Does Tariff Liberalization Promote Trade? Latin America in the Long-run (1900-2000) *

Silvia Nenci
University of Rome La Sapienza
silvia.nenci@uniroma1.it

Carlo Pietrobelli
CREI, University of Rome 3
c.pietrobelli@uniroma3.it

AUGUST 2007

ABSTRACT

This paper estimates the effect of trade liberalisation on import performance of selected Latin American countries. The novelty of this study is that it applies a long-term approach covering the whole XX century using times series and panel data analyses. The empirical exercise shows that the relationship between tariffs and import growth in Latin America cannot be taken for granted - as it often happens – and anyway that it is not always quantitatively substantial. In particular, our analysis shows the existence of a long run relationship between tariffs and imports only from the second half of the XX century. It follows that trade liberalisation appears effective in fostering Latin America's trade growth only when integrated within a wider process, implying a multilateral and negotiated approach to trade policy. In this sense, multilateral and regional agreements (e.g. Mercosur) appear to have played a key role not only through tariff reduction but remarkably thanks to the creation of a rule-based system governing global trade relations. This result would confirm the thesis of those who endorse the existence of a formalized trading system to guarantee tariff liberalization and foster trade growth.

JEL classification codes: C22, F13, F15, N7
Keywords: Tariffs liberalization, trade growth, trade integration process, time series, Latin America

* The authors wish to thank Prof. J. Williamson for data availability, Prof. Luca De Benedictis for his useful comments and participants at seminars at CREI, University of Rome III, 14 October 2005. A special acknowledgement goes to the late Prof. Enzo Grilli (1943-2006) who was the main inspirer of the research topic tackled in this paper.

1. INTRODUCTION

In the last few decades developing countries have experienced extensive and rapid trade liberalization, spurred by both multilateral trade negotiations and the conditionality related to structural adjustment programmes agreed with the Bretton Woods Institutions. At the same time, also most of Latin American countries have been opening their trade systems after long protectionist experiences. Liberalisation policies have generally been characterised by a rapid elimination of quantitative restrictions, and significant reductions in tariffs to low and uniform levels. Multilateral and regional integration have also continued in Latin America (IDB, 2003). However, although most countries undertook trade reforms, the extent and path of reforms was diverse, and in many cases reforms are still ongoing.

One of the key issues currently object of a wide and lively academic and political debate is whether trade liberalization really brings about an increase in developing countries' trade. Scholars have contradictory stands on this issue since the path-breaking analyses of Anne Krueger for the NBER (1978). On the one hand, some studies show that countries which embarked on liberalisation programmes have improved their trade performance. On the other hand however, other studies have found little evidence of a positive relationship between liberalisation and trade growth.

The present paper aims at assessing these issues taking a long-run view. The analysis of the impact of tariff liberalization on trade performance of selected Latin American countries spans across the whole XX century. Indeed, the outcome of the econometric analysis shows that liberalization caused an increase of the Latin American trade only in the second part of this century. In this sense, multilateral and regional agreements in Latin America appear to have played a role. We argue that this is due not only to the tariff reduction induced by such agreements, but remarkably to the participation in a rule-based system governing global trade

relations, through which uncertainty was reduced, the spread of best practices promoted, and all this fostered international trade.

More specifically, in this paper we address two major questions:

- First, is there a stable long-run relationship between tariff reduction and import growth in Latin America during the XX century?
- Secondly, have multilateral and regional agreements played a significant role to enhance the liberalization process and promote their growing involvement in world trade?

To address the first question, the paper applies a long-term approach covering the whole XX century. This is a novel feature of the study, which makes it different from most previous papers, focusing exclusively on the period after the 1960s.

Extending the time-horizon of the analysis allows a deeper understanding of the phenomena under observation and of the stability of the long-term relationship. However, there is of course a trade-off between the advantages of stretching the time-horizon and the disadvantages of relying on inevitably weaker and less reliable data series. The present long-run study seeks to maximize the former advantages, and estimates the impact of trade protection on Latin American countries' imports using historical data from 1900 to 2000. This offers useful insights about the robustness of the structural import-tariff relationship.

The second research question - whether multilateral and regional trade agreements such as GATT, the WTO, Mercosur, Nafta, Laia and Can have furthered liberalization and promoted their countries' involvement in foreign trade – is addressed by applying time series and panel data analyses on an historical data set covering the period 1900-2000. The data used come from the integration of three databases: the OXLAD database, the database of the Growth and Development Centre at the University of Groningen, compiled by Angus Maddison, and the Harvard tariffs database compiled by Jeffrey Williamson. The analysis is applied to the largest countries in Latin America: Argentina, Brazil, Chile, Colombia, Mexico and Peru. The above

issues are not only theoretically relevant but bear remarkable international economic policy implications.

The paper is organised as follows. Section 1 presents the theoretical background while section 2 offers some stylized facts. Section 3 briefly describes the main characteristics of trade policy reforms during the past century. The empirical analysis and its results are presented in section 4, while section 5 concludes.

2. The Debate on the Effectiveness of Trade Liberalization: Theories and Empirical Evidence

The debate on the effectiveness of trade liberalization has been very lively among economists for centuries. Overall, the pressure exerted by economists and policy advisors to induce countries to liberalize trade flows and reduce protectionism is not recent. Already Adam Smith's ideas in the 18th century and David Ricardo's stance in the debate on the Corn Laws had produced concrete implications on the future commercial policies of European countries.

From a theoretical point of view, the traditional and modern approaches to the theory of trade policy agree on the view that trade barriers produce distortionary effects on the economy that applies them, and lead to a suboptimal (wrong) allocation of world (as well as national) resources. Such distortionary effects would be larger the smaller is the country applying trade barriers, i.e. insofar as the country may be considered a "small open economy", not capable of affecting other countries' behaviour with its own policies. This occurs notwithstanding some possible valid justifications – in principle – to the introduction of foreign trade restrictions, such as the classical case of the "infant industry", or the "second best" approach, whereby it would not be optimal to abstain from trade interventions in the presence of failures in the domestic markets.

Moreover, trade policy theory has also acknowledged the actual difficulties of implementing protectionist policies in practice. The country willing to introduce import barriers, should indeed hope – as suggested by the "optimal tariff" theory – that countries damaged by this policy would

not adopt countervailing measures to limit exports from the protectionist country. If this happened, the ensuing trade war would end up damaging all the parties involved. A protectionist stance may be considered a rational policy-maker's reaction to the pressures exerted by interest groups only if we take into account the modern approaches to the so-called "political economy of protectionism".

On these issues, the most classic reference is the large National Bureau of Economic Research (NBER) project that assessed trade and exchange-control regimes in the 1960s and 1970s by making classic partial-equilibrium calculations of deadweight losses (Bhagwati and Krueger 1973-1976). These authors concluded that the barriers imposed significant costs in all but one case.

Indeed, tariff liberalization would produce a change in relative prices thereby shifting resources from import-substituting sectors into export sectors, with an ensuing better allocation of resources and an increase in production, consumption and welfare in partner countries. This would occur both in "small" and in "large" open economies, even if in the latter case the positive effect of liberalization could be limited by the likely worsening of the terms of trade.

However, these standard welfare calculations have been criticized by those who have pointed out that, in such studies, protection is not allowed a chance to lower long-run cost curves, as in the traditional infant-industry case (Baldwin 1969), or to foster industrialization and thus growth, as in those modern growth models where industry is the carrier of technological change and capital deepening, or to generate dynamic externalities and enhance innovation and learning.[1] In all these events, the welfare effects of trade policies may differ.

