

Trade Policy and Economic Growth in Latin America: an analysis with panel data.

Lucas Bispo de Oliveira Alves (UnB)¹

Geovana Lorena Bertussi (UnB)²

Abstract

The relation between commercial policy and growth has always been one major concern in Economics. Latin America has been in a privileged position regarding this issue in the twentieth century, as it deepened the imports substitution model and later began to dismantle it. Simultaneously, growth rates were notably volatile, which complicates the evaluation of the effects of trade on growth. This paper applies a fixed effect panel data methodology for the 11 largest Latin-American economies from 1960 to 2010. The main result is that, over periods longer than two decades, the relation between commercial openness and growth is unclear.

Key Words: Trade Openness, International Trade, Economic Growth, Protectionism and Free Trade.

JEL Classification: F13, F43, N16.

¹ Majored in Economics at University of Brasília (UnB). Currently a Master's student of UnB. E-mail: bispoalves92@gmail.com.

² Professor of Economics at University of Brasília (UnB). E-mail: geovanalorena@gmail.com.

1. Introduction

Economic growth has been one of the most important issues within Economics since its beginnings. It is no exaggeration to say that the end of economics is to promote growth. Perhaps, not isolated, in the sense of a simple increase in output, but in a more general sense, promote the improvement of conditions of living (and the growth of output is a necessary condition for that).

One issue that has always been very closely related to the problems of economic growth is international trade. Since the time of Adam Smith and his thoughts about the benefits of specialization and expansion of markets, going through the argument of the infant industry until the export promotion policies and later on liberalization, according to the Washington Consensus, the pendulum has been swinging between protectionists and liberalizing prescriptions.

To add difficulties to the issue of international trade, a decision in this matter is a political decision as much as a technical one. This is because different sets of commercial regulation can benefit or harm different groups of interest in society, which may have more or less political power to influence the decisions.

Latin America has been the stage for productive debates related to the international trade and growth throughout the twentieth century. Its historical experience provides interesting insights regarding the relationship between both. It is a fact that throughout the century there has been a great divergence between the countries of the continent and the more dynamic regions of the world. Whilst many researchers support the view that, largely, this process of divergence is due to the implementation of trade policies that were fundamentally wrong, others defend the view according to which only this same policies, if well implemented, could have unbound Latin America of impoverishing processes that would keep it in an eternal stage of backwardness.

In the Latin American stage, three specific paradigms are noteworthy. The first can be understood as the set of policies known as Imports Substitution Industrialization (ISI). The main strategy of ISI was to protect domestic markets so that domestic firms could grow and develop in a first stage without competition from mature foreign rivals. The second paradigm is of strong Asian inspiration and is usually referred to as Exports Promotion (EP) strategies. It was understood as an alternative to the first paradigm for years, until the strong crisis of the 80s and 90s led most countries in Latin American to implement reforms towards free trade, which is effectively the third paradigm, to which the previous are opposed (TAYLOR, 1999).

That being said, Latin America offers plenty of material to foster debates about the relationship between trade policy and growth. Therefore, this paper aims to investigate in theoretical and empirical terms this relationship in the Latin-American context. It uses a panel of data spanning from 1960 to 2010 and referring to the 11 biggest Latin-American economies, which represented 90% of the GDP in the region in 2010. The dependent variable is the average of economic growth rates for 5 years ahead and the independent variable, accompanied by a number of control variables, is the coefficient of openness, defined as the ratio between the sum of exports and imports and yearly GDP.

The general finding is that for longer periods, the relationship between openness and growth is unclear. The empirical results in the literature, whether favorable or contrary to the null hypothesis that commercial openness is beneficial to growth, are not robust to changes in estimation techniques, control variables and time span of the data. This conclusion, however, must not be interpreted as conclusive evidence in favor or contrary to the null hypothesis, but it alerts to

risks of assuming premature conclusions in face of the complexity of the econometric challenge of empirically analyzing this type of macroeconomic data.

The paper is divided into 5 sections besides this introductory part. The second section discusses the arguments in favor and against free trade, ISI and EP, which are central to the Latin-American debate. The third section explores the recent empirical literature that aims to understand the relationship between trade policy and growth. The fourth section is dedicated to the methodology adopted in the empirical study. The fifth section presents the results of the econometric study. Finally, the sixth section presents the conclusions.

2. Alternative Trade Policies

Historically, free trade thought was developed and formalized by thinkers such as Adam Smith and David Ricardo in an intellectual effort to deny mercantilism. According to the latter, it should be the goal of trade policy to obtain ever-positive results in the balance of payments, exporting more than importing from the rest of the world, to allow for metal accumulation and subsequent increase in the wealth of nations. Wealth was understood then solely as the internal availability of precious metals in a country.

The argument developed by Adam Smith focuses in the idea of Absolute Advantage, clearly described in the following excerpt:

“It is the maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy.... If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it of them with some part of the produce of our own industry, employed in a way in which we have some advantage.” (SMITH, A. An inquiry into the nature and causes of the Wealth of Nations. The University of Chicago Press. 1976. p.p. 264-265).

According to Smith's view, the criterion to justify free trade between two nations is based in the capacity of one or the other to produce certain good at a lower price than the other nation can produce it. This absolute advantage could be justified by technological, geographic or technical differences.

In case there are no impediments to commerce, nations benefit from the transactions based in this principle. In fact, Smith points out that trade had made countries richer, citing examples not only in Mediterranean cultures like Egypt, Greece and Rome, but also China and India, commenting that in the case of the first, interventionism hindered a faster pace of advancements in that country.

Smith's argument did not comprise, however, the situation in which a nation could make all goods at a lower price than a second nation. In this case, the second nation would have to import everything it consumes without having any produce. It could offer the first nation in exchange for the second nation's goods. David Ricardo, introducing the concept of comparative advantage, made further steps in refining the reasoning.

According to Ricardo's thought, even if a nation could make all goods at a lower price, there would still exist the possibility of trade between two nations, because the principle behind the commercial fluxes would not be the price of goods, but the relations between the price of imports and the price of exports. The nation that possessed the lower opportunity cost in the production of a good possessed the comparative advantage in that good and should specialize in exporting that good and importing the others. As nations specialized in the production of the goods for which they held the comparative advantage, commerce would be potential beneficial for all.

