>India</td>
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<td>Armenia</td>
<td>Armenia</td>
<td>Indonesia</td>
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<td>Iraq</td>
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<tr>
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<td>Maldives</td>
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<td>Egypt, Arab Rep.</td>
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<td>Nigeria</td>
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<td>Guatemala</td>
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### Upper-middle-income economies (46)

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<th>Poland</th>
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<td>Romania</td>
<td>Russian Federation</td>
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<td>Kazakhstan</td>
<td>Serbia</td>
<td>Seychelles</td>
</tr>
<tr>
<td>Belarus</td>
<td>Latvia</td>
<td>South Africa</td>
<td></td>
</tr>
<tr>
<td><strong>Bosnia and Herzegovina</strong></td>
<td>Lebanon</td>
<td>St. Kitts and Nevis</td>
<td></td>
</tr>
<tr>
<td>Botswana</td>
<td>Libya</td>
<td>St. Lucia</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>Lithuania</td>
<td>St. Vincent and the Grenadines</td>
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<td>Bulgaria</td>
<td><strong>Macedonia, FYR</strong></td>
<td>Suriname</td>
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<td>Malaysia</td>
<td>Turkey</td>
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<td>Palau</td>
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### High-income economies (66)

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<tbody>
<tr>
<td>Antigua and Barbuda</td>
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➢ Correlations

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Selective bibliography

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Lo Turco, Alessia, *South-South Regional Trade Agreements and Growth. A Panel Data Approach to the Evaluation of Three Latin American Trade Agreements*, Universita Politecnica delle Marche, Dipartimento di Economia, Quaderni di Ricerca n. 190, 2003


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