The empirical relationship between trade policy and trade flows is even less unambiguously determined. Indeed, it represents one of the most controversial issues in economics, especially when the empirical assessment focuses on developing countries. Most of the analyses carried out since the second half of the XX century have produced contrasting results, sometimes

[1] See the discussion in Pietrobelli, 1998.

contradicting what the theory would suggest. While some of these studies confirm the existence of a direct effect of tariff liberalization on the increase of trade flows[2], others find a negligible or often no effect at all.[3]

This debate becomes even hotter if this kind of analyses is associated to the effort to assess the effectiveness of trade integration agreements, such as the multilateral agreements reached within the context of the General Agreement on Tariffs and Trade (GATT, now the World Trade Organization, WTO). It is commonly agreed that the increase in world trade flows after the Second World War (WWII) would be the outcome of the reduction of tariff barriers due to the multilateral trade regime prevailing in those years. This implies that this growing multilateral regime would be preferable to the pre-GATT informal regime, mainly characterized by a network of bilateral agreements including "Most-favoured Nation" rules.

However, some authors argue that the "formalization" of the multilateral regime through GATT/WTO agreements did not produce the expected results (Rose, 2004), and did not substantially modify the outcomes already achieved by the previously prevailing regime.

In addition, several studies have argued that in addition to multilateral trade regimes, also regional trade agreements would increase trade flows (see Frankel, 1997; Garman, Peterson e Gilliard, 1998; Soloaga e Winters, 2001).

This paper offers some novel empirical evidence on these issues for Latin America.

3. Stylized Facts

Since the second half of the 20th century many developing countries have emerged as new dynamic players in international trade: the growth of their foreign trade has been (on average)

[2] Krueger, 1978; World Bank, 1987; Thomas *et al*, 1991; Michaely *et al*, 1991; Weiss, 1992; Helleiner, 1994; Joshi e Little, 1996; Bleaney, 1999; Ahmed, 2000; Santos- Paulino e Thirlwall, 2004.

[3] Agosín, 1991; Clarke e Kirkpatrick, 1992; Greenaway e Sapsford, 1994; Shafaeddin 1994; Jenkins, 1996.

twice faster than their GDP growth, and since the 1970s their overall volume of exports has grown faster than the industrial countries' volume (Maddison, 2001; World Bank, 2004).

Specifically, Latin America's international trade flows reveal a positive trend already in the early 1900s, with these countries' international trade growth rate converging to their GDP growth rate (Fig.1).

Figure 1 – International Trade and GDP in Latin America (averages, in logs, 1900-2000)

Source: authors' processing from Oxlad and Maddison (2004) databases.

However, in spite of a positive growth throughout the XX century, Latin America's fast growth of international trade flows remarkably accelerates since the 1970s.

The increasing import-export exchange appears to have developed together with an increasing economic integration, i.e. a reduction in trade barriers, that started soon after the second World War with the creation of the multilateral GATT/WTO trading system, that the countries in the region gradually joined (Table 1). This trend was further strengthened by the creation of many regional trade agreements (Table 2).

Table 1 – Latin America joining GATT/WTO

Countries	GATT/WTO
Argentina	1967
Bolivia	1990
Brazil	1948
Chile	1949
Colombia	1981
Costa Rica	1990
Cuba	1948
Dominican Republic	1950
Ecuador	1996
El Salvador	1991
Guatemala	1991
Haiti	1950
Honduras	1994
Mexico	1986
Nicaragua	1950
Panama	1997
Paraguay	1994
Peru	1951
Uruguay	1953
Venezuela	1990

Source: WTO

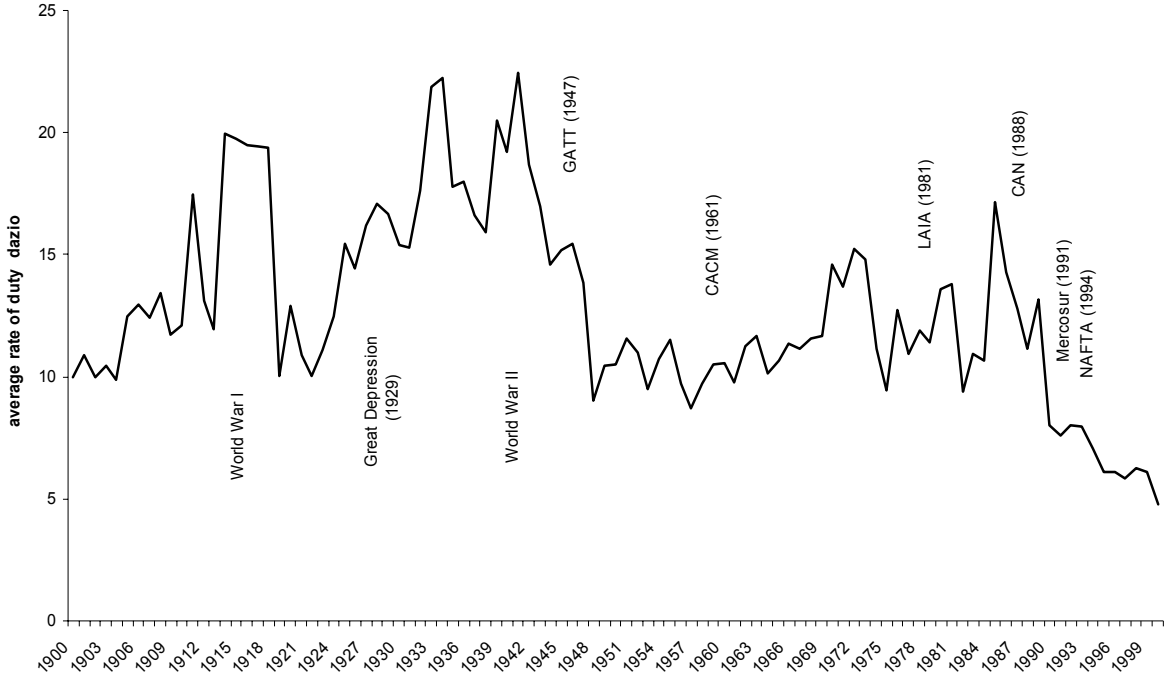
Table 2 – Main Regional Agreements in Latin America

Regional Agreements		Member Countries	Year
CACM	*Central American Common Market*	Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua	1961
LAIA	*Latin American Integration Association*	Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Paraguay, Peru, Uruguay, Venezuela	1981
MERCOSUR	*Southern Common Market*	Argentina, Brazil, Paraguay, Uruguay	1991
NAFTA	*North American Free Trade Agreement*	Canada, Mexico, United States	1994
CAN	*Andean Community*	Bolivia, Colombia, Ecuador, Peru, Venezuela	1988

Source: WTO

If we look at the figures on average tariffs in the whole Latin American region, we may clearly observe a decreasing trend since the 1940s (Figure 2).

