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GROWTH EFFECTS OF REGIONAL INTEGRATION AGREEMENTS

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GROWTH EFFECTS OF REGIONAL INTEGRATION AGREEMENTS

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Resumen

Durante la década de los noventa, el mundo experimentó una ola de acuerdos de integración regional (AIR) que alcanzaron proporciones sin precedentes. En presencia de economías de escala o efectos de tamaño del mercado, los AIR pueden tener consecuencias positivas sobre el crecimiento. Este artículo introduce una nueva medida de integración regional, al hacer interactuar la calidad de miembro de un país en el AIR con la participación de los socios en el PIB mundial. Esta medida permite capturar efectos diferenciados, dependiendo del tamaño de los socios. Los resultados indican que los AIR han tenido efectos positivos en el crecimiento. Además, se encuentra que los acuerdos Norte-Norte tienen efectos significativos en el crecimiento; los acuerdos Sur-Sur tienen efectos ambiguos, que dependen del tamaño de los países que los suscriben; y para los acuerdos entre Norte y Sur, no hay respuesta clara.

Abstract

During the 1990's the world experienced a new wave of regional integration agreements (RIAs) that reached unprecedented proportions. In the presence of economies of scale or extent-of-the market effects RIAs may have positive growth effects. I introduce a new measure of regional integration by interacting country membership to a RIA and the partners' share of world GDP, which allows capturing differentiated effects depending on the size of the partners. Results indicate that RIAs have exerted positive effects on growth. In addition, I find that North-North agreements have significant growth effects; South-South agreements have ambiguous effects depending on the size of the countries joining them, and that there is no clear answer for North-South agreements.

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1. INTRODUCTION

The increasing importance of regional integration agreements (RIAs) and in particular their extraordinary expansion during the 1990's are among the most salient developments of the international trading system. The evolution of the European Community into the European Union with a deeper level of integration, the creation of NAFTA and MERCOSUR, the revival of old arrangements such as the Andean Pact and ASEAN, and a new wave of bilateral agreements involving Latin American countries are examples of this phenomenon.

A first assessment of the extent of the expansion of RIAs can be obtained by examining Table 1, which shows the number of notifications to GATT/WTO of regional integration agreements. An important first wave of agreements was observed in the 1970's, and a second larger one—the revival of regional integration—during the 1990's. This last wave of agreements accounts for 52% of the notified RIAs as of 1998.¹ At present most countries in the world are members of at least one RIA, and at least one third of world trade is covered by RIA provisions (World Bank, 2000).

These developments have attracted academic attention, generating a large literature that seeks to explain the welfare properties of RIAs and their effects on trade.² Relatively less attention, at both the theoretical and empirical levels, has been devoted to the growth effects of RIAs, even though it has been recognized that the dynamics effects of regional integration are potentially larger than the static ones (Walz, 1999).

The way in which the empirical literature has tried to assess whether regional integration affects economic growth has been through the use of dummy variables for a country's participation in an RIA. They have been used in both cross section and panel data growth regressions, with findings that mostly point towards a lack of growth effects of regional integration. An important disadvantage of this approach is that a categorical variable will not capture countries' features that may have growth effects once an integration agreement is in place. In other words a dummy variable measures the impact of regional integration with error,

¹ A word of caution regarding these numbers is necessary. Not all agreements will result in a net increase of the number of agreements in force since some of them will replace existing agreements.

² See De Melo and Panagariya (1993), Kym and Blackhurst (1993), Baldwin and Venables (1995), and Baldwin (1997), among others, for discussions on these and related issues.

which in turn may explain why empirical studies have generally found that regional integration has not affected growth significantly either positive or negatively.

This paper contributes to the literature along several lines: first and mainly, I introduce a new way to measure regional integration by creating an RIA variable that not only considers whether a group of countries has an RIA, but also captures the extent of the world market that is integrated into domestic markets once the agreement takes place. This is a clear improvement to the existing literature, for it uses additional and relevant information about the countries joining the RIA—at the same time that reduces its measurement error—in order to identify possible growth effects coming from the expansion of the market size.

In addition, I improve the literature by addressing endogeneity problems that might arise with regional integration, as it might be the case that growth and the decision to join certain RIAs are driven by common underlying factors that would bias current estimates from their true values. This problem has not been addressed before, and I deal with it by proposing a set of instruments comprised of regional dummies.

By analyzing the growth effects of size of the market, I find strong evidence that extending the domestic market through RIAs fosters growth, irrespective of the estimation method. In turn, this finding supports theoretical arguments that suggest positive effects of RIAs through the extent of the market. My estimates indicate that signing an agreement with a country whose GDP is 1 percent of world GDP increases growth by 0.026 to 0.1 percentage points, with the lower bound being the most appropriate one.³ To put these results in context, an agreement with a country the size of Canada—whose share of world GDP in 2000 was approximately 2.1%—might increase growth by 0.05 to 0.021 percentage points.

With these point estimates we can, for instance, estimate the impact of the expected enlargement of the European Union, which would increase the growth rate of existing members by 0.02 percentage points. For incoming members such as Poland and Hungary, the increase in their growth rates might reach up to 0.6 percentage points. Considering that the worldwide annual average GDP growth rate during the 1990-2000 period was 2.6 percent,⁴ the gains from regional integration agreements are not trivial.

³ The magnitude of the growth effect varies depending on the estimation procedure.

A second contribution of this paper is the finding that when countries are classified as North or South—depending on their development level—those agreements between North countries have unambiguous positive growth effects. In turn, the growth effect of an agreement between South or developing countries depends on the size of its partners. For sufficiently large countries the effect is positive but for very small countries the effect is negative. For North-South agreements the evidence is mixed and does not allow me to conclude either in favor or against growth effects of regional integration.

The rest of the paper is organized as follows: section 2 reviews the literature on growth and regional integration. Section 3 discusses the measures of regional integration that I constructed, the data, and estimation strategies. Section 4 presents the results of introducing a new measure of regional integration, addresses some endogeneity concerns, and discusses the implications for different types of agreements. Section 5 concludes.

2. GROWTH AND REGIONAL INTEGRATION

Relatively little attention has been devoted to study the growth effects of regional integration. Notable exceptions are the contributions of Walz (1995, 1997a, 1997b, 1999). Using dynamic general equilibrium growth models that account for regional aspects, he finds that the growth rate after integration depends on several factors, such as whether the integration agreement causes trade creation or trade diversion, the comparative advantage of each member, and initial trade barriers. Given this simultaneous dependence of the growth rate on several factors, the endogenous growth literature that analyzes regional integration does not have a clear answer to the question of what are its effects on growth.

However, it has been long thought that the potential dynamic effects of regional integration might be important (Baldwin, 1989). One of the possible sources of dynamic effects are economies of scale. Walz (1997) points out that assuming increasing returns to scale in the R&D sector, scale effects would come from increases in productivity of this sector due to the expansion in the size of the market after integration. In this line, openness has been found to

⁴ The World Bank. World Development Report 2002.

reduce the effect of the size of the domestic market on growth (Ades and Glaeser 1999), yet, no attempt has been made to test the impact on growth of the enlargement of foreign markets through regional integration agreements.

In a related literature, although not concerned with growth but with income convergence/divergence, Puga and Venables (1998) have reached conclusions regarding the effects of different types of agreements on income and welfare. Specifically, they investigate the effects of trade arrangements between developed and developing countries, i.e., North-South and South-South agreements, on industrial development. They conclude that unilateral liberalization is beneficial, but also that the gains from an integration agreement are likely to be larger. Moreover, they find that North-South agreements are more likely to bring greater gains to developing countries—if not to North countries as well—than South-South agreements.

Following a different approach related to traditional trade theories and using two different models, Venables (1999) shows that comparative advantages, coming from endowments of human capital, can provide similar conclusions to those of Puga and Venables (1998). His argument is simple: countries with comparative advantage closer to the world average have a lower risk of trade diversion—the source of losses of income and welfare—once a free trade area is formed, and countries with the comparative advantage most different from the world average have a higher risk of trade diversion. His conclusions lead to the following implications: on the one hand, a free trade area formed by developing countries—with lower relative endowments of human capital than the world average but different among them—might lead to divergence of income levels, with the richer partner—the one with endowments closer to world average—benefiting at the expense of the poorer. On the other hand, an agreement containing a high income partner—one with relative endowment of human capital above the world average—is more likely to lead to income convergence.

Although it is not possible to find an unambiguous prediction in the theory regarding the growth effects of regional integration, it is possible to extract some guidelines regarding what type of agreements might have positive growth effects: Puga and Venables (1998) and Venables (1999) suggest agreements that include at least one developed partner increase growth. In the present paper I contribute to the literature by developing a variable that tests this hypothesis empirically. The methodology used in this test and its results are reported in sections 3 and 4 respectively.

The empirical literature⁵ has addressed regional integration by including dummy variables as the measure of regional integration. Using cross-section growth regressions, De Melo *et al.* (1992) and Vamvakidis (1998) found that for several integration agreements a dummy variable reflecting membership does not have a significant effect on growth. In a related paper, Vamvakidis (1999) addresses the question of whether countries engaging in unilateral liberalizations grow faster than countries that engage in regional integration agreements. Results show that economic growth is greater in countries that accomplish broad liberalization than in countries that engage in RIAs, specifically he finds that becoming a member of at least one RIA does not foster growth.