The idea of comparative advantage was very successful and improvements have been proposed several times since its conception. In the XX century, economists Eli Heckscher and Bertil Ohlin developed a popular model known as the Heckscher-Ohlin model. They characterized two goods, being one labor-intensive and the other capital-intensive. In addition, they characterized two countries, being one abundant in labor and the other abundant in capital. The model justifies mutually beneficial trade between the two countries when each country specializes in the production of the good that is intensive in the factor of production it is most abundant. Therefore, it is an improvement of the original comparative advantage idea.

The Heckscher-Ohlin model and the long tradition it is part of seems to explain a lot of the inter industry trade, that being, between countries that specialized in the production of very different goods, like commodities and higher value added industries. The significant increase of trade between developed countries, frequently referred to as north-north trade, comprises exchanges of goods of similar industries. North-north trade accounts for most of international trade in present days and it remained poorly understood before the creation of the so-called New Theories of Trade, capable of explaining a variety of types of trade and once again justify free trade.

Seminal articles by Krugman (1979, 1980), Helpman (1981) among others, proposed models that relaxed the hypothesis of perfect competition, indispensable for the previous models. They introduced the idea of monopolistic competition, also present in the models of endogenous growth, and the idea of strategic market equilibriums. Constant return hypothesis are replaced by increasing returns, which are consistent with the formation of international industrial clusters and with intra industry trade, phenomena that were being observed for decades in the developed world (SARQUIS, 2011).

Besides this approaches, free trade also finds justifications in utilitarian analysis. According to the first social welfare theorem, every competitive market equilibrium is pareto-efficient. Deviations from competitive equilibrium (by means of a tariff, a quota or any kind of intervention) are not wanted. Free trade is capable of generating the most benefits for all nations.

Tariffs and quotas have the effect of transferring part of the market surplus for a specific group of agents, causing, however, an overall loss of surplus or deadweight-loss.

The hypothesis acting behind the above is the existence of perfect competition, except in the models proposed by Krugman (1979,1980). The models that are against the prescription of free trade are based largely in refuting this hypothesis. Latin America was the stage on which the idea of Imports Substitution Industrialization became popular and effective between the 30s and the late 70s. In the following subsection, we analyze this trade policy model.

2.1 Imports Substitution Industrialization (ISI)

ISI model consists in the protection of the domestic market, by means of tariffs, selective concession of imports licenses, multiple exchange rates, etc. It is traditionally justified by the infant industry argument, which suggests that a manufacturing industry cannot come to exist in countries that possess comparative advantage in the production of primary goods, because possible enterprises in this kind of countries would be unable to compete with the foreign industry, which takes advantage of significant economies of scale and technologies incorporated in the productive process.

More recent versions of the infant industry argument focus on other difficulties faced by potential entrant firms coming from developing countries. Special attention is given, for instance, to difficulties imposed by the existence of underdeveloped financial markets in developing countries, besides the existence of barriers to entry imposed by developed countries, such as sanitary restrictions and regulations, taxes and the protectionist policies themselves. Other market failures, such as informational problems, coordination failures and externalities are also used as justification to promote infant industry or support other kind's government intervention (KRUGMAN, 1984).

Defendants of the ISI policy argue that, if the domestic market is closed by means of imposition of barriers of entry to foreign products, domestically established firms should have conditions of developing themselves exploring the domestic market up until when they achieve technological maturity and scale of production that allow them to face foreign competition both in the domestic market itself and in the international market.

In addition to that, it is argued that the imposition of barriers to entry can alter the incentives to which foreign firms are subjected in such a way that they try to establish themselves productively in protected markets in order to explore their consumer power, which would be inaccessible otherwise (ZHOU, 2008).

A very frequent proposition is that ISI policy is more effective the biggest the country that applies it is, because the biggest the domestic market, the biggest the potential gains in terms of economies of scale are (WESTPHAL & KIM, 1982).

Three fundamental premises regarding ISI are noteworthy. The first is the proposition that a country needs to develop a manufacturing base in order to reach higher levers of income. Manufacture is understood as the industry where one should expect to obtain the most important technological advances and, therefore, the most significant gains in productivity, which can be converted to growth and higher income for the population. A second premise is the abandonment of the hypothesis of perfectly competitive markets. The third premise is the idea that the protection of the domestic market must be suspended at some point.

The three premises are the focus of open debates. Free trade proponents would focus the so called static gains of trade in contrast to the deadweight loss related with protectionism and would not accept the hypothesis that manufacture is special when compared to any other industry.

Raul Prebisch (1950) formalized the classical ECLAC (Economic Commission to Latin America and the Caribbean) argument in favor of fomenting manufactures based on the hypothesis of the trend of deterioration in the terms of trade of developing countries, given the fact that these countries specialize in primary industries.

James Meade (1955) did not agree with the infant industry argument. He stated that the simple existence of high costs of production in less industrialized countries would not be enough to justify protection from the efficiency standpoint. He thought, however, that technological externalities involved in the process of industrial learning could be enough justification for infant industry protection. Nevertheless, this protection could be promoted in an efficient way with the simple introduction of subsidies to facilitate the process of discovery and mastering or importing the production techniques and the achievement of high productive scales, instead of raising tariff barriers.

Baldwin (2004) presented one of the most convincing criticisms to ISI. This author suggests that the proponents of ISI did not fully appreciate the implications of this policy on other macroeconomic variables, jeopardizing the sustainability of the policy in the long run. Did not take in account, for instance, the effect of protection on exports and consequently on the results of the balance of payments and the availability of foreign currency. Neither did they take in account reckonings of budgetary or inflationary order nor, finally, crisis derived from the poor administration of such variables made most countries abandon the idea of ISI by the end of the 70s. This was clearly the case for countries like Brazil.

Beyond this criticism, many authors developed arguments that are very near the dividing line between economics and other social studies in order to refute the idea of ISI, focusing on problems and historical experience revealed throughout the decades.