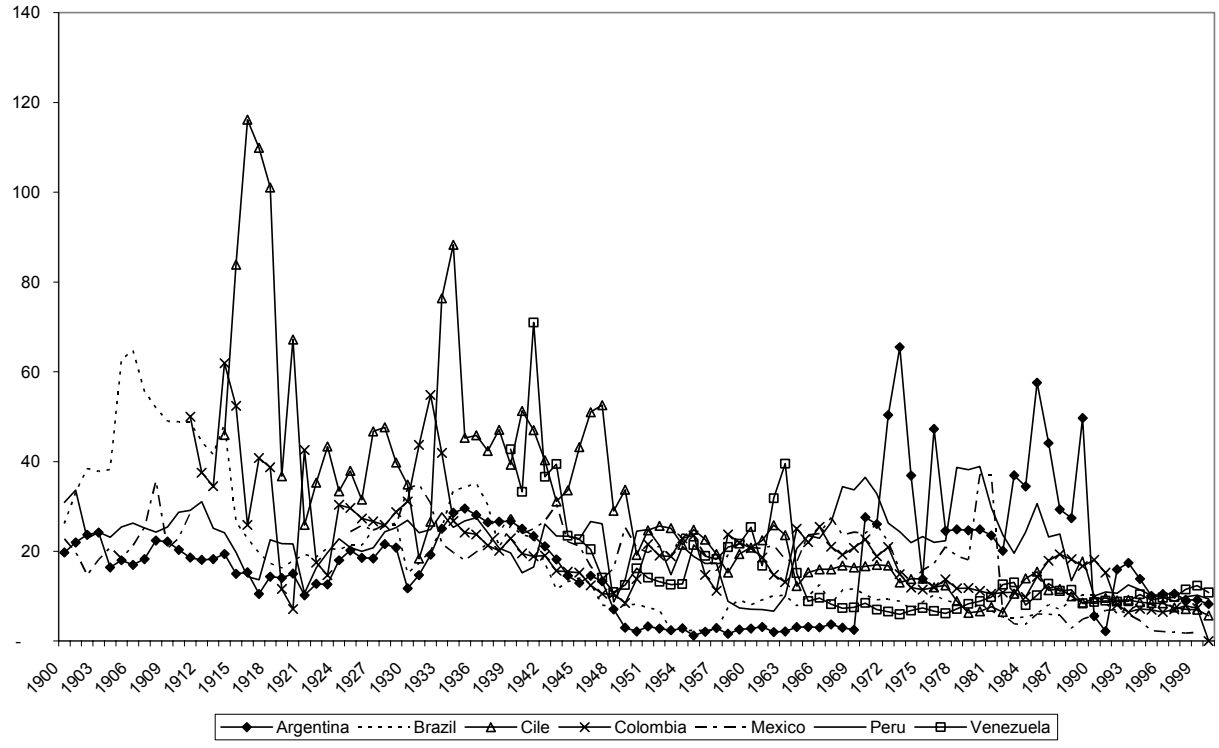
*Figure 2 – Average Import Tariffs in Latin America * (1900-2000)*



* Argentina, Bolivia, Brazil, Chile, Colombia, Mexico, Paraguay, Peru, Venezuela
Source: Authors' processing from Oxlad and Coatsworth e Williamson (2002)

This long run decreasing trend is clear also for individual countries (Fig.3).

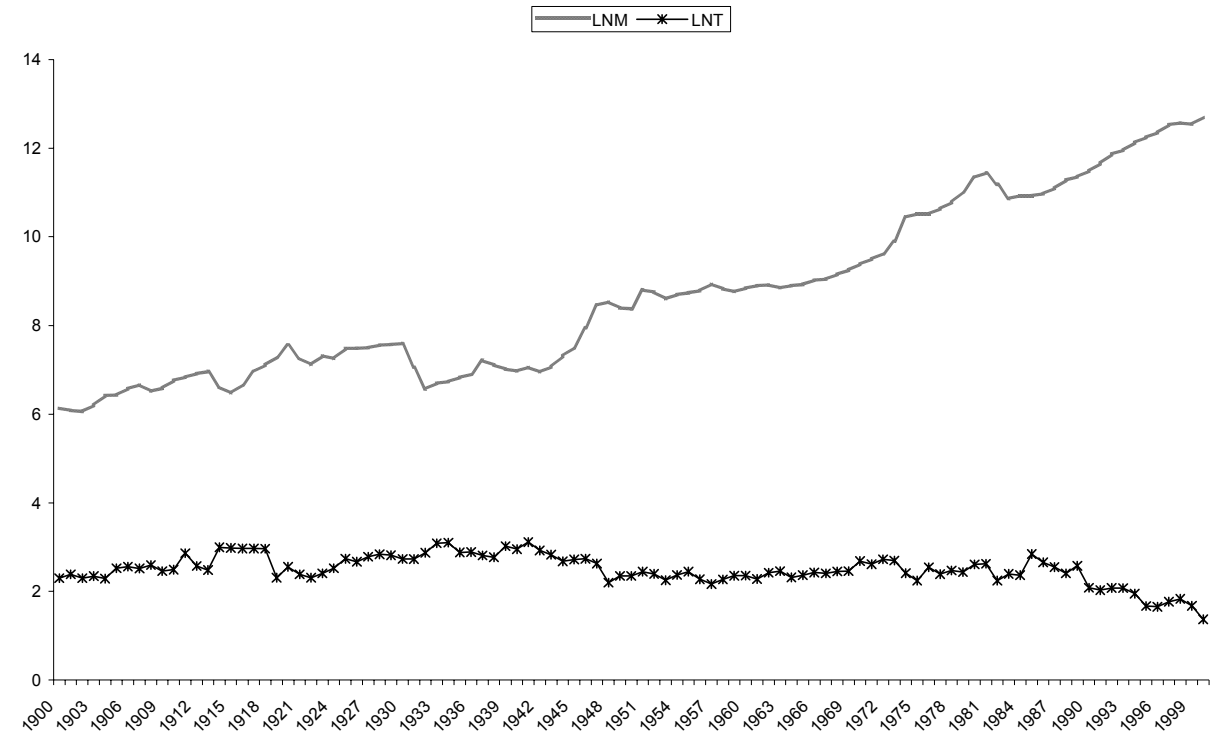
Figure 3 - Import Tariffs in Selected Latin American Countries (1900-2000)



Source: Authors' processing from Oxlad and Coatsworth e Williamson (2002)

As we explore the data on import tariffs and average imports during the whole XX century, we find evidence of a negative relationship between the two variables.

Figure 4 – Latin America's Average Import Tariffs and Import Values (1900-2000, logs)



Source: Authors' processing from Oxlad and Coatsworth e Williamson (2002)

However, notwithstanding this seemingly unequivocal empirical evidence, we deem risky to derive a positive and direct relationship between the process of increasing trade *interaction* (i.e. trade flows increase) with that of increasing trade *integration* (i.e. reduction in trade barriers) without further deepening the analysis. Therefore, in order to analyse the relationship between trade growth and tariff reductions in depth, we need to consider also the specific trade promotion policies implemented by these countries during this period, and assess how these policies have affected their trade flows.

4. Trade Promotion Policies in Latin America during the XX Century

Analyses of trade policies taking a long-term perspective are not frequent in the literature. One major exception is Coatsworth and Williamson (2002), who argue that the whole world experienced a protectionist drift between 1865 and the First World War (WWI). They observe

that we are taught that the Latin American reluctance to go open in the late 20th century was the product of the Great Depression and the de-linking import substitution strategies that arose to deal with it (Diaz-Alejandro 1984; Corbo 1992; Taylor 1998). However, nineteenth century Latin America, already had *by far* the highest tariffs in the world, and it was in the 1930s that the rest of the world (the European Core and Asia) finally surpassed Latin America in being the most protectionist (Coatsworth and Williamson, 2002:32).[4] Later, the region gradually started opening, and by the 1950s, when ISI policies were flourishing, Latin American tariffs were actually *lower* than those in Asia and the European periphery.[5]

In post WWII years, in Latin America overall, there was typically some reduction in the use of direct controls, particularly on imports and foreign exchange, and in the degree of appreciation of the exchange rate (with simplifications of previous multiple exchange rate system). Protection stayed high, with often very little rationalization, the main aim being attraction of Transnational Corporations (TNCs). Thus, a combination of high tariffs on final goods, exemptions for many capital goods and intermediate products, and overvalued exchange rates prevailed (Table 3 and Bulmer-Thomas, 1994).[6]

Table 3. Nominal Protection in LA, around 1960 (in percentages)

	Nondurable consumer goods	Durable consumer goods	Semi-manufactured goods	Industrial raw materials	Capital goods
Argentina	176	266	95	55	98
Brazil	260	328	80	106	82
Chile	328	90	98	111	45
Colombia	247	108	28	57	18
Mexico	114	147	28	38	14
Uruguay	23	24	23	14	27
Europe (EEC)	17	19	7	1	13

[4] Exports fuelled growth in this early period, with one remarkable exception: from 1900-29 Brazil grew faster than her export sector (and Chile to a lesser extent) (Thorp, 1998 :14)

[5] The finding of higher levels of protection in Asia than in Latin America before the 1970s, is confirmed by Alan Taylor (1998: Table 2, p.7) even when more comprehensive measures of protection and openness are employed that include non-tariff barriers.