Recently, Henrekson *et al.* (1997) test the growth effects of European integration, namely the growth effects of both the European Community and the European Free Trade Agreement, finding that the EC/EFTA dummy variable is positive and significant at the 5% level, suggesting that the growth rate is increased in a range of 0.6-0.8 percentage points by EC/EFTA membership.

The use of a dummy variable is prevalent not only at the country level, but also in studies using industry data. Madani (2001a and 2001b) looks at the effect of the revival of the Andean Pact and ASEAN on industrial growth,⁶ finding that for both groups the dummy variable used to estimate growth effects is not significant.

Using a dummy variable to capture the growth effects of an RIA is akin to assuming that the expected effect would come simply from signing the agreement. Instead, we should expect that characteristics of the agreement and its partners, such as the level of integration, economic development or market size, would be forces driving the gains in growth. For instance, if we expect agreements involving countries of different sizes to have differentiated effects depending on the size of the partners joining the agreement, using a dummy variable will not give the meaningful estimates because a dummy variable in this context introduces a large measurement error in the integration variable.⁷ Variables that reduce measurement error by incorporating the

⁵ I will discuss only studies involving econometric techniques because of the similarities to this paper. There is also a literature using computable general equilibrium methods. For a basic survey on computable general equilibrium evaluations see Baldwin and Venables (1995).

⁶ The Andean Pact countries analyzed are Bolivia, Colombia, and Ecuador. The ASEAN countries are Singapore, Philippines, and Malaysia.

⁷ Henceforth, I will use 'size' to refer to a country's GDP.

dimensions that might generate growth effects, such as the size of the market, would generate more consistent and economically meaningful estimates.

In summary, theory does not provide indications about the expected impact of regional integration on growth, although it is possible to indirectly extract some guidelines regarding the type of agreements that might have positive effects: those that include at least one developed partner. The empirical literature, by using a dummy variable to measure the impact of RIA membership, has ignored the fact that impacts are likely to depend on market size.

3. MEASURING REGIONAL INTEGRATION AGREEMENTS, ESTIMATION STRATEGY, AND DATA

I measure the growth effects of regional integration—presumably through economies of scale—by creating a variable (*RIA*) that captures the extent of the world market that is potentially incorporated into the domestic market with the set of regional integration agreements that a country has joined. I define the variable as follows:

$$\text{Absolute RIA}_{jt} = \sum_{\substack{i=1 \\ j \neq i}}^N (D_{it}^j \times \text{SWGDP}_{i,1960}), \quad (1)$$

where N is the number of countries in the world, D_{it}^j is a dummy variable that takes the value of 1 when country j has an integration agreement with country i in period t , and SWGDP_i is the share of world GDP of country i .⁸ The variable, therefore, is the sum of the shares of world GDP of the countries with which country j has signed regional integration agreements. The size of the partners' market that is being incorporated to their domestic market is potentially different for each country signing the agreement. As a result, countries entering an agreement are going to enlarge their domestic markets differently, thus facing different prospects for growth improvements. This measure of integration is a clear improvement in the direction of reducing the measurement problem posed by the use of dummy variables, and it will permit different growth estimates for each of the countries entering an agreement.

The RIA variable presented in equation 1 measures the absolute the size of the market, however, it is possible that economies of scale could appear not only from increasing the market in absolute terms but also in relative terms. In order to capture that effect I constructed a measure of the size of partners' market relative to the size of the country entering the agreement, to test whether the relative size of the incorporated market and not the absolute size is what determines the presence of economies of scale. Thus, the relative RIA variable is constructed as:

$$\text{Relative RIA}_{jt} = \frac{\sum_{\substack{i=1 \\ j \neq i}}^N (D_{it}^j \times \text{SWGDP}_{i,1960})}{\text{SWGDP}_j}, \quad (2)$$

were the numerator of equation (2) is equation (1), and SWGDP_j is the share of world GDP of country j . Therefore, the relative RIA variable conveys information regarding the size of the partners' market relative to the domestic market. These two RIA variables will be contrasted with a variable in line with the existing literature, a dummy variable reflecting whether a country belongs to at least one RIA.

Appendix 1 contains the list of regional integration agreements incorporated in the RIA variables. They include a wide variety of trade agreements—in total 70 of them—covering all continents, countries with a diverse degree of development, and a long period of time.⁹ The main criterion used to include agreements in the data set is that they have to be deemed as active as of January 1, 2000 by the World Trade Organization (WTO). In addition, I include also some agreements, particularly in Latin America, that have not been notified to the WTO but were considered active by other sources.

The basic estimation strategy is through cross-country and panel data growth regressions that incorporate the RIA variables I constructed. To capture possible economies of scale or extent-of-the-market effects of regional integration I introduce a set of control variables that intend to capture other sources of growth—factor accumulation, allocative efficiency,

⁸ I use countries' share of world GDP in 1960 to avoid problems of reverse causation. However, this choice might introduce measurement error into the RIA measure as not all countries grew at the same rate over the period. The results reported here are robust to a measure of RIA that uses the observed shares of world GDP at every point in time instead of fixed ones.

⁹ To my knowledge, this is the study that incorporates the largest number of trade agreements, and has the longest time coverage so far in the literature.

technological transitions, government policies and institutions—so that the integration variable I created reflects the effect of economies of scale or extent-of-the-market on growth.¹⁰

Growth is measured by the growth rate of real GDP per capita at international prices, i.e., purchasing power parity adjusted. The choice of the control variables is based directly on both the theoretical and empirical growth literature. In the first case, endogenous growth theory recognizes that capital accumulation, skilled labor, and knowledge transmission and accumulation are major driving forces of growth (Rivera-Batiz and Romer, 1990a and 1991b; Grossman and Helpman, 1991). To proxy for capital accumulation I included the investment rate, and for skilled labor I use human capital measured as the average secondary and tertiary years of schooling in total population. Capturing knowledge transmission is more controversial and several variables have been proposed in the literature. Following Wacziarg (2001), I use foreign direct investment and manufactured exports as a share of total exports.

Given that the decision of joining regional integration agreements is ultimately a political one, an important econometric concern can be the possible correlation between government policies that might have growth effects and the political decision of entering integration agreements. I address this concern by including a measure of government size—the ratio of government consumption over GDP. I also incorporate a measure of the political system to control for the type of institutions countries have. Following Tavares and Wacziarg (2001) I use a variable that assesses the level of democracy.

Recognizing that trade restrictions affect tradable goods prices and that price distortions have been found to deter growth (Easterly, 1989 and 1993), I include the black market premium as proxy for distortionary policies. Next, I introduce terms of trade with the aim of avoiding possible correlations between international price movements and the decision of joining integration agreements. Additionally, I use the ratio of total trade over GDP to control for the country's degree of openness.

Recent literature has provided evidence on the possibility of growth spillovers across countries (Chua 1993, Moreno and Trehan 1997, Easterly and Levine 1998, Easterly 2001), thus,

¹⁰ Given that it is not possible to control perfectly for all previous sources of growth, and that technological transmissions and knowledge spillovers are admittedly difficult to control for, it is likely that the RIA variable, to some extent, is also capturing technological transmissions and knowledge spillover effects.

I introduced the growth rate of trade partners to capture part of such spillovers.¹¹ It tries to capture the possibility that countries trading with fast-growing economies experience faster growth themselves, pulled by their partners. The trading partners' growth rate is a weighted average of the growth rate of other countries, where weights are given by share of the bilateral trade between a given pair of countries.

As Moreno and Trehan (1997), and Easterly and Levine (1998) have pointed out, the use of this variable introduces a problem of simultaneity in the regressions—the right hand side of the regression includes the dependent variable, growth.¹² In order to solve the simultaneity problem I use instrumental variables that endogenize trading partners' growth. The instrument I propose is the trading partners' investment rate. The trading partners' investment rate is a weighted average of the investment rate existing in other countries, with weights being the shares of bilateral trade. The use of this instrument is justified by the fact that the empirical literature has found that the rate of investment is an important predictor of economic growth (Levine and Renelt, 1992), thus, ex-ante, trading partners' investment would appear to be a suitable instrument for trading partners' growth.^{13,14} In turn, conditional on trading partner's growth we should not expect trading partner investments to be a determinant of growth as the growth spillovers should come directly from other countries' growth paths and not from their investment rate evolution.

The last control variable is the share of world GDP of bordering countries. This variable is introduced to control for the possibility that the RIA variables might be capturing the growth effect coming from the market size of neighboring countries and not from regional integration since regional integration agreements are frequently formed by neighboring countries.

¹¹ Here trade partners refer to all trading partners regardless of the existence of an integration agreement. See Appendix 2 for details about the construction of this variable.

¹² The baseline regression in this paper—in matrix notation—is the following:

$G = \theta WG + X\beta + \varepsilon$, where $\varepsilon \sim N(0, \sigma^2 I)$, $X\beta$ is a matrix including all control variables and the RIA variables, W is the weighting matrix formed by shares of bilateral trade, and G is the growth vector. The product of W and G is the trading partners' growth variable. Given that growth is on both sides of the equation the simultaneity problem arises.

¹³ In all my estimations, I also find that a country's own investment rate is a significant determinant of growth.