Krueger (1974) focuses on rent-seeking problems and problems relates to the formation of groups of interest that compete for such rents, which implies a high social cost. Historically, she observed that, in the effort of developing a manufacturing industry, governments of distinct countries sought to benefit certain groups, conglomerates or families that turned out to become too powerful in the political arena in those countries. This gave birth to a pattern of perpetuation of the protection they received initially from their governments. It is the case of the South Korean conglomerates, known as Chaebols, despite the fact the case of South Korea is more closely related to Exports Promotion, as will be discussed in the next subsection (GUIMARÃES, 2010).

Another difficulty inherent to ISI is related to the problem described by Krueger and derives from the determination of the moment that protected firms have reached technological maturity and productive scale in order to be able to survive without protection. It cannot be made according to any objective criterion from the technical point of view, depending on a political decision that ends up being delayed due to the influence of those firms that became strong due to protection itself.

Grossman and Helpman (1991) focus on the competitiveness difficulties verified in protectionist countries. The isolation from international markets eliminates the incentive for domestic firms to innovate. In fact, many studies of the Brazilian case, for instance, indicate that the country developed a chronic difficulty in terms of productivity because of the ISI strategy and argument that this difficulty was alleviated in moments of higher commercial openness, as is the case of the works by Baumann and Franco (2005) and Ferreira and Rossi (2003).

The difficulty in carrying out experiments in social sciences adds a barrier to the theoretical and empirical debates surrounding the issue at hand. While it is a fact that many countries in the world, such as India, Brazil, and Latin America in general, adopted consistently for decades ISI policies, developing manufacturing industries in their territory, there is no unequivocal way of pointing that the standard of living in this countries improved as a result of this policies. Moreover,

there is no telling whether the improvements in the standard of living in these countries was higher than it could have been should this country have adopted other kinds of policy.

The strong crisis in the 80s and 90s took most countries in Latin America to abandon ISI. This put the export promotion model, traditionally related to the recently industrialized fast growing East Asian countries, in even more evidence. We focus on EP models in the following subsection.

2.2 Exports Promotion (EP)

Another trade policy model typical from the 20th century is called Exports Promotion model (EP). Japan and South Korea are the most commonly related countries to this policy, besides Taiwan and Singapore, while Hong Kong, in the other hand, has been implemented free trade policies for decades (BALDWIN, 2004).

Authors like Palley (2012), however, sustains that in a first moment, between 1945 and 1970, Germany was the pioneer in EP consistent policies and, in a latter moment, in addition to the Asian Tigers, Mexico was part of the EP countries group, although it was less successful than others before it.

Exports Promotion strategy consists in heavy industrial policy. ISI has relied, from the industrial policy point of view, in the entrepreneurial State, that took for itself the task to realize investments in strategic sectors. EP countries had less expressive experiences with this sort of state-led capitalism.

The tools most frequently used are the subsidy to exports, tax exemption to exporters, easy access to credit directed to exporters and strategic sectors, participation of the State as a risk absorbent and foment to technological development and technology transfer through international competition.

The set of subsidies allocated to the export sector works as a transference to importer countries, which would engage more intensely in trade with the export promoter country, increasing its benefits from trade in the terms of the Heckscher-Ohlin model (PALLEY, 2012).

Besides that, the economies of scale are no longer limited to the size of the domestic market, but by the size of the international market accessible by the firms of the export promoter country. The competition with the foreign competitors generates incentives to the development and technological transfer (KRUGMAN, 1980).

The exports lead to more technological learning, because the access to advanced markets demands the transfer of technology from more advanced countries in order to meet the expectations of a more demanding consumer market (AMSDEN, 1989).

The presence of exporter firms in a country also favors the assimilation of new technology due to the vertical integration with local firms, which are put under pressure for more quality, technology and administrative processes. Local providers learn with exporter firms and can benefit from the spillover effect related to professionals who increase their level of skills in the exporter firms (HOBDAV, 1995).

The empirical evidence seems to suggest that countries that adopted the EP strategy achieved better results than countries that adopted ISI. However, a number of problems have been reported. The rent-seeking issue and the formation of interest groups also seems to affect EP countries (GUIMARÃES, 2010).

Woo-Cumins (1999) and Guimarães (2010) describe the political problems caused by the existence of conglomerates born out of the protection and tutoring of South-Korean government, the *Chaebols*. This *chaebols* ended up capturing state bureaucracies making them operate in favor of their private interests, causing great popular unrest and contributing to the political component of the 1997 crisis in that country.

Other countries, based on the works of Hirschman (1956), support that EP can generate a poor manufacturing industry in terms of forward and backward linkages, making the countries mere exports platforms, what limits the social distribution of the benefits of the operation of exporter firms in a country.

Traditionally, ISI and EP are treated as opposite strategies that, if implemented simultaneously, neutralize one another. Greenaway and Milner (1987) and Bhagwati (1989) defend that experiences of ISI in East Asian countries are mere exceptions, configuring a thought aligned with the idea of mutual exclusion between ISI and EP. However, others disagree and think that both policies can be implemented in a complementary way (SINGER and ALIZADEH, 1986).

Zhou (2008), for instance, carried out a case study with high technology Chinese firms and concluded that their success is mostly due to Chinese government policies, which synchronized EP and ISI. He states that the success of Chinese technology firms is strongly related to the market protection they had in China, what provided then a test terrain to develop and grow, but it is also related to the competition with multinationals, which generated the incentive they needed to invest in innovation. The source of most of the technological advancements was the external sector. As Chinese firms were devoted to foreign markets that were demanding and competitive, they were able to satisfactorily supply the domestic market.

3. Trade Policy and Growth

In face of the rapid growth in East Asian countries, particularly South Korea, Taiwan and Singapore, the interest for the empirical and econometric analysis of the relation between trade policy and growth increased substantially. The success of these countries is frequently related with the implementation of EP policies. On the other hand, the economic slowness of Latin America and the deepening of macroeconomic difficulties also provided stimuli to the renewed interest for this matter from the 70s on.

Throughout the 60s, the effective rate of protection concept was formalized. It is a measure of protection based on the value added instead of based in the final price of a product and, therefore, takes in consideration the level of protection embodied in the inputs as much as in the final product. This approach allows a better comprehension of the fact that if a product is exported without any subsidy, but the exporter buys inputs that are produced domestically in a protected environment at prices naturally higher, export is actually being penalized in comparison with the free trade scenario. Similarly, if there are no restrictions to the import of inputs or if they are inferior to the restrictions imposed to the final product, in reality the effective rate of protection is higher (BALDWIN, 2004).