[6] Calculated as the simple arithmetic mean of approximate incidence (in ad valorem terms) of duties and charges (Bulmer-Thomas, 1994, Table 9.1, reported in Thorp, 1998:138).

Source: Bulmer-Thomas, 1994, Table 9.1, reported in Thorp, 1998:138

However, since the late 1970s, although structural economic reforms varied in intensity across sectors and countries: "All countries in Latin America significantly liberalized international trade, external capital flows and the domestic financial sector. Policy decisions in these areas included reducing tariffs and their dispersion; dismantling non-tariff barriers; eliminating most restrictions on foreign direct investment; phasing out many or most foreign exchange regulations; ….". (Ocampo, 2004:67). In spite of some general trends, succinctly described above, individual countries experienced remarkable differences in their trade policies throughout the XX century. Let us briefly see the example from Chile.

At the start of the World War I (WWI) Chile was experiencing a period of remarkable socio-economic progress, also fostered by a growing export sector within the context of a reasonably open economy (Behrman, 1976:34, Ffrench-Davis, 1973). However, the great depression hit strongly the Chilean economy, and the Alessandri-Palma government (1932-38) was forced to introduce countercyclical fiscal policies and discretionary controls on the foreign trade. This practice of a complex system of regulations, quantitative restrictions and discriminatory policies continued during WWII (Behrman, 1976), and an inflationary blaze during 1952-55, together with fiscal and external disequilibria and a fall in exports, created the conditions for an orthodox stabilization program, supported by right-wing parties. This program was designed during a mission by the Klein-Saks Washington-based consulting firm, contracted by the government, and began dismantling the complex system of discretionary policies and restrictions to foreign trade. The program initially produced favourable results, but new disequilibria emerged in the early 1960s, leading to new exchange controls and import barriers.

In the following years, a program of gradual stabilization and structural reforms was carried by the Frei Montalva government (1964-70), that included a rationalization of trade policy, including a removal of import barriers and a smaller dispersion of import tariffs, and an innovatory sliding-

peg of the exchange rate (in 1965) (Ffrench-Davis, 2004, ch.1). However, several restrictions were reintroduced under the Allende government (1970-73).

A characteristic feature of foreign trade policies after 1973 was the elimination of multiple exchange rates, and the opening with deep and widespread import liberalization (Ffrench-Davis, 2004, ch.3, Pietrobelli, 1998). The extent and speed was unprecedented at the time: all selectivity was eliminated and a single 10 percent tariff was applied to almost all imports. Although the extent of protection was overly excessive for several importable goods, several authors argue that the opening was too fast and extreme, with inadequate timing (Ffrench-Davis, 2004, Foxley, 1982) and was not consistent – as it should have been – with the exchange rate policy (Pietrobelli, 1991). Its impact on the industrial sector was to discriminate against more technology-intensive manufactures (Pietrobelli, 1998).

In addition to specific countries' policies, a growing phenomenon that is likely to have had an effect on Latin America's international exchanges has been regional integration. The number of agreements has indeed proliferated since the early 1960s, with varying degree of success, and the trend is continuing, sometimes as a general tool for international policies more than specifically aiming at boosting intra-regional trade.

5. Trade Liberalization and Trade Growth: An Empirical Test

This empirical exercise aims at contributing to the debate on the efficacy of the liberalization policy and on the impact of multilateral and regional trade integration processes for fostering trade growth. The empirical testing is carried out using both time series and panel analyses.

The empirical specification we adopt stems from the standard import demand function commonly used in the empirical trade literature (Leamer and Stern, 1970; Goldstein and Khan, 1985; Thirlwall, 2003). The basic estimating equation takes the following form:

$$\ln M_t = \beta_0 + \beta_1 \ln Y_t + \beta_2 \ln P_t + \beta_3 \ln T_t + \beta_4 \ln M_{t-1} + \omega_t \quad [1]$$

where M_t is the level of imports; Y is the level of domestic income; P is relative export and import good prices measured in a common currency (i.e. the international terms of trade); T is the tariff (the customs duty, measured as ratio between customs revenue and import value); M_{t-1} is the lagged dependent variable and ω is a stochastic error term.

The short run income, price and tariff elasticities are β_1, β_2 and β_3 respectively and the expected signs are: β_1 and $\beta_2 > 0$; $\beta_3 < 0$.

Differentiating with respect to time gives[7] (Madsen, 2001; Santos-Paulino and Thirlwall, 2004):

$$m_t = b_0 + b_1 y_t + b_2 p_t + b_3 t_t + b_4 m_{t-1} + \varepsilon_t \quad [2]$$

where m is the rate of change of imports, b_0 is a constant, y is the growth of domestic income; p is the rate of change of the international terms of trade; t is the rate of change of tariffs; m_{t-1} is the lagged dependent variable growth; ε is a stochastic error term; t is time.

The empirical specification expressed by equation [2] has been modified in order to better specify the effects of trade integration processes on the observed relationship. Dummies are used to test for the impact on imports of participation in trade integration agreements.

The estimating import growth equation is:

$$m_t = b_0 + b_1 y_t + b_2 p_t + b_3 t_t + b_4 m_{t-1} + b_5 dTI + \varepsilon_t \quad [3]$$

where dTI is a binary dummy modelling the integration agreements[8].

To estimate equation (3), we use data from different sources. Data on trade flows come from OxLAD. Data on GDP come from the *Growth and Development Centre* database, Groningen University, while data on tariffs are reconstructed by integrating OxLAD data with the Harvard

[7] Before estimating the model we tested the stationarity of import, income, price and tariff time series using the ADF–*Augmented Dickey-Fuller* (Dickey and Fuller, 1979) and PP-*Phillips e Perron* (Phillips e Perron, 1988) unit root tests. As both the tests show a very high probability of the existence of a unit root in all the series, and therefore nonstationarity in the levels, first differences of the variables have been considered (Hamilton, 1994). The same tests confirm the first differences are stationary concluding that the variables are integrated of order 1.

[8] The dummy variable takes the value of zero prior to the membership and one afterwards.

University database on tariffs, edited by Jeffrey Williamson, and matched with Mitchell's studies (1992; 1998)[9].

5.1 Aggregate Analysis

The first part of the analysis is dedicated to verify the existence of a long run relationship between tariff barriers and imports for Latin American developing countries as a whole. To this aim, the most important economies of the area have been considered: Argentina, Brazil, Chile, Colombia, Mexico and Peru. Imports of these countries represent about 85 per cent of total Latin America imports for the whole period; as a consequence, the aggregate imports can be considered a good proxy for the imports of the whole Latin American region.

The aggregate analysis spans across the period from 1900 to 2000.

Due to a high variation in trade flows since the Second Post-War, we divide the observation period in two sub-periods: from 1900 to 1959 and from 1960 to 2000. This choice is also motivated by the fact that the progressive GATT membership of the countries analysed marks a structural change in their economic policies since the sixties.

Then, as suggested by cointegration theory, we inquire into the existence of a possible cointegrating relationship between the dependent variable and the regressors for the selected sub-periods[10]. It is common knowledge that the procedure of differencing produces the loss of valuable long-run information in the data. Indeed, if the existence of cointegrating relationship is proved, using a first difference model is not a proper choice because it would ignore a movement source of variables (Hamilton, 1994). The theory of cointegration addresses this issue by introducing an error-correction (EC) term. The EC term lagged one period integrates short-run dynamics in the long-run function.

---

[9] For a detailed explanation of data used in this analysis, see the Appendix.