¹⁴ In addition, I constructed trading partners' growth using a different growth rate than the one used for the dependent variable. For the latter, I use the growth rate of real GDP per capita—purchasing power parity adjusted—because it better captures changes in the standard of living. For the trading partners' growth variable, the growth rate is constructed from GDP per capita at constant dollars. This rate of growth measures the ability of countries to engage in international transactions of goods, services, capital and/or knowledge—the channels through which growth spillovers might operate—and therefore, the use of GDP per capita in

Table 2 provides basic statistics about the set of variables used in subsequent estimations. From the absolute RIA variable one can notice that on average, for the 1960-1999 period, trade agreements potentially add to a domestic market a market of the size of about 6.3% of the world's GDP. It ranges from zero for countries such as China, Japan or Panama to 30.4% for Israel.¹⁵

Table 3 presents descriptive statistics of decade averages for economic growth and the RIA variables since part of the estimation is conducted using decade averages. Noticeable is the sustained increase in the averages and maximums of the absolute RIA variable. The former has increased from 1.74% in the sixties up to 10.8% in the 1990's, and the latter has moved from 14.3% in the 1960s to 68.8% in the same period.¹⁶ The same table also reports descriptive statistics for the relative RIA variable, which on average also has experienced a substantial increase. Given that there is a large variance in the distribution of economic size in the world, this variance is also transmitted to the relative size variable, which has a relatively large standard deviation of about four times the mean in each decade.

Table 4 displays the unconditional correlations between growth and the absolute and relative RIA variables. As can be seen, there seems to exist a moderate positive correlation between growth and these two variables, although for the absolute RIA variables it has changed over time—specifically, it decreases during the 1970's, recovers during the next decade, only to decrease again in the 1990's.¹⁷ A plausible explanation for the decrease during the 1970's could be that the oil price shock may have weakened the relationship. In order to control for this possibility, estimations control for shocks in the terms of trade and incorporate decade dummy variables in the panel data estimations.

constant dollars assures a better proxy for such ability. The correlation between these two growth rates is 0.43, which helps to lessen the simultaneity problem.

¹⁵ China, Japan and Panama have no reported integration agreements.

¹⁶ The share of the world GDP is kept constant at 1960 values in all RIA calculations.

¹⁷ The unconditional correlation for 1960-1999 averages is 0.40.

4. RESULTS

In this section I report the results using the RIA variables created in section 3 in both cross-section and panel data growth regressions. I also address concerns related to the endogeneity of regional integration agreements, and I study the role of the level of development in generating growth effects.

4.1. GROWTH EFFECTS OF RIAs: IS THE SIZE OF THE MARKET IMPORTANT?

The first estimation exercise involves cross-section growth regressions using 40-year averages for the 1960-1999 period, with least squares and instrumental variables. The instrumental variables regressions controls for the simultaneity problem already discussed in section 3, and they have trading partners' investment as the instrument for trading partner's growth.

Regressions incorporate all controls variables discussed above, namely, the logarithm of initial GDP per capita, the ratio of government consumption over GDP, the black market premium, the investment rate, foreign direct investment as a percentage of GDP, the share of manufactured exports in total exports, the terms of trade, the ratio of total trade over GDP, trading partner's growth, and bordering countries share of world GDP. In terms of the sample size, the regressions include 81 countries.¹⁸

Results are shown in Table 5. In columns 1 and 2, I first report results using a dummy variable that captures whether the country belongs to at least one RIA.¹ In this set of regressions belonging to an RIA means that a country joined at least one agreement before 1980. I constructed this variable to contrast results using the RIA variables that I introduce in this paper, with variables similar to the ones used so far the literature, in particular the one proposed by Vamvakidis (1999). According to Vamvakidis, and most of the empirical literature, I should expect this variable to be insignificant, and in fact, as in his paper, becoming a member of a RIA does not have any significant effect on growth.

¹⁸ Appendix 3 contains the list of the 81 countries included in regressions using 40-year averages.

In terms of the control variables, results indicate that the log of initial GDP per capita, the investment rate, manufactured exports, and bordering countries' share of world GDP have the expected signs and are statistically significant with OLS. Similar results are obtained with instrumental variables (column 2).¹⁹ In terms of the quality of the proposed instrument for trading partners' growth, and following Bound *et al.* (1995), I report in the lower part of the table—in column 2—the *F*-statistics and the partial *R*-squared of the excluded instrument in the first-stage regression.²⁰ The *F*-statistic reveals that trading partners' investment is significant at any standard level confidence, and the partial *R*-squared indicates that it explains 49% of the trading partners' growth variation left after 'partialling-out' the included covariates. Thus, trading partners' investment is a suitable instrument for trading partners' growth. However, a Hausman specification test of the null hypothesis that no systematic differences exists in the instrumental variables and least squares coefficients fails to reject the null hypothesis, indicating that least squares should be preferred to instrumental variables.²¹

Column 3 reports the least squares regression but now introducing the absolute RIA variable presented in section 3 (equation 1), namely, the extent of the market included in all agreements to which each country belongs. The OLS estimates of the coefficient on the absolute RIA variable indicate that the extent of the market has a positive and significant effect on growth, a result that contrasts with outcomes obtained using traditional dummies that measure integration.

Column 4 displays instrumental variables estimates. Again, as in the OLS estimates, the instrumental variables estimate for the RIA variable is positive and statistically significant. The instrument for trading partners' growth, i.e. trading partners' investment, performs well, both in terms of its significance in the first-stage regression—the *F*-statistics is 67.1, meaning that the

¹⁹ The main purpose of this paper is to discuss the effect of regional integration agreements on growth; therefore, I will focus the analysis mostly on the RIA variables, without deeply discussing results on control variables, since they have been already discussed in the literature.

²⁰ Excluded instrument refers to that used in the first-stage regression but not included in the second-stage regression. Included instruments refer to all other exogenous variables used to identify the endogenous variable. For Table 5, the excluded instrument is trading partners' investment. Thus, the *F*-statistic is that for trading partners' investment on the regression of the RIA variable on all control variables and trading partners' investment (first-stage). The partial *R*-squared is the *R*-squared with the included instruments 'partialled-out' (Green, 2000).

²¹ The Hausman specification test is based on the chi-squared statistic:

$$H = (\hat{\beta}_{IV} - \hat{\beta}_{OLS})' (Var[\hat{\beta}_{IV}] - Var[\hat{\beta}_{OLS}])^{-1} (\hat{\beta}_{IV} - \hat{\beta}_{OLS}),$$
 where $Var[\hat{\beta}_i]$ is a covariance matrix. If $Var[\hat{\beta}_{IV}] < Var[\hat{\beta}_{OLS}]$ the chi-squared statistic would take a negative value, which is inconsistent with the definition of a chi-squared statistic. In that case, following Green (2000), the term containing the difference in the covariance matrices is assumed to be a zero matrix, thus, the chi-squared statistic is zero. Below the 'Hausman' statistic I report the corresponding p-value.

instrument is significant at any conventional significance level—and in terms of its explanatory power on the absolute RIA variable—the partial *R*-squared of trading partners' growth is 0.5. Although, trading partners' investment is a suitable instrument for trading partners' growth on account of these two measures, again the Hausman specification test indicates that least squares is the appropriate estimation procedure.

In terms of the control variables, in both the least squares and instrumental variables regressions the log of initial GDP per capita, government consumption, the investment rate, and bordering countries share of world GDP have the expected signs and are statistically significant, all results that are in line with those in the literature.²²

One of the contributions of the absolute RIA variable I use in this paper is that it allows us to find differentiated growth effects varying with the size of RIA partners. The estimates I find suggest that joining an agreement with countries with a share of the world GDP of 1% might increase the growth rate, in the long-run, by 0.055 percentage points. To put this result in perspective the estimated coefficient suggests that signing an agreement with countries such as Canada or France—that accounted for 2.1% and 5.4% of world GDP in 2000, respectively—would increase a country's growth rate by 0.12% and 0.3% percentage points, respectively. In contrast, signing an agreement with countries such as Egypt or Colombia—with a share of world GDP of 0.24% and 0.3% percentage points, respectively—would increase growth by 0.013 and 0.016 percentage points, respectively. The implication of this result is that countries would benefit more by signing agreements with larger partners.

In addition to the effect coming from the absolute size of the market, I have created a variable that measures the relative size of the integration partners, i.e., the relative RIA variable, and columns 5 and 6 report results using this variable. With both least squares and instrumental variables, the coefficient is positive and statistically significant, which indicates that the relative size of the market also matters. Again the Hausman specification test indicates that least squares are the most appropriate estimates for this model.

In order to obtain an indication of the economic importance of this effect, I will use the distribution of relative sizes of all pairs of countries in the world, which can be described as follows: the 75th percentile has a value of 14.3, meaning that in 25% of all possible pairs of

²² See among others Levine (1992), Brunetti (1997), Easterly and Levine (1998), and Rodriguez and Rodrik (2000).

countries in the world, and therefore of possible bilateral integration agreements, one of the partners is at least 14 times the size of the other.²³ With this difference in sizes, an integration agreement would benefit the smaller country of the pair, by increasing its growth rate by 0.009 percentage points.²⁴

The 90th percentile of the distribution of relative size has a value of 110.5 times, giving a growth effect of 0.07 percentage points; the mean is 136.5 times, which gives a possible average growth effect of 0.086 percentage points, and a 95th percentile value of 358 times, giving a growth effect of 0.23 percentage points. The point estimates reported in Table 2 imply that the growth effect of the relative size of the market becomes economically significant only when extremely small countries engage in agreements with large countries.