In the beginning of the 70s, studies like the ones by Little, Scitovsky and Scott (1970) and Balassa (1971) used the recently formalized concept of effective rate of protection to compare the protection among industries in different countries. In the case of the study by Little, Scitovsky and

Scott, the countries analyzed were Argentina, Brazil, India, Mexico, Pakistan, Philippines and Taiwan, covering the period between 1948 and 1971 for all countries. In the case of the study by Balassa, the countries were Brazil, Chile, Mexico, Malaysia, Pakistan, Philippines and Norway, which was included to allow a comparison with a developed country.

The main result of these pioneer studies was to demonstrate that the rate of protection was, in most countries, much higher than originally thought, exceeding 100% or even 1000% in some cases. Besides that, the inexistence of the concept of effective rate of protection until then made most countries raise protective structures in many industries where protection itself did not make much sense, protecting some industries in detriment of others in a manner that could not be justified.

The studies by Krueger (1978) and Bhagwati (1978) focus on the correlation between inward and outward-oriented policies and other macroeconomic variables related to Chile, Colombia, Egypt, Ghana, India, Israel, South Korea, Philippines and Turkey, covering variable periods according to the country but broadly between the 40s and the 70s. They used the effective rate of protection and nominal rates of protection of imports and exports corrected by subsidies and non-tariff barriers to imports.

The general conclusion of both studies is that inward-oriented policies, that being, ISI policies, did not produce good results in terms of long run growth trend, while outward-oriented policies did. They find a positive correlation between outward-oriented policies and a better administration of other economic policies, such as monetary and fiscal policies and competition laws. Note that Dornbursch and Fischer (1993) say that a high inflation rate is also an indication of poor macroeconomic management and of the inability of governments to implement sound economic policies, which affects directly investment and consequently growth.

During the 70s and 80s, a number of cross-sectional studies were made. Balassa (1978) ran a regression for a diversity of countries between 1945 and 1970 in which dependent variable "growth rate" was explained by the rate of growth of exports. He found a positive and significant relation between both variables for all the countries in the study. Krueger (1978) also found a positive relationship between the growth rates and export growth rates, but did not find evidence of an independent relation between the extent of the liberalization of exchange rates and trade and growth rates also in a panel data study for dozens of countries, spanning from 1950 to 1975 in quarterly data.

A fundamental criticism that can be made to the studies of Balassa and Krueger mentioned in the previous paragraph is that they can have suffered from endogeneity, since the growth of exports and the growth of output can be involved in a causality loop, affecting the estimation of the parameters. Besides that, a criticism that is normally made to all cross-sectional studies in this period is about the reliability and accurateness of the data provided by the authorities of the different countries. Many countries simply did not possess advanced statistical resources and others may have deliberately altered the data to favor specific interests (EDWARDS, 1993 and SRINIVASAN and BHAGWATI, 2001).

Finally, a third criticism is that the mechanism that relates trade policy and growth is not direct. The connection between both depends on the intermediation of key-elements such as productivity, technological advancement and innovation. Therefore, studies that do not consider these intermediate variables could be neglecting important determinants and biasing the estimation of the parameter (GROSSMAN and HELPMAN, 1991).

Dollar (1992) focused on the export promotion policies. His approach consisted in comparing the level of prices in 95 countries between 1976 and 1985 calculated to a specific basket of goods and later applying controls to eliminate the interference of differences of prices of non-tradables. After, he ran regressions relating his measure of outward orientation, constructed from the comparison of prices mentioned above with the rates of growth in the 95 countries. The general result was that countries with more price distortions favoring exports presented higher growth.

However, Rodriguez and Rodrik (2001) and Baldwin (2004) agree on that, due to a series of methodological and theoretical weaknesses, Dollar's study does not authorize his conclusions. The main criticism is about the construction of this outward orientation measure. Based on a basket of goods including tradables and non-tradables, Dollar's strategy to eliminate the influence of non-tradables was to regress the estimate of prices on the level of per capita income of the countries. The idea is that what explains differences in prices of non-tradables is the cost of the factors of production, which depends on the endowment of country in each factor. Since there is no direct measures of the availability of factors in the countries, he considered that the level of income per capita was a good proxy to that variable. Rodriguez and Rodrik consider this method crude and it is no surprise to them that Dollar's results are not as expected for many countries. Furthermore, they argue that additional controls for subsidies and protection should have been implemented in order to allow the comparison between international prices as a measure of outward orientation.

Although Latin American countries were included in the previous studies, both in the cross-section and in the studies that focused on isolated cases, the studies specifically focused on the region are many.

De Gregorio and Lee (1999) in an attempt to understand the sources of growth in Latin America used two complementary approaches, including growth decomposition to appreciate the TFP (Total Factor Productivity) behavior and cross-section regressions to compare growth in Latin America with other regions. They used a data panel relative to the period from 1960 to 1995 - for 21 countries in the region. Their study raises evidences that point to the necessity of strengthen the human resources and institutional and political factors. They conclude that high inflation and inward oriented policies are the main causes of low growth. The authors argue that the reforms in the 90s improved sensibly the perspectives of growth in the region.

Taylor (1999) researches the determinants of low growth in Latin America throughout the 20th century in the restrictions to capital flows. He observes that in the beginning of the century, the continent was a particularly poor region in the world periphery due to the lack of capital. In face of the difficulty to generate domestic savings, the influx of foreign investments would be fundamental to overcome this condition. In fact, the inflow of investments was high during the first decades of the 20th century and suffered a strong decrease in the 30s due to the great depression. However, the author argues that it was the institutional design that followed the implementation of inward oriented policies, particularly barriers to capitals, which slowed the inflow of investments in the long run and condemned the countries in the region to low growth. The author discusses the quantitative impact of barriers to capital introduced as part of a set of policies typical of ISI of significant throughout the century, making intensive use of graphs and descriptive tables from macro panorama of the countries in the region.