[10] The concept of cointegration is associated with the long-run equilibrium relationship between two or more variables. The economic interpretation of cointegration is that if two or more variables are linked to form an equilibrium relationship spanning the long run, even though the series themselves may deviate from the equilibrium in the short run, they will move closer together in the long run equilibrium.

The existence of cointegrating relationships among the variables is proved using an ARDL - *Autoregressive Distributed Lag* – approach (Pesaran and Pesaran, 1997; Pesaran and Shin, 1999). The OLS based ARDL approach to cointegration has become very popular in recent years. The ARDL estimation involves two steps: in the first stage the existence of a long run relationship is examined by calculating an F-statistic[11]. The F-statistic is used to examine the significance of the lagged levels of the variables in the error correction form of the underlying ARDL model. In the second stage, the long run parameters and the ECM are estimated using the ARDL method[12].

As the test[13] shows the existence of one or more cointegrating relationships in both periods, we use an error correction model (ECM)[14]. The ECM is the most common method of analysis when you need to take into consideration not only the short-run dynamics among the variables but also the long-run economic relationship.

The specification of the general error correction model takes the following form[15]:

$$m_t = a_0 + \sum_{i=1}^{n} a_{1i} y_{t-i} + \sum_{i=1}^{n} a_{2i} p_{t-i} + \sum_{i=1}^{n} a_{3i} t_{t-i} + \sum_{i=1}^{n} a_{4i} m_{t-i} + a_5 EC_{t-1} + a_6 dTI_t + \mu_t \quad [4]$$

where: $EC_{t-1} = \delta_1 \ln M_{t-1} + \delta_2 \ln Y_{t-1} + \delta_3 \ln P_{t-1} + \delta_4 \ln T_{t-1}$

Moreover we include in the model specific dummies (*dTI*) in order to consider the effects of different trade integration processes on the import of the area. Specifically, we insert the following dummies[16]: *dMERCOSUR, dLAIA, dCAN e dNAFTA*.

---

[11] The calculated F-statistic is compared with the critical value tabulated by Pesaran and Pesaran (1997). If the test statistic exceeds the upper critical value, the null hypothesis of no long-run relationship can be rejected regardless of whether the underlying orders of integration of the variables are zero or one. Similarly, if the test statistic falls below a lower critical value, the null hypothesis is not rejected. However, if the sample test statistic falls between these two bounds, the result is inconclusive.

[12] For a detailed explanation of the ARDL procedure see Pesaran and Pesaran, 1997; Pesaran and Shin, 1999.

[13] The F-statistic for the period from 1900 to 1959 takes a value of 2.88 while for the period from 1960 to 2000 it takes a value of 1.66. Comparing these values with the interval of critical values (from 4.38 to 5.61) under the assumption of an intercept and no trend, we reject the null hypothesis of no long run relationship between the variables at the 1 per cent significance level for both periods.

[14] The ECM specification, once proved the existence of cointegrating relationships, permits to extract from data the whole information available without infringing, *a priori*, the classical hypotheses. The EC term, in fact, lagged one period (ECt-1), combines the short run dynamics into the long run function (Engle e Granger, 1987).

[15] We use two lags length of the explanatory variables and then the order of the ARDL model is determined by using the Schwarz Bayesian Criterion (SBC).

[16] They are binary dummies taking the value of 1 as from the starting year of the integration agreement and 0 in the previous years.

5.1.1 Outcome of the Aggregate Analysis

The outcome of the aggregate analysis shows that the relationship between tariff lowering and import growth is different from what it was expected. As a matter of fact, for the period from 1900 to 1959, the above mentioned relationship is not verified (see Table 1*A* in the Appendix). While this estimate confirms the theoretical hypothesis of a positive relationship between import growth and both the annual income growth rate and the rate of change of international prices (the terms of trade), the negative relationship between the rates of change of imports and tariffs appears scarcely significant.

Conversely, the outcomes of the estimate show a robust structural relationship between tariff lowering and import growth for the period from 1960 to 2000 (see Table 4).[17]

Specifically, concerning the period from 1960 to 2000, ECM confirms the theoretical hypothesis of the positive relationship between the import growth and, on one hand, the annual income growth, on the other the rate of change of terms of trade (Table.4). It also shows the significant negative relationship between the rate of change of imports and the rate of change of tariffs.

Concerning the effects on import growth of regional integration processes, only Mercosur seems having relevant and significant positive effects that are additional and complement the rate of change of tariffs (Table.4).

Furthermore the high significance of the EC term confirms the existence of the relationship between tariff reduction and import growth in the long run[18], even though its value not so high denotes that the model adjusts to the long run equilibrium only slowly.

[17] For the period from 1960 to 2000 we choose one lag length of the explanatory variables while the order of the ARDL model (1,1,1,0) is determined by using the Schwarz Bayesian Criterion (SBC).
[18] The ECM satisfies all diagnostic tests.

Table 4

ECM derived from the ARDL (1,1,1,0): 1960-2000

	Dependent variable: IMPORT GROWTH[1] [m]				
Explanatory variables:	1	2	3	4	5
Income growth [y]	4.15	3.51	4.35	4.06	4.23
	*(9.62)****	*(6.69)****	*(9.77)****	*(10.59)****	*(8.81)****
Relative price change [p]	11.61	13.61	13.06	13.10	11.28
	*(7.22)****	*(7.38)****	*(7.01)****	*(8.77)****	*(6.19)****
Tariff change [t]	-1.41	-0.94	-1.34	-0.64	-1.47
	*(3.55)****	*(2.07)***	*(3.39)****	*(1.49)*	*(3.42)****
MERCOSUR Dummy [dTI_1]		0.72			
		*(1.98)***			
LAIA Dummy [dTI_2]			0.54		
			(1.47)		
CAN Dummy [dTI_3]				0.69	
				*(3.23)****	
NAFTA Dummy [dTI_4]					-0.16
					(0.39)
Constant	-15.26	-11.14	-12.54	-5.38	-15.61
	*(2.30)***	*(1.67)*	*(1.85)**	*(0.81)*	*(2.31)****
EC (-1)	-0.24	-0.27	-0.22	-0.18	-0.23
	*(3.30)****	*(3.79)****	*(3.00)****	*(2.63)****	*(2.69)****
F-stat.	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Adj. R^2	0.83	0.84	0.84	0.87	0.83
Akaike info criterion	-19.37	-18.06	-19.06	-14.72	-20.27
Schwarz criterion	-25.36	-24.91	-25.91	-21.58	-27.12
Number of observations	41	41	41	41	41

Notes:

Figures in parenthesis ( ) are absolute t-ratios; figures in brackets [ ] are p-values. * indicates that a coefficient is significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

[1] Average of the import growths of: Argentina, Brazil, Chile, Colombia, Mexico and Peru.

The estimate of the long run coefficients derived from the ARDL approach confirms the existence of a positive long run relationship between imports and both income and relative prices (the terms of trade), all expressed in levels, and the presence of a negative long run relationship between imports and tariffs, again in levels (Table 5)

Table 5

Long run coefficients derived from the ARDL approach

	Dependent variable: Ln Imports[1] [M]
Explanatory variables:	1960-2000
Ln Income [Y]	1.44
	*(3.42)***
Ln Relative price [P]	6.27
	*(2.51)***
Ln Tariff [T]	-5.83
	*(5.44)***
Constant	-62.97
	*(4.33)***
Number of observations	41

Notes:

Figures in parenthesis ( ) are absolute t-ratios; figures in brackets [ ] are p-values. * indicates that a coefficient is significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

[1] Sum of the imports of: Argentina, Brazil, Chile, Colombia, Mexico and Peru.

In sum, our estimates show how the relationship between import growth and tariff reduction is different from what is commonly expected. The relationship appears to increase its relevance and significance over time, thanks to the growing participation of the area to the trade liberalization process.