Columns 7 and 8 introduce both RIA variables—absolute and relative—at the same time, finding that both variables remain significant, and the Hausman specification test again rejects the instrumental variables estimates. The decrease in the significance level of the RIA variables is due to collinearity between them, since the relative RIA variable is constructed using the absolute RIA variable. In addition, a test of the joint significance of both RIA variables—reported in the last row of the table—indicates that they are jointly significant.

With the estimates of the RIA variables presented in Table 5, column 7, I can estimate the possible growth effects of potential integration agreements. For instance an agreement between The United States and Brazil, within the framework of the Free Trade Area of the Americas (FTAA), would increase the growth rate of the United States by 0.12 percentage points and that of Brazil by 1.4 percentage points, with almost all the effect coming from the absolute size of the market—given that the US economy is about 11.5 times the size of Brazil's economy, the effect from the relative RIA variable is almost negligible for both countries. In contrast, an agreement between Canada and Bolivia would increase their growth by 0.001 and by 0.14 percentage points, respectively. For Bolivia 25% of that increase would come from the effect of the relative RIA variable, since Canada is about 87 times larger, and for Canada all the effect would be generated by the absolute size of the market.

In order to exploit the time series dimension of the data, I estimated both country fixed and random effect models. A panel approach has several advantages vis-à-vis a cross-section

²³ The inverse is also true: in 25% of all possible pairs of countries, the total GDP of one of the partners is 0.07 times the other.

one. First, by using decade-averages of the variables it reduces measurement error problems. In this in particular, it helps to decrease the measurement error in the independent variables of interest, the RIA variables. For instance, for the case of the absolute RIA, which in practice increases over time for all countries, decade averages will capture better that evolution, in contrast with the cross-section approach in which—obviously—only one value of the variable is used.²⁵ Another advantage of the panel approach is that allows incorporating the impact of time-specific and country-specific effects on growth. The former can control for worldwide changes in the growth rate due to worldwide business cycle, and the later control for time invariant country-specific determinant of growth such as the geography, climate, culture, or history. Panel data also allow for more variation in the data and therefore for reduction in the degree of collinearity in the covariates and for possible gains in efficiency (Baltagi, 2001).

The results are reported in Table 6 and they in line with those obtained with cross-section regressions. First, I introduce a variable for whether a country belongs to at least one RIA. A country is considered to belong to a RIA if it joined the agreement during the first half of the decade. The point estimate indicates that belonging to at least one agreement does not have any significant growth effect, which again points out the lack of explanatory power of a dummy variable as a measure of regional integration (columns 1 and 2). Second, even after controlling for country fixed effects, which leaves only the within country variation as a source to explain changes in the growth rate, the absolute RIA variable appears to have a significant positive growth effect (columns 3 and 4). The Hausman specification test indicates that there is significant difference in the coefficients of the two models, thus rendering the country-fixed effects as the appropriate ones.

Third, the estimated coefficients on the relative RIA variables are also positive and significant in both models, with country fixed effects being more suitable according to the Hausman specification test (columns 5 and 6). However, when both RIA variables are introduced at the same time, results indicate that both the absolute and the relative RIA variables are insignificant. As before, one explanation for the lack of significance of the RIA variables is

²⁴ The effect on the growth rate of the larger country would be 0.00004 percentage points.

²⁵ The choice of the way in which that value is measured becomes even more important in cross-section estimates, as different approaches can give very different values for a time-variant variable. For instance one could choose using the average of the whole period (as implemented here). Another possibility is to use the value of the variable in the time mid-point of the sample.

collinearity between the two RIA variables, caused by their high correlation, especially during the first part of the sample period. The unconditional correlation between the RIA variables was 0.84 in the 1960's; it decreased to about 0.4 in the next two decades, and fell to 0.36 in the 1990's. Even though the RIA variables are not significant individually, an *F*-test (reported in the last row of the table) suggests that they are jointly significant in both models.²⁶

Using the estimates reported in Table 6a, column 7, and taking the coefficients of the RIA variables as jointly significant, the expected growth effect of regional integration of the hypothetical agreements used before would be as follows: an agreement between USA and Brazil would increase their growth rates by 0.05 and 0.6 percentage points respectively, with more than 99% of the effect coming from the absolute RIA variable. For an agreement between Canada and Bolivia, the increases in their growth rates would be of 0.0005 and 0.1 percentage points respectively. For Canada, 99% of the effect comes from the absolute size of the market, although the size of the effects is still very small given the size of Bolivia's economy, and for Bolivia, 49% of the effect would come from the absolute size and 51% would come from the relative size of the market.

4.2. ADDRESSING ENDOGENEITY OF REGIONAL INTEGRATION AGREEMENTS

A recurrent problem of cross-country regressions is the possibility of endogeneity in one or more of the regressors. Specifically, it might be that fast growing countries, because of some observable or unobservable characteristics, are more prone to engage in RIA agreements, implying that the relationship between RIAs and growth is not causal.²⁷ To address the possible endogeneity of RIAs I propose the use of geographical regions as instruments for the decision to engage in such agreements. It is not hard to see that neighboring countries within geographical

Although these are still present when using decade average the differences should be considerably reduced in the panel framework.

²⁶ I obtained similar results in the panel regressions instrumenting the trading partners' growth variable, thus correcting for the simultaneity problem caused by the use of this variable, which suggests that simultaneity is not a problem in terms of generating a bias in the estimates of the RIA variables. In addition, all the results are robust to the exclusion of the human capital and democracy variables, which increases the sample size to 105 countries. The results are also robust to the use of alternative measures of openness and regional spillovers. For openness the alternative measure was the trade tariff revenues as a percentage of imports plus exports. Following Moreno and Trehan (1997) alternative measures of regional spillovers were: weighted distance to the rest of the world (weight: bilateral trade share), normalized weighted distance to the rest of the world, and bordering countries log of GDP. The results are also robust to the exclusion of trading partners' growth.

regions tend to join the same RIAs, and therefore, a set of geographical categorical variables would have strong correlation with RIAs and could be used as appropriate instruments.²⁸ The regions I propose as instruments are Oceania, Asia, Africa, Europe and the Americas.²⁹

Table 7 presents the estimates obtained when I introduce geographical regions as instruments for the RIA variables in the cross-section regressions (with 40-year averages) and in the panel data regressions (with decade averages). Because the instruments are geographical dummy variables, an instrumental variables fixed effects models cannot be estimated, leaving random effects as the only estimation procedure available for panel-data models. Columns 1 and 5 present the results of the regressions with the dummy for participation in RIAs. As in the previous results, entering at least one RIA does not affect growth. Columns 2 and 6 display estimates including the absolute RIA variable in the cross-section and panel data estimates, respectively. The results indicate that the absolute size of the market of countries joining an RIA has a strong positive and statistically significant growth effect, with point estimates similar on both the cross-section and panel data models.

The table also reports the F -statistic and the partial R -squared of the excluded instruments for the cross-section regressions following Bound *et al.* (1995). For the absolute RIA variable (column 2) they indicate that the instruments are jointly significant at any standard level of confidence, and that they explain a large portion (about 56%) of the left out variation of the absolute RIA variable, after netting out the effect of all exogenous covariates. However, the Hansen's 'J' statistic test of overidentifying restrictions rejects the null hypothesis that the proposed instruments are valid. Also, the Hausman specification test—under the null hypothesis that the coefficients of instrumental variables and least squares are equal—shows that we cannot reject the equality of coefficients and therefore we should keep the estimates obtained with least squares (Table 5).

For the panel data estimate (column 6), the Hausman specification test performed on the whole model—under the null hypothesis that the coefficients of instrumental variables random

²⁷ An additional concern might be a causality running directly from growth to RIA. However, Granger causality tests indicate that the RIA variable granger-causes growth but growth does not granger-causes the RIA variable.

²⁸ See Appendix 1 for the list of countries belonging to each agreement.

²⁹ Given that trading partners' growth would remain as an endogenous variable in the instrumental variables regressions, the full set of excluded instruments is composed by the regions defined above and trading partners' investment rate.

effects and random effects are equal—suggests that a random effect model is more appropriate, i.e. the appropriate results are those reported in Table 6a.

Columns 3 and 7 display the estimates with the relative RIA variable. As in the previous results, the relative RIA variable is positive and statistically significant. The instruments do not perform as well as with the RIA variable in terms of the F -statistic, and the partial R -squared, nevertheless, the overidentification test cannot reject their validity. In addition, the Hausman specification test points out again that I should use least squares instead of instrumental variables.

Finally, columns 4 and 8 report results when both RIA variables are included. For both models only the absolute RIA variable is statistically significant, however, the F -test indicates that they are jointly significant.

In summary, this section has attempted to deal with a possible problem commonly reported in country growth regressions, namely, the potential endogeneity of one of the covariates. Specifically, here I have attempted to control for the probable endogeneity of the RIA variables. The instruments that I have proposed are geographical regions, and, even recognizing that they might be imperfect instruments, they are the best available choice I have to generate an exogenous variation in the RIA variables, especially in the absolute RIA variable.

The general picture that arises from the estimates is that the results are in line with those of the literature concerning the lack of any growth effect when measuring regional integration as simple dummy variables. At the same time they are in line with results reported in the previous section regarding the role of the market size, suggesting that even after controlling for the potential endogeneity of RIAs, regional integration agreements have positive effects on growth.