Following a similar strategy, Holland and Vieira (2005) try to relate growth with foreign liquidity and the degree of openness of the markets of the region. They use a panel data obtained

in the World Bank and in IMF composed by the largest 11 economies in the continent, as well as the panel used in the empirical part of the present work, for the period between 1972 and 2000. The interest for the issue of external liquidity is justified by the fact that the external component was preponderant in the crisis of the 80s and the 90s. The authors observe that previous studies found controversial results regarding the relationship between external liquidity and growth. The results they found suggest a positive relation between external liquidity and growth, but the authors do not find a clear relation between trade openness and growth.

In a very similar study, Eichengreen and Leblang (2002) find a positive and significant relation between external liquidity and growth, as well as between trade openness and growth, defined as the quotient of the sum of exports and imports and the GDP of each country. The data used in this study span from 1975 to 1995 and cover a sample of 47 countries.

McLean and Shrestha (2002) find results that suggest that FDI (Foreign Domestic Investment) is highly related to growth and that open countries receive more FDI. They show that the results are robust to changes in the sample of countries in the sense of including or not developed countries. Arteta et al (2001) try to include variables relative to the quality of institutions. They use a dummy developed by Sachs and Werner (1995) to trade openness and find positive and significant coefficients for the case of Latin America, although they are rather low and so they argue that countries that eliminated macro imbalances benefitted more from liberalization.

The works by Adrogué, Cerisola and Gelos (2006) and Koshiyama, Alencastro and Fochezatto (2007) are of particular interest, because they time span is similar to the one proposed in the present paper, while the other papers focused in periods that are more restrictive.

The first tries to evaluate the relation between the openness coefficient, defined as the quotient between the sum of exports and imports and GDP and the growth of Brazil for the period between 1960 and 1999. They find evidence of a possible positive relationship between both variables; however, the inclusion of additional control variables causes the openness variable to lose its significance, particularly when considering, the authors conclude, the effects of external vulnerabilities of the economy.

The second looks for Granger-causalities between openness and growth for a set of 18 Latin American countries between 1952 and 2003. The authors find evidence of a variety of possible causal relations openness and growth, including the Brazilian case. However, Sarquis (2011) stresses that this result can only be sustained thanks to the inclusion of the temporal tendency in the tests of non-causality, which suggests that the study is not very robust.

The same Sarquis (2011) examines the relations between the openness coefficient and growth for the Brazilian case with bivariate VAR models for the period between 1952 and 2007 and do not find conclusive evidence about the impact of openness on growth of vice-versa.

To sum up, it has become clear that the literature that tries to relate trade policy and growth reaches no consensus as to the more adequate policy framework. Holland and Vieira (2005) attribute the notable variability of the results found to the fact that the control variables chosen varied a lot between different studies, as well as the econometric approaches, the samples and time spans. Holland and Vieira's observation strengthen the criticism presented by Frenkel and Romer (1999). They argue that the simple correlation analysis between trade policy and growth can be misleading, does not identify the direction of causality and, finally, do not control the multiple variables that affect growth. The complexity of the phenomenon of growth calls for a very careful choice of control variables.

When the looks converge on Latin America, although there seems to be more consonance in the prescription of liberalizing reforms and the confirmation of the gains of past reforms, more recent studies, which focus on a wider time span, show skepticism toward the previous results.

4. Methods and Procedures

The studied was based on a panel data for 11 countries which account for more than 90% of Latin America's GDP, being Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay and Venezuela. The primary sources are the Penn World Tables (PWT) version 7.1, base-year 2005, besides the World Bank and the International Monetary Fund.

The dependent variable, identified under the label "rgdpl_avg" consists on the average of growth rates of real GDP per capita of the different countries for the 5 years after each year t . Table 1 shows the relevant variables employed, as well as the source of each variable, its periodicity and time span.

The decision was made to employ as one control variable the rate of investments, in line with neoclassical models of growth. This variable is particularly sensitive to the availability of external savings, since Latin American countries are historically known for having low rates of domestic savings, in such a manner that this variable becomes specially linked to the macro stability of countries in the region. Besides that, two variables aimed at capturing the external liquidity of the countries were introduced. The level of reserves and the quotient between external debts to GDP were used separately. The motivation for using variables relative to external liquidity is the fact that the growth of the countries in the region could have been strongly influenced in several moments by restriction in the external sector.

Finally, a control variable that captures the average of schooling years obtained by the population older than 25 years in each country was also introduced. The source for this data was the paper by Barro and Lee³, which supplies data for 5-years periods. A linear interpolation of data between each observation was made, to obtain yearly data.

All series used are in a yearly basis and cover a time span from 1960 to 2010, except for the quotient between external debt and GDP, which spans from 1970 to 2010 and is available only for 7 countries in the panel, having being excluded from the analysis when this variable was used Bolivia, Brazil, Peru and Uruguay.

Table 1 – Variables in the model

Variable	Label	Periodicity	Measure	Source
----------	-------	-------------	---------	--------

³ Barro and Lee supply a database with a 5-year periodicity with a number of variables related to educational achievements of the populations of 146 countries between 1950 and 2010. The most recent version of their database is available at their website (<http://www.barrolee.com/data/dataexp.htm>) and awaits publication in the Journal of Development Economics.

Average of growth rates of real GDP per capita for 5 years ahead. (Dependent Variable)	rgdpl_avg	Yearly (1960-2010)	%	Constructed by the authors with data from Penn World Tables (PWT) version 7.1 Base-Year 2005
Real GDP per capita.	Rgdpl	Yearly (1960-2010)	US\$ of 2005 PPP	Penn World Tables (PWT) version 7.1 Base-year 2005
Growth Rate of GDP per capita.	Rdgpl_var	Yearly (1960-2010)	%	Constructed by the authors with data from Penn World Tables (PWT) version 7.1 Base-Year 2005
Trade Openness (Exports + Imports / GDP) (Independent Variable)	openk	Yearly (1960-2010)	% of real GDP	Penn World Tables (PWT) version 7.1 Base-year 2005
Investment Rate (Independent Variable)	ki	Yearly (1960-2010)	% of real GDP	Penn World Tables (PWT) version 7.1 Base-year 2005
External Debt	Ext_Debt	Yearly (1960-2010)	US\$ of 2012	World Bank
External Debt / GDP (Independent Variable)	Ext_Debt_Gni	Yearly (1970-2010)	% of real GDP	Constructed by the authors with data from the World Bank.
Average of total schooling years achieved by population with more than 25 years. (Independent Variable)	School_year	Yearly (1960-2010) – linear interpolation of five-year data.	Years	Constructed by the authors with data from Barro e Lee
Level of International Reserves (Independent Variable)	reservas	Yearly (1960-2010)	US\$ of 2012	IMF