5.2 Panel Data Analysis

A thorough analysis is carried out by using panel data. This guarantees a series of benefits that can enrich the empirical analysis. Panel data consider the longitudinal dimension of data; control for heterogeneity among units, and give less collinearity among the variables, producing more reliable parameter estimates (Baltagi, 2001).

In order to respect symmetry with the previous analysis, we form the panel using data related to the same six countries of the aggregate analysis.

The specification used for the panel model is as follows:

$$m_{it} = b_i + b_1 y_{it} + b_2 p_{it} + b_3 t_{it} + b_4 m_{it-1} + b_5 dTI_5 + \varepsilon_{it} \qquad [5]$$

where m is the rate of change of imports, b_i is the country fixed effects, y the rate of change of domestic income; p is the rate of change of terms of trade; t is the rate of change of tariffs; m_{t-j} is the lagged dependent variable; ε is a stochastic error term; i stands for the countries and t for the time period.

This model - as the previous one in the aggregate analysis – has been modified to better specify the impact of the multilateral and regional trade integration process on the analysed relationship by using the TI dummy. For each country we take into consideration the membership in the following agreements: GATT/WTO, Mercosur, Laia, Can and Nafta.

The model we choose is a fixed effect panel model. It is well known that the fixed effect model permits to model individual effects of each unity that represent specific and constant factors (Greene, 1997)[19]. We choose this model because, in this case, the country-specific effects become very important to analyse the impact of a specific element (i.e. tariff) on trade (Baldwin, 1994). These factors are deterministically related to the country specific characteristics and - as a consequence - they can not be considered as random. Moreover, a fixed effect estimator – including in a constant term all the country-specific characteristics - avoids misspecification problems due to omitted variables[20].

5.2.1 Outcome of the Panel Analysis

[19] The fixed effect estimator instead of random effects is applied because the institutional and economic structures of countries differ.

[20] Usually using the standard within-group estimator for dynamic models with fixed individual effects generates estimates which are inconsistent as the number of "individuals" tends to infinity if the number of time periods is kept fixed (see Nerlove, 1967; Nickell, 1981). This is particularly so when the time dimension of the panel (T) is small and *N* tends to infinite and the bias is of order 1/T. However, as the number of temporal periods used in our analysis is quite high (for panel data), the distortion produced by the inclusion of the lagged dependent variable will be slight.

The panel analysis, consistently with the aggregate one, focuses on two observation periods: 1900-1959 and 1960-2000. This analysis confirms that the basic tariff-import relationship is statistically significant only for the second period - as emerged also in the aggregate analysis - while in the first period it is not significant (see Table 2*A* in the Appendix). The output returns robust and significant values of the parameters (see Table 6) and the signs of the coefficients are as expected. Anyhow the relationship assumes a weak weight: the estimated tariff coefficient is very close to zero, hence the effect on import is likely to be small.

Concerning the contribution of each single country, it does not appear being of particular relevance. It suggests that the structural characteristics of the countries analysed – with regards to the observed variables – are not so relevant to cause significant and diversified effects on the relationship. Hence, possible differences could be attributable to the heterogeneity of the economic policies (especially trade policy) adopted during those years (see above).

The theoretical hypothesis of the existence of a direct relationship between the rate of change of imports and income and between the rate of change of imports and terms of trade is confirmed. Moreover, our estimate shows the existence of a robust and significant inverse relationship between the import and tariff rates of change. Nevertheless, this relationship does not seem of particular relevance: the effect of one percentage point reduction in tariffs has been to raise import growth by only 0,07 percentage points in the same period (see Table 6).

On the regional integration processes, all the dummy variables included in the analysis are robust and significant, except for NAFTA (see Table 6). Among these, consistently with the outcome of the aggregate analysis, Mercosur appears to have had a relevant impact on import growth much larger than for other agreements, like for the GATT although to a lower extent. The explanation of this result is probably related to the different level of participation of the countries analysed in multilateral and regional agreements and - consequently - to the different level of deepening achieved by the integration processes. Mercosur is, in fact, the process that attained, more than the others, the higher level of deepening (Pietrobelli *et al.*, 2005).

Table 6

Fixed effects model: 1961-2000

	Dependent variable: IMPORT GROWTH [m_t]					
Explanatory variables:	1	2	3	4	5	6
Lagged import growth [m_{t-1}]	0.07	0.06	0.05	0.06	0.06	0.07
	(1.49)	*(1.33)*	*(1.00)*	*(1.40)*	*(1.38)*	*(1.45)*
Domestic income growth [y]	2.86	2.99	2.87	3.14	2.94	2.87
	*(12.65)****	*(13.37)****	*(13.03)****	*(13.79)****	*(13.05)****	*(12.73)****
Relative price change [p]	1.54	1.65	1.72	1.93	1.64	1.58
	*(6.53)****	*(7.12)****	*(7.31)****	*(7.87)****	*(6.95)****	*(6.67)****
Tariff change [t]	-0.07	-0.07	-0.06	-0.06	-0.06	-0.07
	*(2.43)***	*(2.44)***	*(2.36)***	*(2.14)***	*(2.23)***	*(2.33)***
Constant	-0.08	-0.18	-0.10	-0.15	-0.10	-0.09
	*(5.59)****	*(5.91)****	*(6.56)****	*(7.03)****	*(6.25)****	*(5.78)****
GATT Dummy [dTI_0]		0.11				
		*(3.58)****				
MERCOSUR Dummy [dTI_1]			0.14			
			*(3.63)****			
LAIA Dummy [dTI_2]				0.09		
				*(4.26)****		
CAN Dummy [dTI_3]					0.10	
					*(2.65)****	
NAFTA Dummy [dTI_4]						0.10
						(1.43)
F-stat.	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
R^2	0.52	0.54	0.54	0.55	0.53	0.52
No. countries/No.observations	6/239	6/239	6/239	6/239	6/239	6/239

Notes:

Figures in parenthesis ( ) are absolute t-ratios; figures in brackets [ ] are p-values. * indicates that a coefficient is significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Again, this exercise clearly points out the robustness of a long-term relationship between tariff liberalization and imports growth for the Latin American area as a whole. Further analysis of the specific trade policies adopted by each country during this period may draw additional light on the relationship, and offers the scope for further research.

5.3 Final remarks on the empirical analysis

We may usefully summarize the results of the empirical analysis as follows:

- The aggregate analysis shows the existence of a long run relationship between tariffs and trade, but exclusively from the second half of the XX century;

- The panel analysis confirms the significance of the relationship for the period 1960-2000, though it underlines a weaker effect of tariff liberalization on import growth;
- Since tariffs show substantial variability and a downward trend during the whole XX century, both the aggregate and panel analyses suggest also that the development of trade integration processes - both at multilateral and regional levels (i.e. GATT/WTO and Mercosur, LAIA, etc.) - has played a crucial role in making the relationship between tariffs and trade more incisive and effective;
- The analysis suggests that the role of both GATT/WTO and regional agreements has to do more with the "interaction effect" – i.e. larger participation in global trade - than with a simple "integration effect" - i.e. a mere tariff barriers reduction. On the "interaction effect", all the processes taken into consideration - both multilateral and regional – show their considerable effect on import growth, except for Nafta. Among these, Mercosur, together with Gatt/WTO, appear to matter most. This result is confirmed by both the aggregate and panel analyses.

6. CONCLUSIONS

The relationship between tariffs and trade (specifically, imports) for Latin America cannot be taken for granted - as it often happens - and anyway it is not always quantitatively substantial. Thus, trade liberalization appears concretely effective in fostering Latin America's trade growth only when combined within a broader process, implying changes in trade policy like, for instance, adoption of complementary economic reforms and participation in growing forms of trade integration.