4.3. IS THE DEVELOPMENT LEVEL OF THE PARTNERS IMPORTANT?

In this section I further explore whether regional integration has growth effects by looking at the impact of agreements depending on the type of countries joining them. In particular, I study whether the level of development of the members plays a role in determining growth effects. Even though this question might have been addressed indirectly before in the literature, by including dummy variables for different RIA agreements, which might be formed

by partners of the same development level, here I introduce a new approach by classifying agreements in three categories, namely, North-North, North-South, and South-South, and testing if these types of agreements have generated different growth effects.

In order to implement this strategy, I first classified countries into North and South. Following Pritchett (2000) I defined North countries as those belonging to the OECD (except for Turkey, Mexico, Hungary, Korea, and Poland), Malta and Cyprus. All other countries were classified as South. With this criterion, 15 agreements are classified as North-North, 18 as North-South, and 37 as South-South. Agreements containing at least one South country were classified as North-South. Then, I re-calculated the absolute and relative RIA variables (equations 1 and 2) presented in section 3, for each ‘type’ of agreement.³⁰

Table 8 summarizes the results of cross-country regressions with forty-year averages.³¹ First, I report the least squares estimates; second, the instrumental variables estimates in which only trading partners’ growth is an endogenous variable, and third, the instrumental variables estimates in which trading partners’ growth and the RIA variables are endogenous variables. For each model the RIA variables for North-North, North-South, and South-South agreements are included separately.

The estimated coefficients displayed in the columns 1 through 3 suggest that North-North agreements have positive and significant growth effects. North-South and South-South agreements seem to have a positive effect with OLS but the estimated coefficient are not significant (column 1). Once I instrument to correct for the simultaneity problem the coefficient on North-South agreements becomes significant (column 2). When instrumenting to correct for simultaneity and endogeneity of RIAs, only North-North agreements remain significant (column 3).

In the instrumental variables regressions (columns 2 and 3), the instruments are jointly significant in the first stage regression, and explain a large portion of the unexplained variation in the RIA variables.³² However, the Hausman specification test reported in the table rejects both instrumental variables models in favor of the OLS estimates.

³⁰ See Appendix 1 for the list of agreements, countries, and the category in which each agreement is classified.

³¹ For ease of exposition all other control variables are not reported.

³² These statistics are not reported in the table but are available upon request.

An *F*-test of the joint significance on the three RIA variables indicates that they should be considered as jointly significant in all three models. This is the result of the combination of a high significance level for the North-North variable, which is close to 1% in the three models, and the almost significant coefficient for the North-South variable in models 1 and 3.

In turn, the lack of significance of the North-South variable in the regressions reported in columns 1 and 3 could be explained first by the relatively small number of South countries engaged in North-South agreements. The reason is the following: if I expect the size—both absolute and relative—to have an effect on growth, from the standpoint of North countries both RIA variables take low values, since South countries are in general small countries (measured by their share in world GDP). Thus, I would expect a relatively small or negligible effect for North countries. On the contrary, I should expect a larger effect for South countries, given the larger size of North economies. However, existing North-South agreements involve relatively few South countries (10) compared to the number of North countries (17), and given the larger number of the latter, the results might be influenced by the impact on North countries—supposedly negligible—rendering the average effect of North-South agreements statistically insignificant.

Additionally, 12 out of 18 of the North-South agreements were signed in the second half of the estimation period, with 11 of them signed during the 1990's. Therefore, if the growth effects of regional integration take time to appear it might be that these North-South agreements are too recent to show significant growth effects. This should be reflected in the cross-section regressions for which I use forty-year averages, but still might be present in the panel-data estimations.

Columns 4, 5 and 6 show the estimates using the relative RIA variable. Again, only North-North agreements appear as having growth effects. Both North-South and South-South agreements have statistically insignificant estimates; however, it is interesting to notice that the relative size of the partners in South-South agreements might have a negative growth effect. This result, although not statistically significant, is in line with what was suggested by Venables (1999) and Puga and Venables (1998) in that relatively small developing countries might be negatively affected by joining an agreement with other relatively large developing countries, i.e., the smaller partners in a South-South agreement have more to lose than the larger partners.

Columns 7, 8, and 9, display the estimates including both the RIA variables and the relative RIA variables. Taken as a whole they indicate that if any effect is present it might be the one coming from North-North agreements. Even though the Hausman specification test indicates that I should prefer the least squares estimates, the lack of significance of the RIA variables in column 7 might be explained again by the lesser variability of the RIA variables due to the reduced number of agreements contained in each of them, and the large correlation between them—specially between the absolute and the relative RIA variables of each type—that might be generating multicollineary problems.

Moving to the panel-data estimates, Table 9 displays the estimates with country fixed effects, instrumental variables estimates with country fixed effects that control for the simultaneity problem, and instrumental variables estimates with random effects that control for both simultaneity and endogeneity of the RIA variables. The use of instrumental variables combined with random effects to control for endogeneity is justified by the impossibility of estimating an instrumental variables fixed effect models with regional dummy variables as instruments. This is due to the time invariant nature of the regional dummies that makes the estimation of a fixed effects model infeasible.

The first three columns indicate again that North-North agreements have generated positive and significant growth effects. The Hausman specification tests for the instrumental variable regressions indicate that I should use the fixed effects estimates. The primary difference with the cross-section estimates is that South-South agreements have a positive and significant effect on growth. In addition, the North-South variable has a negative point estimate, although it is not significant.

Columns 4, 5 and 6 include the relative RIA variable. Again North-North agreements have a positive and significant effect on growth and, as in the cross-section estimates, South-South agreements have a negative and significant growth effect. When both the absolute and relative RIA variables are included together—columns 7, 8, and 9—the above mentioned results remain unchanged: both North-North and South-South agreements have significant growth effect with either RIA variable. Furthermore, *F*-tests indicate that the North-North and South-South RIA variables are jointly significant. The Hausman specification test indicates in all cases that the country fixed effects models are most appropriate.

With these last estimates we can conclude that North-North agreements have had a positive effect on growth, and that the effect of South-South agreements is ambiguous, since the absolute size of the market seems to have a positive effect on growth, but the relative size might have a negative one. For instance an agreement between Mexico and Panama would increase the growth rate of the former by 0.018 percentage points, but would decrease the growth rate of the latter by 0.66 percentage points. However, an agreement between Egypt and Algeria might increase both countries' growth rates by 0.1 and 0.08 percentage points, respectively. In general, obtaining a positive effect from a South-South agreement would depend on the size of each country. However I can estimate the minimum size that a country should have to experience positive growth effects. This critical size is obtained as follows:

$$SWGDP_i^* = -\frac{\beta_{rel}}{\beta_{abs}},$$

where β_{rel} is the point estimate on the relative RIA variable, and β_{abs} is the point estimate on the absolute RIA variable. If a country's share of world GDP is larger than ratio of the RIA coefficients, then the expected growth effect of the agreement is positive. Specifically, using the point estimates reported in Table 9 column 7, any South country with a share of world GDP larger than 0.054 percent would experience an increase in its growth rate.

The increase in the significance of South-South agreements in the panel-data models is additional evidence that given the time structure of the agreements—i.e., a large number of North-South and South-South agreements were signed in the second half the period—a cross model using averages of a long period might not be the best option as it would tend to underestimate the impact of agreements formed towards the end of the estimation period. At the same time, the lack of significance of North-South agreements still might be explained by the small number of South countries participating in them, and by the fact that they were signed relatively late in time.

Overall, results suggest the existence of positive growth effects from North-North agreements and ambiguous effects for North-South agreements. Results for North-South agreements are mixed, with some evidence from cross-section regression pointing out that the effects might be positive, but with results from panel data estimates indicating ambiguous effect.

It is interesting to notice that results on South-South agreements are closely related to predictions in Venables (1999) that free trade agreements between developing countries would bring larger benefit to those countries with comparative advantages closer to the world average. In his model, richer South countries, which are those with larger endowments of capital, would benefit the most. In my case, although not necessarily the richer country, larger countries would gain more provided that they are sufficiently large. In terms of North-South agreements I cannot provide any string evidence in regard to Puga and Venables (1998) hypothesis that North-South agreements would generate greater income gains than South-South agreements. Given that North-South agreements are both relatively few in number and a recent phenomenon, it is likely that the lack of any significant impact result from lack of data; as such, we will have to wait for some time to study their growth effects.

5. CONCLUSIONS

The empirical literature has commonly addressed the question of growth effects of regional integration agreements by introducing a dummy variable in growth regressions. The use of a dummy throws away interesting information regarding important characteristics of the countries in the agreement that can influence the growth effects of regional integration agreements.³³ This paper departs from the use of simple dummy variables and contributes to the literature by focusing on one of those characteristics: countries' economic size. If increasing returns are present, the size of market matters, and in the context of regional integration it is always the case that countries of different size will face a market of different size—the market composed by all other countries joining the agreement—and therefore, different growth prospects.

In this paper I first show that using a dummy variable to measure regional integration agreements will not produce significant effects on long-run growth. This result is in line with the existing empirical literature—among others De Melo *et al.* (1992) and Vamvakidis (1998 and 1999).

³³ Deardorff and Stern (2002) point out that a dummy variable might be a “too crude” measure.