The estimation used a fixed effect estimator, also known as the method of the Least Squares of the Dummy Variables (LSDV). This method allows for obtaining a different intercept for each section of the panel, in this case, each country, holding fixed the slope coefficient for all

sections. This controls the effect of persistent and unobserved omitted variables that can affect the level of GDP or the growth of each country. Omitted variables constant through time will not affect the consistency of the estimators, for they will be captured by the specific intercept of each country.⁴

Finally, the equation of the complete estimated model is as follows:

$$\begin{aligned} \frac{1}{5} \sum_{T=1}^5 \ln \left(\frac{"rgdpl"_{t+T}}{"rgdpl"_{t+T-1}} \right) &= "rgdpl_avg"_{it} \\ &= \beta_0 + \beta_1 "openk"_{it} + \beta_2 "school_year"_{it} + \beta_3 "ki"_{it} \\ &\quad + \beta_4 "External\ Liquidity"_{it} + \alpha_i + \mu_t + \varepsilon \end{aligned} \quad (1)$$

The dependent variable, the average of growth rates for each country for the 5 periods ahead of each observation t , is explained by the independent variable, which accounts for trade openness and by the control variables. “School_Year” is the average of the total schooling years of population over 25. “ki” is the rate of investments and “External Liquidity” consists in one of the two proxies for liquidity used, “Ext_Debt_GNI”, being the quotient between external debt and GDP or “Reserves”, standing for the level of the international reserves of each country. Index i refers to each of the 11 countries in the panel and index t refers to each of the 46 periods ranging from 1960 to 2005 (since the average growth rate 5 years ahead in 2005 will be the average from 2006 to 2010).

One important criticism about this measure of trade openness as independent variable was formulated by Edwards (1993), referring to the work of Balassa (1978), described in section 3. According to Edwards, regressions that relate GDP and exports can suffer from endogeneity, due to the identity that relates both variables.

However, this is the only variable available for the time span proposed in the paper and its use follows an intensive use in previous literature, notably in the works of Krueger (1978) and the same Balassa (1978) and Eichengreen and Leblang (2002). Besides, the way the dependent variable was constructed reduces the endogeneity problem. This is because by working with 5 years average of the growth rates, the correlation between the level of exports and GDP dissipates twice. Once due to relating the level of exports to the rate of growth and secondly due to relating the level of exports in one year to the future growth rates, instead of the contemporary growth rate.

Finally, α_i e μ_t are the specific effects of country and time, respectively. These constants will produce an intercept for each country in the panel, allowing controlling permanent alterations in the growth rates of each country, which are not under control by the other variables.

5. Results

⁴ According to Durlauf, Johnson and Temple (2004) this is the main reason for using the fixed effect estimator to estimate growth regressions.

Tables 2 and 3 present the results of the regression of the complete equation (1), using the variables “reserves” and “Ext_Debt_GNI” respectively in a panel of fixed effects (FE). The coefficients estimates must be interpreted as the impact on the dependent variable in terms of percent points of unit variations in the explicative variables. Commentary on the results obtained in this econometric exercise follows.

Table 2 – Results with “Reserves”

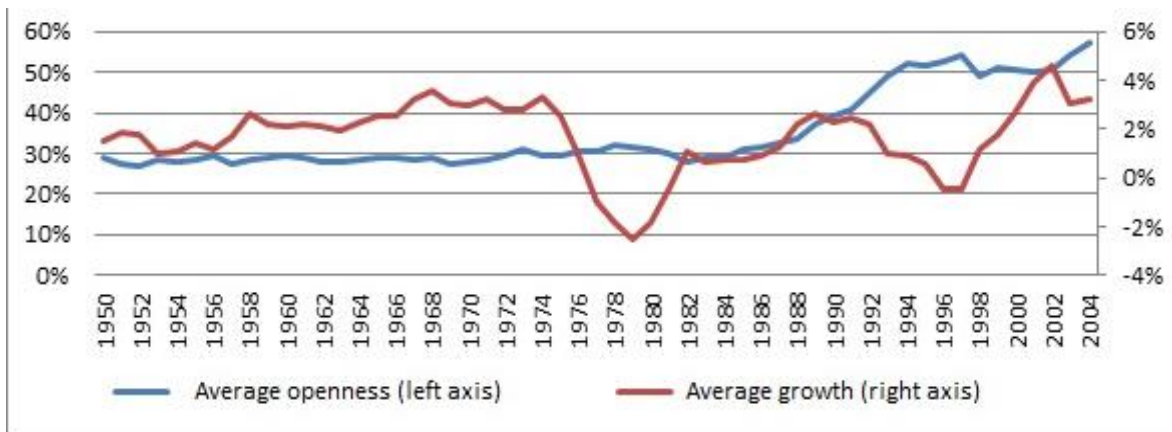
Dependent Variable: rgdpl_avg	
Independent Variables	Coefficients Estimated
Constant	0,0073 (0,6690)
openk	-0,0001 (0,3381)
Reserves	-0,0001** (0,0000)
ki	-0,0001 (0,6940)
School_Year	0,0037 (0,2150)
Number of Periods	46
Number of Observations	506
Number of Cross-Sections	11
R ²	0,4289
R2 Adjusted	0,3533
P-Value of Statistic F	0,0000

Notes: p-values are in brackets

*Significant at 5% level **Significant at 1% level

The Latin-American continent, due to clear structural similarities in the economies of the region, has displayed, throughout the decades, a very coincidental behavior across countries. All countries in the panel displayed very erratic growth trajectories although facing roughly increasing openness coefficients, particularly after the 80s. Graph 1 presents the averages of the growth and openness variables for the 11 countries between 1950 and 2005.

Graph 1: Averages of the dependent variable and trade openness



Source: Penn World Tables (PWT) version 7.1. Base Year 2005. Elaborated by the authors.