The analysis highlights how the effectiveness of tariff liberalization is tightly linked to the establishment and participation to an encompassing trade regime, whether multilateral or regional. The empirical result provides statistical support to the view that tariff liberalization has

been instrumental in creating a conducive environment for trade expansion. This result would confirm the thesis of those who endorse the existence of a formalized trading system to guarantee tariff liberalization (i.e. "the integration effect") and foster trade growth (i.e. "the interaction effect"). Therefore, this system would promote larger trade flows thanks to the establishment of a general pro-trade "climate", by guaranteeing the certainty of rules and consistent behaviour of main players. Further, this "climate" would encourage the inception of a righteous process of international trade policy coordination and lay the bases of a fuller and fairer participation of all countries to global trade.

Therefore, our analysis suggests that Latin American countries further - with consistence and diligence – their participation to and strengthening of their current integration processes, whether multilateral or regional. This process should not be slowed down by the old debate on which type, shape and size it should assume in the Latin-American context. In our opinion, a multilateral trading system would offer wider guarantees to the Latin-American countries, both in term of representativeness and contractual issues. The current trend of increasing bilateral agreements raises the risk of trade diversion, the absence of independent dispute settlement mechanisms, and the exclusion of sensitive policies from transparent negotiations (e.g. agricultural policy), to the net detriment of the weakest countries.

APPENDIX

Data Definitions and Sources

Imports (M): Total value of import goods valued CIF (cost, insurance, and freight); expressed in million US dollars. Source: OxLAD.

Terms of Trade (TOT): index of US inverse net barter terms of trade, included as a proxy for world terms of trade (index of world export prices relative to world import prices) faced by Latin America. This index is obtained by dividing the price index of non-manufactured imports (to 1970, and general imports thereafter) by the price index of exports at a constant base year (1970=100). Source: OxLAD.

Tariffs (T): ratio between customs tax revenue (expressed in million US dollars) and imports (expressed in million US dollars). Even though this measure can be considered rather rough, it remains the most used variable in the long run analyses (Capie, 1994; Vamvakidis, 2002; Clemens e Williamson, 2001; O'Rourke, 2000; 2001). In our specific case, this is the only historical measure available for the specification of the liberalization process we have analysed. Sources: OxLAD; Harvard University database on tariffs[21]; Mitchell (1992; 1998).

Gross Domestic Product (Y): expressed in million US dollars, PPP 1970. Sources: OxLAD; Groningen database, Growth and Development Centre; Maddison (1982; 1989; 1995; 2001).

Table 1*A* – ECM derived from the ARDL (2,1,1,0) approach: 1900[1]-1959

Dependent variable: IMPORT GROWTH[2] [m]	
Explanatory variables:	
Lagged import growth [m_{t-1}]	0.18
	*(2.34)***
Income growth [y]	2.52
	*(5.23)****
Relative price change [p]	4.95
	*(4.92)****
Tariff change [t]	-0.08
	(0.26)
Constant	-6.09
	*(2.23)***
EC (-1)	-0.23
	*(3.14)****
F-stat.	[0.0000]
Adj. R^2	0.71
Akaike info criterion	-60.05
Schwarz criterion	-68.29
Number of observations	58

Notes:
Figures in parenthesis ( ) are absolute t-ratios; figures in brackets [ ] are p-values. * indicates that a coefficient is significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.
[1] The empirical anlysis starts exactly from 1902.
[2] Imports of: Argentina, Brazil, Chile, Colombia, Mexico and Peru.

[21] This database is not public. The authors thank Prof. J. Williamson for having put it at their disposal.

Table 2*A* - Fixed effects model: 1900-1959

	Dependent variable: IMPORT GROWTH [m_t]
Explanatory variables:	
Lagged import growth [m_{t-1}]	0.02
	(0.52)
Domestic income growth [y]	1.32
	*(5.35)***
Relative price change [p]	1.16
	*(8.62)***
Tariff change [t]	-0.05
	(1.12)
Constant	-0.02
	(1.49)
F-stat.	[0.0000]
R^2	0.30
No. countries/No.observations	6/328

Notes:

Figures in parenthesis ( ) are absolute t-ratios; figures in brackets [ ] are p-values. * indicates that a coefficient is significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

REFERENCES

Agosin, M. (1991). 'Trade policy reform and economic performance: a review of the issues and some preliminary evidence', UNCTAD Discussion Papers, No. 41, Geneva, Switzerland.

Ahmed, N. (2000). 'Export responses to trade liberalisation in Bangladesh: a cointegration analysis', *Applied Economics*, vol. 32 (August).

Bairoch, P. (1993). *Economics and world history: myths and paradoxes*, Chicago, University of Chicago Press.

Balassa, B. (1982). "Structural Adjustment Policies in Developing Economics", *World Development* 10.

Baldwin, R. (1994). *Towards an Integrated Europe*, CEPR, London.

Baldwin, R.. E. and Martin, P. (1999). "Two Waves of Globalisation: Superficial Similarities, Fundamental Differences", NBER, Working Paper n. 6904, Cambridge Mass.

Baltagi, B. H. (2001). *Econometric Analysis of Panel Data*, J. Wiley & Sons, Chichester, England.

Behrman, J.R. (1976). *Foreign Trade Regimes and Economic Development: Chile*, New-York: Columbia University Press for the NBER.

Bertola, G. and Faini, R. (1991). "Import demand and non-tariff barriers: the impact of trade liberalization", *Journal of Development Economics*, 34 (November).

Bhagwati, J. (1978). *Anatomy and Consequences of &change Control Regimes*, Lexington, MA: Ballinger Press for NBER.

Bleaney, M. (1999). "Trade reform, macroeconomic performance and export growth in ten Latin American countries 1979–95", *Journal of International Trade and Economic Development*, vol. 8 (March).

Bulmer-Thomas, V. (1994). *The Economic History of Latin America since Independence*. Cambridge: Cambridge University Press.

Capie, F. (1994). *Tariffs and Growth: some illustrations from the world economy, 1850-1940*, New York, Manchester University Press.

Clarke, R. and Kirkpatrick, C. (1992). 'Trade policy reform and economic performance in developing countries: assessing the empirical evidence', in R. Adhikari, C. Kirkpatrick e J. Weiss, (eds.), *Industrial and Trade Policy Reform in Developing Countries*, Manchester: Manchester University Press.

Clemens, M. A. and Williamson, J. G. (2001). "A Tariff-Growth Paradox? Protection's Impact the World Around 1875-1997," NBER Working Paper 8459, Cambridge, Mass.

Clemens, M. A. and Williamson, J. G. (2002). "Closed Jaguar, Open Dragon: Comparing Tariffs in Latin America and Asia before World War II," NBER Working Paper 9401, Cambridge, Mass.

Coatsworth, J. H. and Williamson, J. G. (2002). "The Roots of Latin American Protectionism: Looking Before the Great Depression," NBER Working Paper 8999, Cambridge, Mass.

Corbo, V. (1992). "Development Strategies and Policies in Latin America: A Historical Perspective", International Centre for Economic Growth, Occasional Paper No.22 (April),

Diaz-Alejandro, C. (1984). "Latin America in the 1930s", in R. Thorp (ed.), Latin America in the 1930s, New York: Macmillan.

Dickey, D. A. and Fuller, W. A (1979). "Distribution of the estimators for autoregressive time series with a unit root", *Journal of the American Statistical Association*, 74.

Engle, R.F. and Granger, C.W.J. (1987). "Co-integration and error correction: representation, estimation and testing", *Econometrica*, vol. 55.

Ffrench-Davis, R. (2004). *Entre el neoliberalismo y el crecimiento con equidad. Tres décadas de política económica en Chile*, Buenos Aires: Siglo XXI.

Ffrench-Davis, R., (1973). *Políticas Económicas en Chile: 1952-70*, Santiago: CEPLAN and Ediciones Nueva Universidad.

Foxley, A. (1982). "Neo-liberal Experiments in Latin America", *World Development*.