Introducing a new way of measuring RIAs, namely by capturing the partners' share of world GDP, I determine the size of the market incorporated into the domestic market when an integration agreement is created. Measuring RIAs in this way, and controlling for other sources of growth, allows me to test whether extent-of-the-market effects are present.

Different estimation procedures—least squares and instrumental variables—provide evidence that the partners' size of the market is a relevant source of economic growth, with results varying in magnitude depending on the estimation procedure, but at the same time robust to them. Moreover, I find that both the absolute and the relative size of the market matter, although the latter is less economically significant.

The point estimates that I obtain imply important growth effects. For example, Chile, which recently signed a Free Trade agreement with the EU, might expect to increase their growth rate by about 0.6 percentage points. The expected gain in growth for the EU would be of 0.005 percentage points given that the gains are tied to size of the market and Chile is a small economy. Here, it is necessary to point out that the estimated gains in growth may not be realized by particular countries, however, they are suggestive that in the long-run the dynamic effects might tend to outweigh the possible static losses of regional integration.

The paper also studies another characteristic of RIAs that could affect growth, namely, the partners' development stage. When agreements are classified as North-North, North-South and South-South, with North being developed countries, I find evidence that North-North integration has fostered economic growth. At the same time the effects of South-South integration are ambiguous, with negative effects for extremely small countries, but with the effect changing to positive for relatively larger South countries. This result is in line with Venables (1999) in the sense that in some South-South agreements larger partners would benefit at the expense of the small ones.

For North-South integration the results are not conclusive, but there is some evidence of positive effects. A possible explanation for the lack of significant results is that North-South integration is a relatively recent trend, with a reduced number of South countries participating in it, which might render as inconclusive an econometric estimation for this type of agreements.

Even though it is difficult not to associate the size of the market to economies of scale, this might not necessarily be the only explanation for the growth effects found here. Knowledge

spillovers or technological transmissions might be captured by the RIA variables used here, making it difficult to separate their effects. While the findings reported in this paper do not allow me to conclude with certainty that extent-of-the-market effects are the only force behind the growth effects of regional integration, they suggest that the size of the external market is playing a substantial role in generating these effects.

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**Table 1. Notifications to GATT and WTO of
of Regional Integration Agreements, 1949-1998**

Period	Number
1949-1959	9
1960-1969	17
1970-1979	42
1980-1989	13
1990-1998	87
Total	168

Source: WTO, in World Bank (2000).

Table 2. Summary Statistics (1960-1999 averages)

	Mean	Std. Dev	Minimum	Maximum
Growth	1.96	1.55	-1.64	6.48
Belongs to an RIA	0.60	0.49	0.00	1.00
RIA variable	6.29	9.50	0.00	30.38
Relative RIA variable	83.44	326.69	0.00	2309.30
Excluded RIA variable	7.35	0.52	4.70	7.52
Log Initial GDP p.c.	7.50	0.85	5.91	9.20
Government Consumption	14.11	4.57	6.94	30.40
Black Market Premium	59.00	197.91	0.00	1619.21
Investment Rate	21.97	5.35	11.44	34.57
Foreign Direct Investment	1.27	1.13	0.04	7.54
Manufactured Exports	35.12	26.60	0.62	94.08
Human Capital	0.76	0.87	0.01	3.70
Terms of Trade	-0.09	1.40	-2.97	5.02
Trade Share of GDP	59.10	40.37	14.79	331.02
Democracy	1.74	6.40	-8.35	10.00
Trading Partners' Growth	2.20	0.48	1.34	3.84
Bordering countries Share of WGDP	3.22	6.42	0.00	36.00
Trading Partners' Investment Rate	22.17	1.38	20.24	26.70
Ethnolinguistic Fractionalization	38.81	29.64	0.00	90.00
Population over 65	5.27	2.85	1.87	12.04

Number of observations: 81

Table 3. Summary Statistics Growth and RIA Variables (decade averages)

	Decade	Num. Obsv.	Mean	Std. Dev	Minimum	Maximum
Growth ^a	(60-69)	63	2.85	2.12	-3.18	9.48
	(70-79)	85	2.85	2.16	-3.12	9.25
	(80-89)	81	0.74	2.22	-5.11	6.26
	(90-99)	78	1.59	1.78	-3.05	6.77
RIA Variable ^b	(60-69)	63	1.74	4.34	0.00	14.26
	(70-79)	85	4.52	8.46	0.00	26.17
	(80-89)	81	7.64	12.61	0.00	40.37
	(90-99)	78	10.80	15.12	0.00	68.84
Relative RIA Variable ^c	(60-69)	85	72.77	334.42	0.00	2493.88
	(70-79)	63	2.53	7.43	0.00	39.23
	(80-89)	81	114.47	461.23	0.00	3177.25
	(90-99)	78	141.51	520.44	0.00	3564.59

^a: Percentage points. ^b: Percentage of World GDP. ^c: Number of Times.

Table 4. Correlations for Growth and RIA Variables (decade averages)

	Decade	Growth Rate			
		(60-69)	(70-79)	(80-89)	(90-99)
RIA Variable ^b	(60-69)	0.21			
	(70-79)		0.16		
	(80-89)			0.36	
	(90-99)				0.12
Relative RIA Variable ^c	(60-69)	0.15			
	(70-79)		0.31		
	(80-89)			0.23	
	(90-99)				0.12

Number of observations varies with each decade.

Table 5. Cross-Country Growth Regressions, 1960-1999^a (40-year averages)

	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV	(7) OLS	(8) IV
Log Initial GDP p.c.	-0.541 * (0.300)	-0.519 * (0.289)	-0.693 *** (0.256)	-0.704 *** (0.253)	-0.472 (0.295)	-0.445 (0.283)	-0.640 ** (0.262)	-0.656 ** (0.260)
Government Consumption	-0.013 (0.029)	-0.005 (0.032)	-0.068 * (0.039)	-0.072 * (0.040)	-0.026 (0.029)	-0.019 (0.030)	-0.069 * (0.039)	-0.073 * (0.039)
Black Market Premium	-4.0e-04 (5.5e-04)	-4.4e-04 (4.7e-04)	-3.1e-04 (5.2e-04)	-3.2e-04 (4.6e-04)	-4.4e-04 (5.4e-04)	-4.9e-04 (4.6e-04)	-3.2e-04 (5.2e-04)	-3.3e-04 (4.5e-04)
Investment Rate	0.148 *** (0.031)	0.134 *** (0.033)	0.133 *** (0.033)	0.122 *** (0.034)	0.144 *** (0.032)	0.131 *** (0.034)	0.132 *** (0.033)	0.120 *** (0.034)
Foreign Direct Investment	0.038 (0.187)	-0.005 (0.196)	0.221 (0.175)	0.225 (0.178)	0.110 (0.182)	0.079 (0.186)	0.232 (0.176)	0.236 (0.180)
Manufactured Exports	0.017 ** (0.007)	0.017 ** (0.007)	0.012 * (0.007)	0.011 (0.007)	0.018 *** (0.007)	0.018 ** (0.007)	0.013 * (0.007)	0.012 (0.007)
Human Capital	0.006 (0.168)	-0.035 (0.164)	0.154 (0.181)	0.154 (0.172)	0.080 (0.154)	0.052 (0.147)	0.170 (0.177)	0.168 (0.168)
Terms of Trade	-0.026 (0.120)	-0.038 (0.117)	-0.061 (0.105)	-0.076 (0.102)	-0.027 (0.116)	-0.040 (0.113)	-0.057 (0.105)	-0.074 (0.101)
Trade Share of GDP	5.1e-03 (5.4e-03)	6.3e-03 (5.7e-03)	7.6e-04 (5.1e-03)	7.0e-04 (5.3e-03)	1.7e-03 (5.6e-03)	2.3e-03 (5.8e-03)	-2.9e-04 (5.6e-03)	-2.6e-04 (5.8e-03)
Democracy	0.056 (0.041)	0.072 (0.044)	0.046 (0.034)	0.054 (0.035)	0.037 (0.037)	0.049 (0.038)	0.038 (0.035)	0.048 (0.036)
Trading Partners' Growth	0.185 (0.265)	0.684 (0.468)	0.389 (0.270)	0.769 * (0.426)	0.175 (0.269)	0.662 (0.445)	0.373 (0.271)	0.783 * (0.425)
Bordering countries Share of WGDP	0.030 ** (0.015)	0.029 * (0.015)	0.024 * (0.013)	0.023 * (0.012)	0.026 * (0.014)	0.025 * (0.014)	0.022 * (0.013)	0.021 (0.013)
Belongs to an RIA	-0.186 (0.302)	-0.252 (0.329)						
RIA variable			0.055 ** (0.024)	0.065 *** (0.024)			0.049 ** (0.024)	0.060 ** (0.024)
Relative RIA variable					6.3e-04 ** (3.1e-04)	6.5e-04 *** (3.1e-04)	4.0e-04 * (2.4e-04)	3.7e-04 (2.4e-04)
Constant	1.514 (1.960)	0.475 (1.865)	2.957 * (1.647)	2.486 (1.564)	1.205 (1.886)	0.132 (1.836)	2.663 (1.647)	2.182 (1.565)
Observations	81	81	81	81	81	81	81	81
R-squared	0.6	0.58	0.63	0.62	0.61	0.59	0.64	0.63
F-statistic	9.2	9.18	10.32	10.53	9.71	9.63	14.47	15.48
F-statistic (excluded instrument) ^b		64.25 ***		67.09 ***		66.35 ***		67.58 ***
Partial R-squared (excluded instrument) ^b		0.49		0.50		0.50		0.51
Hausman Specification Test ^b		0.00		0.07		1.39		0.00
P-Value (Hausman Test)		1.00		1.00		1.00		1.00
F-statistic RIA variables ^c							4.12 **	5.40 ***

Robust standard errors in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%

^a Endogenous variable: trading partners' growth. Instrument: trading partners' investment rate.