In both regressions, the openness coefficient “open” is non-significant and negative. In terms of adjustment, both regressions display satisfactory R^2 , considering it is a panel data model, and F statistics identifies joint significance of the explicative variables.

Note that the use of the proxy “Ext_Debt_GNI”, despite reducing the reach of the regressions, eliminating 4 countries from the sample and 10 observations in time, presents the advantage of improving the individual significance of the calculated coefficients, in such a manner, that by taking a less rigorous level of significance, say 13%, all variables would be considered significant.

Table 3 – Results of the Model

Dependent Variable: rgdpl_avg	
Independent Variables	Estimated Coefficients
Constant	0,0802** (0,0017)
openk	-0,0002 (0,1215)
Ext_Debt_Gni	0,0002** (0,0011)
ki	-0,0007* (0,0424)
School_year	-0,0086* (0,0486)
Number of Periods	36
Number of Observations	252
Number of Cross-Sections	7 ¹
R^2	0,4905
R2 Adjusted	0,3792
P-Value of Statistic F	0,0000

Notes: p-values in brackets

*Significant at 5% level **Significant at 1% level

¹Except Bolívia, Brazil, Peru e Uruguay.

However, the coefficients for “openk”, “ki” and “school_year” are negative, suggesting a counter intuitive relation between trade openness, rate of investments, years of schooling and growth. It is hypothesized that this might have occurred due to problems related to the lag needed to fully appreciate the relation between these variables.

During the period analyzed in this paper, not only the openness coefficients were increasing over time (roughly), but also the years of schooling, while rates of investment did not show a clear pattern in its evolution. That being said, the relation between schooling and growth wasn't clear either. In the case of investment rates, the estimated coefficients in the second regression, significant at the 5% level presented a very low absolute value, suggesting an impact of 0,0007 percent point on the 5-year averages of growth rates. This can be because the high volatility of growth rates points to the existence of numberless interferences to growth, very hard to account for, especially due to the vulnerability to external shocks and internal misalignments in Latin American countries.

6. Conclusion

The present paper contributes to the literature that tries to evaluate the effects of trade policy on growth in Latin America. It presents empirical results that cast doubts on the liberalizing prescription that seemed to have crystalized in the literature, particularly in the second half of the 90s. It is aligned with the conclusions obtained by researchers like Sarquis (2011) and Koshiyama, Alencasto e Fochezatto (2007).

The results found, nevertheless, are not to be simplistic interpreted as evidence favorable to protectionist tendencies or to the ISI and EP models presented as alternatives of trade policy in the theoretical part of the paper. If the results do not authorize such conclusions, they agree with Paul Krugman (1987), from a theoretical standpoint:

“(...) free trade is not passé, but it is an idea that irretrievably lost its innocence (...) it can never again be asserted as the policy that economic theory tells us is always right” (p. 132).”

There is a vast set of theoretical arguments developed in favor of one view and the other and yet consensus is hard to reach. However, from the empirical point of view, the issue is even harder to analyze.

Referring to the Brazilian case, which could be easily extended to the other countries, Adrogué, Cerisola and Gelos (2006) credit the difficulty in establishing an unmistakable relation between growth and trade openness to the external vulnerabilities of the economy. In fact, it could be considered that the effects of a variation in trade openness on growth could never or hardly be fully accomplished, because before the total realization of this effects, external shocks would interfere in the trajectory of the economy, making the *ceteris paribus* evaluation impossible.

However, the argument can be extended in the sense of including infinity of vulnerabilities to which the economies are and have been subjected to. Regulatory, political and institutional and macroeconomic instability, besides supply shocks of all kinds are examples of the numberless possible interferences to the trajectory of growth in these economies, which hinder the appreciation of the effects of trade policy on growth.

The great volatility of growth rates of GDP per capita in these countries throughout the analyzed period reinforces the hypothesis that the phenomenon of growth is a function of an infinity of variables hard to control. Estimating the effect of one particular variable on growth becomes a complicated econometric task. Results are frequently not robust to the substitution of some control variables for others.

These last reflections suggest the need to insist in the empirical studies that try to establish the relation between trade policy and growth, certainly recurring to more sophisticated econometric methods, in order to isolate the multiple influences to the trajectory of growth in the countries.

It is not possible to determine a clear relation between two important macroeconomic variables for long periods, unless events such as political and legal rupture, supply shocks, external crisis, changes in policy, certainly varying across countries, are properly taken into account. Issues related to trade policy and the prosperity of nations have instigated thinkers far before Adam Smith and the questions related to that issue remain as fruitful fields for research and reflection.

7. References

ADROGUÉ, Ricardo; CERISOLA, Joshua; GELOS, Gaston. Brazil's Long-Term Growth performance: Trying to Explain the Puzzle. *IMF Working Paper*, no 282, 2006.

AMSDEN, Alice. *Asia's Next Giant: South Korea and Late Industrialization*. Oxford: Oxford University Press. 1989.

ARTETA, C., EICHGREEN, B., & WYPLOSZ, C. On the growth effects of capital account liberalization. *NBER Working Papers*, N° 8414. 2001.

BALASSA, B. Exports and Economic Growth: Further Evidence. *Journal of Development Economics* Vol. 5, pp. 181-189. 1978.

BALASSA, B. & ASSOCIATES. *The Structure of Protection in Developing Countries*. Baltimore. John Hopkins Press. 1971.

BALDWIN, R. Openness and Growth: what is the empirical relationship? In: BALDWIN, R, WINTERS, A (Org.). *Challenges to Globalization: analyzing the economics*. Chicago: The University Press of Chicago. pp. 499-521. 2004.

BAUMANN, R & FRANCO A. M. P. A substituição de importações no Brasil entre 1995 e 2000. *Revista de Economia Política*. vol. 25 nº 3 (99) pp. 190-208. 2005.

BHAGWATI, J. *Foreign Trade Regimes and Economic Development Anatomy and Consequences of Exchange Control Regimes*. Cambridge, Mass.: Ballinger. 1978.

BHAGWATI, J. *Protectionism*. Boston. MIT Press. 1989.

DE GREGORIO, J. & LEE, J. W. *Economic Growth in Latin America: Sources and Prospects*. *Global Development Network*. 1999.

DOLLAR, David. Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976–1985. *Economic Development and Cultural Change*, v. 40, no pp. 523-44, 1992.