Frankel, J. A., (1997). *Regional Trading Blocs in the World Trading System*, Washington DC: Institute for International Economics.

Garman, G., Peterson, J. and Gilliard D. (1998). "Economic Integration in the Americas: 1975-1992," *The Journal of Applied Business Research* 14(3), 1-12.

Goldstein, M. and Kahn M.S. (1985). "Income and price effects in foreign trade", Jones and Kenen eds., *Handbook of International Economics*, vol. 2, North-Holland, Amsterdam.

Greenaway, D. and Sapsford, D. (1994). 'What does liberalisation do for exports and growth', *Weltwirtschaftliches Archive*, vol. 30, (February).

Greene, W. (1997). *Econometric Analysis*, 3rd edition, London: Prentice Hall.

Hamilton, J. D. (1994). *Time Series Analysis*, Princeton University Press, New Jersey.

Helleiner, G. (ed.) (1994). *Trade Policy and Industrialisation in Turbulent Times*, London, Routledge.

IDB (2002). *Além das Fronteiras: O Novo Regionalismo na América Latina*, Progreso Economico y Social na América Latina, Relatorio 2002, Washington D.C.: Inter-american Development Bank.

Irwin, D. A. (2000). "Tariffs and Growth in Late Nineteenth Century America", NBER Working Paper No. 7639, Cambridge, Mass.

Jenkins, R. (1996). 'Trade performance and export performance in Bolivia', *Development and Change*, vol. 27 (April).

Joshi, V. and Little, I.M.D. (1996). *India's Economic Reforms 1991–2001*, Oxford, Oxford University Press.

Krueger, A. O. (1978). *Foreign Trade Regimes and Economic Development: Liberalisation Attempts and Consequences*, Lexington, MA: Ballinger Press for NBER.

Leamer, E. E. and Stern R.M. (1970). *Quantitative International Economics*, Allyn and Bacon, Inc., Boston.

Maddison, A. (1989). "The world economy in the 20th century", Development Centre of the OECD, Paris.

Maddison, A. (2001). *The world economy: a millennial perspective*, Development Centre of the OECD, Paris.

Madsen, J. B. (2001). "Trade barriers and the collapse of world trade during the Great Depression", *Southern Economic Journal*, vol. 67, 4.

Mah, J.S. (1999). "Import demand liberalization and economic development", *Journal of Policy Modeling*, 21 (4).

Martin, W. and Winters, A. L. (1995). "The Uruguay Round and the Developing Economies", *World Bank Discussion Papers* 307.

Melo, O. and Vogt, M.G. (1984). "Determinants of the demand for imports of Venezuela", *Journal of Development Economics*, 14, 351 –358.

Michaely, M., Papageorgiou, D., and Choski, A. (1991). "Liberalizing Foreign Trade in Developing Countries", *Lessons of Experience in the Developing World*, vol. 7, Basil Blackwell for The World Bank, Oxford.

Mitchell, B. R. (1998). *International historical Statistics: the Americas, 1750-1993,* London, Macmillan.

Nenci, S. (2005). "Trade Barriers and Trade Growth: a Comparative Historical Analysis to Assess the Multilateral Trade System" (*Barriere tariffarie e crescita del commercio: un'analisi storica comparata per la valutazione del sistema commerciale multilaterale*), PhD Thesis, University of Rome "La Sapienza", Roma http://padis.uniroma1.it.

Nenci, S. (2006). "Commercio e sviluppo: il ruolo dell'Organizzazione Mondiale del Commercio", (with P. Montalbano), in Triulzi-Montalbano *La politica economica internazionale*, vol. II UTET Università, Torino.

Nerlove, M. (1967). "Experimental evidence on the estimation of dynamic economic relations from a time series of cross-sections", *Economic Studies Quarterly*, 18.

Nickell, S. (1981). "Biases in dynamic models with fixed effects", *Econometrica*, 49 (6).

O'Rourke, K. (2000). "Tariffs and Growth in the Late 19th Century", *The Economic Journal*, 110.

O'Rourke, K. (2001). "Globalization and Inequality: Historical trends", NBER Working Paper N. 8339, Cambridge, Mass.

Pacheco-López, P. (2004) "The Impact of Trade Liberalisation on Exports, Imports, the Balance of Payments and Growth: the Case of Mexico", Working Paper Department of Economics, University of Kent, United Kingdom.

Pesaran, M. and Pesaran, B. (1997). *Working with Microfit 4.0 Interactive Econometric Analysis*, Oxford University Press, Oxford.

Pesaran, MH. and Shin, Y. (1999). An autoregressive distributed lag modelling approach to cointegration analysis, in *Econometrics and Economic Theory in the 20th Century*: The Ragnar Frisch Centennial Symposium, Strom S (ed.). Cambridge University Press, Cambridge.

Phillips, P.C.B. and Perron, P. (1988). "Testing for a unit root in time series regression", *Biometrika*, 75.

Pietrobelli, C. (1991). "Real Effective Exchange Rates: Methodological Proposals for a Computable Index and an Application to Chile [1973-86]", *Economia Internazionale*, Vol.XLIV, No.1.

Pietrobelli, C. (1994). "Trade Liberalization and Industrial Response: The Case of Chile (1974-1987)", *Banca Nazionale del Lavoro Quarterly Review*, Vol.XLVII N.191, December.

Pietrobelli, C. (1998). *Industry, Competitiveness and Technological Capabilities in Chile. A New Tiger from Latin America?*, London and New York: Macmillan and St.Martin's.

Pietrobelli, C., Massun, L., and Miotti, L. (2005). "Misión de pre-programación de la cooperación de la Unión Europea con el Mercosur -2007-2013", CE Bruxelles, Internal Report.

Rose, A. K. (2004). "Do We Really Know that the WTO Increases Trade?", in *The American Economic Review*, Vol. 94, No. 1 (March).

Santos-Paulino, A. and Thirwall, A.P (2004). "The Impact of Trade Liberalisation on Exports, Imports and the Balance Of Payments of Developing Countries", *The Economic Journal*, vol.114.

Shafaedin, S.M. (1994). 'The impact of trade liberalisation on exports and GDP in least developed countries', UNCTAD Discussion Papers No. 85, Geneva.

Soloaga, I. and Winters L. A. (2001). "Regionalism in the Nineties: What Effect on Trade?", *North American Journal of Economics and Finance* 12(1), 1-29;

Taylor, A. (1998). "On the Costs of Inward-Looking Development: Price Distortions, Growth, and Divergence in Latin America", *Journal of Economic History* 58 (March): 1-28.

The Oxford Latin American Economic History Database (OxLAD) http://oxlad.qeh.ox.ac.uk/index.php

Thirlwall, A.P. (2003). *Growth and Development: with Special Reference to Developing Economies*, 7th edition, Palgrave-Macmillan, London.

Thomas, V., Nash, J. and Edwards, S. (1991). *Best Practices in Trade Policy Reform*, Oxford: Oxford University Press for the World Bank.

Thorp, R. (1998). *Progress, Poverty and Exclusion. An Economic History of Latin America in the 20th Century*, Inter-American Development Bank, Washington DC.

UNCTAD (1989). *Trade and Development Report,* UNCTAD, Geneva.

Urrutia, M. (ed.), (1991) *Long-term Trends in Latin American Economic Development*, Inter-American Development Bank, Washington D.C...

Vamvakidis, A. (2002). "How Robust is the Growth-Openness Connection? Historical Evidence", *Journal of Economic Growth*, vol.7.

Weiss, J. (1992). 'Export response to trade reforms: recent Mexican experience', *Development Policy Review*, vol. 10, pp. 43–60.

Winters, A. (1996). "Regionalism versus multilateralism", CEPR, Discussion Paper series, No. 1525, November.

World Bank (1987). *World Development Report*, Oxford University Press.