^b See text for explanation.

^c Test of joint significance of the RIA variables.

Table 6. Country Fixed and Random Effects Growth Regressions, 1960-1999^a (10-year averages)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	FE	RE	FE	RE	FE	RE	FE	RE
Log Initial GDP p.c.	-3.529 *** (0.486)	-0.937 *** (0.253)	-3.746 *** (0.495)	-1.058 *** (0.257)	-0.480 ** (0.215)	-3.669 *** (0.491)	-3.798 *** (0.498)	-1.064 *** (0.256)
Government Consumption	-0.033 (0.040)	-0.024 (0.026)	-0.040 (0.040)	-0.046 * (0.027)	-0.030 (0.024)	-0.030 (0.040)	-0.037 (0.040)	-0.044 * (0.027)
Black Market Premium	-3.6e-04 (2.5e-04)	-3.4e-04 (2.4e-04)	-3.5e-04 (2.5e-04)	-3.0e-04 (2.4e-04)	-3.6e-04 * (2.0e-04)	-3.6e-04 (2.5e-04)	-3.6e-04 (2.5e-04)	-3.0e-04 (2.4e-04)
Investment Rate	0.151 *** (0.026)	0.136 *** (0.021)	0.161 *** (0.027)	0.143 *** (0.021)	0.127 *** (0.021)	0.154 *** (0.026)	0.161 *** (0.027)	0.143 *** (0.021)
Foreign Direct Investment	0.306 *** (0.088)	0.267 *** (0.081)	0.306 *** (0.087)	0.274 *** (0.080)	0.199 ** (0.083)	0.326 *** (0.088)	0.319 *** (0.088)	0.291 *** (0.080)
Manufactured Exports	0.010 (0.010)	0.017 *** (0.006)	0.010 (0.010)	0.014 ** (0.006)	0.019 *** (0.005)	0.011 (0.010)	0.011 (0.010)	0.014 *** (0.006)
Human Capital	0.738 (0.268)	0.461 *** (0.174)	0.660 ** (0.269)	0.443 ** (0.174)	0.205 * (0.120)	0.721 *** (0.266)	0.665 ** (0.268)	0.471 *** (0.174)
Terms of Trade	0.052 * (0.026)	0.049 * (0.026)	0.046 * (0.026)	0.046 * (0.025)	0.040 (0.031)	0.049 * (0.026)	0.046 * (0.026)	0.048 * (0.025)
Trade Share of GDP	-6.0e-03 (1.0e-02)	-1.1e-03 (4.0e-03)	-7.6e-03 (1.0e-02)	-1.6e-03 (3.9e-03)	-1.3e-03 (3.6e-03)	-7.2e-03 (1.0e-02)	-7.9e-03 (1.0e-02)	-3.3e-03 (4.1e-03)
Democracy	-0.047 * (0.027)	0.027 (0.021)	-0.052 * (0.027)	0.027 (0.021)	0.030 (0.023)	-0.047 * (0.027)	-0.051 (0.027)	0.026 (0.021)
Trading Partners' Growth	0.138 (0.307)	0.399 * (0.225)	0.126 (0.304)	0.430 * (0.222)	1.045 *** (0.369)	0.157 (0.304)	0.139 (0.304)	0.425 * (0.222)
Bordering countries Share of WGDP	-0.018 (0.116)	0.042 (0.026)	0.024 (0.117)	0.045 * (0.026)	0.031 ** (0.015)	0.005 (0.116)	0.032 (0.118)	0.044 * (0.026)
Belongs to an RIA	-0.090 (0.292)	-0.179 (0.251)						
Absolute RIA variable			0.033 * (0.017)	0.030 ** (0.013)			0.026 (0.018)	0.022 (0.014)
Relative RIA variable					6.6e-04 *** (2.3e-04)	1.1e-03 * (6.5e-04)	7.3e-04 (7.0e-04)	5.6e-04 (3.5e-04)
Constant	25.605 *** (3.740)	5.067 *** (1.893)	27.073 *** (3.786)	6.007 *** (1.926)	26.391 *** (3.746)	5.488 *** (1.890)	27.325 *** (3.793)	6.081 *** (1.923)
Observations	307	307	307	307	307	307	307	307
R-squared	0.58	0.46	0.59	0.47	0.59	0.46	0.59	0.47
F/Wald -statistic	17.76	246.69	18.3	255.62	18.16	255.82	17.3	259.52
Hausman Specification Test†		175.96		223.45		147.97		140.60
P-Value (Hausman Test)		0.00		0.00		0.00		0.00
F/Chi2 -statistic RIA variables‡							2.40 *	7.74 **

Robust standard errors in parentheses. Decade dummies not reported. * significant at 10%; ** significant at 5%; *** significant at 1%

^a See text for explanation.

^b Test of joint significance of the RIA variables.

Table 7. Instrumental Variables Growth Regressions, 1960-1999

	Cross-Section (40-year averages)			Random Effects (10-year averages) ^b				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Initial GDP p.c.	-0.542* (0.282)	-0.788*** (0.278)	-0.114 (0.432)	-0.749** (0.291)	-0.505** (0.239)	-0.941*** (0.261)	-0.672** (0.299)	-0.916*** (0.259)
Government Consumption	-0.007 (0.029)	-0.099** (0.042)	-0.069 (0.052)	-0.097** (0.042)	-0.048* (0.029)	-0.093*** (0.030)	-0.055* (0.031)	-0.093*** (0.030)
Black Market Premium	-3.8e-04 (5.8e-04)	-2.5e-04 (4.4e-04)	-4.8e-04 (4.7e-04)	-2.6e-04 (4.4e-04)	-3.8e-04 (2.7e-04)	-1.7e-04 (2.7e-04)	-2.3e-04 (3.5e-04)	-1.7e-04 (2.7e-04)
Investment Rate	0.141*** (0.033)	0.113*** (0.036)	0.097** (0.045)	0.112*** (0.036)	0.138*** (0.022)	0.143*** (0.021)	0.126*** (0.026)	0.141*** (0.021)
Foreign Direct Investment	-0.002 (0.252)	0.302 (0.210)	0.309 (0.299)	0.303 (0.210)	0.190** (0.089)	0.251*** (0.090)	0.373*** (0.132)	0.244*** (0.091)
Manufactured Exports	0.017** (0.007)	0.009 (0.008)	0.021* (0.012)	0.009 (0.008)	0.016*** (0.005)	0.010* (0.006)	0.018*** (0.006)	0.010* (0.006)
Human Capital	0.035 (0.260)	0.213 (0.190)	0.281 (0.227)	0.217 (0.185)	0.240 (0.165)	0.201 (0.171)	0.418* (0.215)	0.189 (0.171)
Terms of Trade	-0.029 (0.119)	-0.095 (0.100)	-0.042 (0.109)	-0.091 (0.100)	0.039 (0.030)	0.031 (0.029)	0.048 (0.038)	0.031 (0.030)
Trade Share of GDP	6.6e-03 (9.3e-03)	-8.1e-04 (6.0e-03)	-9.5e-03 (1.2e-02)	-1.3e-03 (6.3e-03)	-1.6e-03 (3.8e-03)	-1.7e-03 (3.7e-03)	-1.4e-02** (6.6e-03)	-1.1e-03 (3.8e-03)
Democracy	0.069 (0.052)	0.054 (0.034)	-0.011 (0.050)	0.050 (0.036)	0.018 (0.024)	0.040* (0.022)	0.013 (0.028)	0.041* (0.022)
Trading Partners' Growth	0.404 (0.374)	0.929** (0.415)	1.018* (0.544)	0.920** (0.410)	1.027*** (0.377)	1.653*** (0.429)	1.591*** (0.491)	1.630*** (0.418)
Bordering countries Share of WGDP	0.029* (0.016)	0.020 (0.013)	-0.001 (0.018)	0.018 (0.013)	0.036 (0.022)	0.041* (0.023)	0.020 (0.026)	0.040* (0.023)
Belongs to an RIA	-0.355 (1.062)				1.344 (0.963)			
RIA variable		0.094*** (0.034)		0.088** (0.036)		0.101*** (0.025)		0.102*** (0.028)
Relative RIA variable			4.3e-03* (2.5e-03)	2.5e-04 (2.6e-04)			4.6e-03*** (1.5e-03)	-1.2e-04 (3.7e-04)
Constant	1.175 (1.854)	3.199* (1.765)	-1.659 (3.027)	2.945 (1.816)	0.146 (2.131)	2.077 (2.188)	0.492 (2.504)	1.988 (2.157)
Observations	81	81	81	81	307	307	307	307
R-squared	0.6	0.61	0.11	0.61	0.39	0.41	0.29	0.41
F-statistic	8.75	10.53	4.47	17.77	13.63	14.18	9.2	13.57
F-statistic (excluded instrument)	1.23	16.32***	1.6	14.45***				
Partial R-squared (excluded instrument)	0.09	0.56	0.11	0.53				
Hansen J-statistic (Overidentification Test)	11.19	7.49	3.93	7.65				
P-Value (Overidentification Test)	0.01	0.06	0.27	0.05				
Hausman Specification Test	0.33	0.49	8.62	0.37	10.44	0.00	5.22	0.00
P-Value (Hausman Test)	1.00	1.00	0.80	1.00	0.79	1.00	0.99	1.00
F-statistic RIA variables				6.02***				9.18***

Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

^a Endogenous variables: trading partners' growth and RIA variables. Instruments: trading partners' investment rate and regional dummies.