DORNBUSCH, R. & FISCHER, S. Moderate Inflation. *World Bank Economic Review*, Vol. 7. 1993.

DURLAUF, S. N.; JOHNSON, P. A.; TEMPLE, J. R.W. Growth econometrics. Poughkeepsie: Vassar College Economics. (Working Paper, 61), 2004.

EDWARDS, S. Openness, Trade Liberalization, and Growth in Developing Countries. *Journal of Economic Literature*, v. 31, pp. 1358-1393, 1993.

EICHGREEN, B. & LEBLANG, D. Capital account liberalization and growth: Was Mr. Mahathir right? *NBER Working Papers*, No. 9427. 2002.

FERREIRA, P.C. & ROSSI, J. L. New Evidence from Brazil on Trade Liberalization and Productivity Growth. *International Economic Review*. Vol. 44, nº 4 pp. 1383-1405. 2003.

FRANKEL, J; ROMER, D. Does trade cause growth? *American Economic Review*, vol. 89, no 3, pp. 379-399, 1999.

GREENAWAY, D & MILNER, C. Intra-industry trade: Current Perspectives and Unresolved Issues. *Review of World Economics* 123. 1987.

GROSSMAN, G; HELPMAN, E. Innovation and Growth in the Global economy. London: MIT Press. 1991.

GUIMARÃES, A. Q. State Capacity and Economic Development - The Advances and Limits of Import Substitution in Brazil. *Luso-Brazilian Review*. Vol 47. pp. 49-73. 2010.

HELPMAN, E. International Trade in the Presence of Product Differentiation, Economies of Scale, and Monopolistic Competition: A Chamberlin-Heckscher-Ohlin Approach. *Journal of International Economics*, vol. 11, pp. 305-340, 1981.

HIRSCHMAN, A.O. The Strategy of Economic Development. North Holland Pub. Co. 1956.

HOBDAY, M. Innovation in East Asia: The Challenge to Japan. E. Elgar. Aldershot, Hants, England and Brookfield. 1995.

HOLLAND, M & VIEIRA, F. V. Foreign Liquidity, Economic Opening and Growth in Latin American Economies. *Revista Brasileira de Economia*. Vol 58 Nº 2 pp. 267-289. 2005.

HUNT, E. K. História do Pensamento Econômico: Uma Perspectiva Crítica. Editora Campus. São Paulo. 2005.

KOSHIYAMA, D., ALENCASTRO, D. & FOCHEZATTO, A. International Trade and Economic Growth in Latin America: a Granger Causality Analysis with Panel Data. In: *International Conference on Policy Modeling - EcoMod2007*, 2007, São Paulo. International Conference on Policy Modeling. v. 1. pp. 1-20. 2007.

KRUEGER, A. O. Foreign trade regimes and economic development: liberalization attempts and consequences. Ballinger Press for NBER. Cambridge, Massachusetts. 1978.

KRUEGER, A. O. The political economy of rent-seeking society. *American Economic Review*, 64, pp. 291-303. 1974.

KRUGMAN, P. Import protection as Export Promotion. in H. Kierzkowski (ed), Monopolistic Competition and International Trade. Oxford University Press. 1984.

KRUGMAN, P. Increasing Returns, Monopolistic Competition, and International Trade. *Journal of International Economics*, vol. 9, no 4, pp. 469-479. 1979.

KRUGMAN, P. Is free trade passé? *Journal of Economic Perspectives*, vol. 1, no 2, pp. 131-144, 1987.

KRUGMAN, P. Scale Economies, Product differentiation and the pattern of trade. *American Economic Review*, vol. 70, pp. 950-959. 1980.

LITTLE, I, SCITOVSKY, T & SCOTT, M. Industry and Trade in Some developing Countries: A Comparative Study, Cambridge: Oxford University Press. 1970.

MCLEAN, B. E SHRESTHA, S. International financial liberalization and economic growth. *Research Discussion Papers*, Reserve Bank of Australia. 2002.

MEADE, J. E. Trade and Welfare, New York: Oxford University Press. 1955.

PALLEY, T. I. The rise and fall of export-led growth. *Investigación Económica*. Vol. LXXI, núm. 280, páginas 141-161. 2012.

PREBISCH, R. The Economic Development of Latin America and its Principal Problems. New York: United Nations, 1950.

RODRIGUEZ, F; RODRIK, D. Trade Policy and Economic Growth: a Skeptic's Guide to the cross-national evidence. In: BERNANKE, B; ROGOFF, K. *NBER Macroeconomics Annual 2000*. Cambridge MA: MIT Press, 2001.

SACHS, J. D.; WARNER, A. M. Economic reform and the process of global integration. *Brookings Papers on Economic Activity*, pp. 1–118, 1995.

SARQUIS, S. Comércio Internacional e Crescimento Econômico no Brasil. Fundação Alexandre Gusmão. Brasília. 2011.

SINGER, H & ALIZADEH, P. Import Substitution revisited. Institute of Development Studies, Brighton. 1986.

SMITH, A. An Inquiry into the Nature and Causes of the Wealth of Nations. Nova York: Modern Library, 1937.

SRINIVASAN, T. N.; BHAGWATI, J. Outward-orientation and Development: are revisionists right? In: LAL, Deepak K.; SNAPE, Richard H. (Orgs.). *Trade, Development and Political Economy: Essays in Honor of Anne Krueger*. New York: Palgrave, 2001.

TAYLOR, A. Latin America and foreign capital in the twentieth century: Economics, Politics and Institutional Change. *Working Paper 7394*. National Bureau of Economic Research. 1999.

WESTPHAL, L & KIM, K.S. Korea In Balassa e Associados. *Development in Semi-Industrial Economies*. World Bank. 1982.

WOO-CUMINGS, Meredith. The State, Democracy, and the reform of the Corporate Sector in Korea. In PEMPEL, T. J. (ed). *The Politics of the Asian Economic Crisis* Ithaca and London: Cornell University Press, pp. 116-142. 1999.

ZHOU, Yu, Synchronizing export orientation with import substitution: creating competitive indigenous high-tech companies in China, *World Development*. Vol. 36, No. 11, pp. 2353-2370. 2008.