^b Decade dummies not reported.

^c See text for explanation.

^d Test of joint significance of the RIA variables.

Table 8. Cross-Country Growth Regressions for RIA variables by Type of RIA, 1960-1999(40-year averages)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	OLS	IV ^b	IV-RIA ^c	OLS	IV ^b	IV-RIA ^c	OLS	IV ^b	IV-RIA ^c
RIA variable North-North	0.052 ** (0.024)	0.063 ** (0.024)	0.160 ** (0.064)				0.046 (0.027)	0.063 ** (0.030)	0.149 * (0.078)
RIA variable North-South	0.064 (0.043)	0.077 * (0.043)	0.265 (0.166)				0.052 (0.045)	0.069 (0.045)	0.274 (0.227)
RIA variable South-South	0.195 (0.318)	0.139 (0.328)	1.213 (1.318)				0.267 (0.367)	0.150 (0.387)	1.216 (1.672)
Relative RIA variable North-North				5.8e-04 * (3.2e-04)	6.0e-04 * (3.1e-04)	4.5e-03 (2.9e-03)	4.0e-04 (2.9e-04)	3.0e-04 (2.7e-04)	1.7e-04 (4.5e-04)
Relative RIA variable North-South				1.4e-03 (1.6e-03)	1.5e-03 (1.6e-03)	1.4e-02 (9.5e-03)	1.2e-03 (1.9e-03)	1.4e-03 (1.8e-03)	-1.2e-03 (4.8e-03)
Relative RIA variable South-South				-1.4e-02 (2.6e-02)	-9.6e-03 (2.4e-02)	-9.7e-02 (1.4e-01)	-1.2e-02 (3.2e-02)	-3.0e-03 (3.1e-02)	-7.3e-03 (7.2e-02)
Observations	81	81	81	81	81	81	81	81	81
R-squared	0.64	0.62	0.28	0.61	0.59		0.64	0.63	0.27
F-statistic	8.81	8.87	7.18	8.67	9.12	3.99	10.68	16.05	20.42
Hausman Specification Test									
P-Value (Hausman Test)									
F-statistic All RIA variables									
F-statistic N-N RIA variables									
F-statistic N-S RIA variables	2.16 *	2.76 **	2.29 *	1.45	1.62	1.57	1.56	2.06 *	1.89 *
F-statistic S-S RIA variables							4.01 **	5.63 ***	5.08 ***
							1.05	1.64	1.03
							0.26	0.08	0.49

Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

^a Other control variables not reported include: Log initial GDP p.c., government consumption, black market premium, investment rate, foreign direct investment, manufactured exports, terms of trade, trade share of GDP, trading partners' growth, and bordering countries share of GDP.

^b Endogenous variable: trading partners' growth. Instrument: trading partners' investment rate.

^c Endogenous variables: trading partners' growth and RIA variable. Instruments: trading partners' investment rate and regional dummies.

^d See text for explanation.

Table 9. Panel Data Growth Regressions for RIA variables by Type of RIA, 1960-1999(10-year averages)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	FE	IV-FE ^b	IV-RE ^c	FE	IV-FE ^b	IV-RE ^c	FE	IV-FE ^b	IV-RE ^c
RIA variable North-North	0.099 *** (0.025)	0.081 ** (0.034)	0.122 *** (0.034)				0.073 *** (0.026)	0.056 * (0.033)	0.128 *** (0.045)
RIA variable North-South	-0.011 (0.020)	-0.008 (0.027)	0.046 (0.092)				0.007 (0.023)	-0.007 (0.030)	-0.031 (0.173)
RIA variable South-South	0.397 * (0.209)	0.212 (0.288)	0.541 (1.020)				0.657 *** (0.223)	0.592 ** (0.281)	0.623 (1.456)
Relative RIA variable North-North				2.3e-03 *** (7.0e-04)	2.3e-03 *** (8.6e-04)	4.4e-03 *** (1.7e-03)	1.6e-03 ** (7.4e-04)	1.8e-03 * (9.3e-04)	-2.0e-05 (5.8e-04)
Relative RIA variable North-South				-2.0e-03 (1.4e-03)	-5.5e-04 (1.8e-03)	7.1e-03 (5.1e-03)	-2.1e-03 (1.6e-03)	-6.0e-05 (2.2e-03)	1.0e-03 (5.4e-03)
Relative RIA variable South-South				-2.5e-02 ** (1.1e-02)	-3.6e-02 ** (1.5e-02)	-2.2e-02 (9.2e-02)	-3.5e-02 *** (1.2e-02)	-4.7e-02 *** (1.6e-02)	-2.5e-02 (3.7e-02)
Observations	307	307	307	307	307	307	307	307	307
R-squared	0.62	0.32	0.4	0.63	0.44	0.29	0.65	0.45	0.38
F-statistic	17.9	10.42	12.68	18.55	12.69	8.11	17.48	11.41	11.97
Hausman Specification Test		5.49	8.94		3.92	0.00		5.18	11.60
P-Value (Hausman Test)		1.00	0.94		1.00	1.00		1.00	0.87
F-statistic All RIA variables ^d	5.70 ***	1.97	4.73 ***	7.32 ***	5.33 ***	3.10 **	6.25 ***	3.80 ***	3.58 ***
F-statistic N-N RIA variables ^d							9.96 ***	5.13 ***	6.12 ***
F-statistic N-S RIA variables ^d							0.96	0.05	0.02
F-statistic S-S RIA variables ^d							6.03 ***	4.96 ***	0.31

Robust standard errors in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%

^a Other control variables not reported include: Log initial GDP p.c., government consumption, black market premium, investment rate, foreign direct investment, manufactured exports, terms of trade, trade share of GDP, trading partners' growth, and bordering countries share of GDP.

^b Endogenous variable: trading partners' growth. Instrument: trading partners' investment rate.

^c Endogenous variables: trading partners' growth and RIA variable. Instruments: trading partners' investment rate and regional dummies.

^d See text for explanation.

APPENDIX 1
REGIONAL INTEGRATION AGREEMENTS (CONTINUED)

Agreements notified under GATT Article XXIV*	Date	Type of Agreement ^a
European Communities (EC) Belgium, France, Germany, Italy, Luxembourg and Netherlands	1958	North-North
Accession of Denmark, Ireland, and United Kingdom	1973	North-North
Accession of Greece	1981	North-North
Accession of Spain and Portugal	1986	North-North
Accession of Austria, Finland and Sweden	1995	North-North
EC/Algeria	1977	North-South
EC/Cyprus	1973	North-North
EC/Egypt	1977	North-South
EC/Hungary	1994	North-South
EC/Iceland	1973	North-North
EC/Israel	1975	North-South
EC/Jordan	1977	North-South
EC/Malta	1971	North-North
EC/Morocco	1977	North-South
EC/Norway	1973	North-North
EC/Poland	1992	North-South
EC/Switzerland	1973	North-North
EC/Syria	1977	North-South
EC/Tunisia	1998	North-South
EC/Turkey	1996	North-South
European Free-Trade Area (EFTA) Austria, Denmark, Liechtenstein, Norway, Portugal, Sweden, Switzerland, and United Kingdom	1960	North-North
EFTA-Finland (full membership in 1986)	1961	North-North
Denmark and United Kingdom leave	1972	
Accession of Iceland	1970	North-North
Portugal leaves	1985	
Austria, Finland and Sweden leave	1995	
EC/EFTA	1974	North-North
EFTA/Hungary	1994	North-South
EFTA/Israel	1993	North-South
EFTA/Poland	1994	North-South
EFTA/Turkey	1992	North-South
Hungary/Israel	1998	South-South
Israel/Poland	1998	South-South
Turkey/Hungary	1998	South-South
Turkey/Israel	1997	South-South
United States/Israel	1986	North-South
Canada/Chile	1997	North-South
Canada/Israel	1997	North-South
North American Free Trade Agreement (NAFTA) Canada, Mexico, and United States	1994	North-South
Central American Common Market (CACM) Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua	1962	South-South
Caribbean Community and Common Market (CARICOM) Bahamas (1983), Barbados, Guyana, Jamaica, Trinidad and Tobago, Antigua and Barbuda, Belize, Dominica, Grenada, Haiti (1997), Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Suriname (1995)	1974	South-South
Closer Economic Relations Trade Agreement (ANZCERTA) Australia and New Zealand	1983	North-North

* Regional integration agreements notified to the GATT/WTO and in force in May 2000 (excluding RIAs deemed to be inactive as of 1 May 2000).

APPENDIX 1
REGIONAL INTEGRATION AGREEMENTS (CONTINUED)

Agreements notified under the Enabling Clause**	Date	Type of Agreement ^a
Andean Pact relabeled Andean Group Bolivia, Colombia, Ecuador, Peru, and Venezuela	1969	South-South
Southern Common Market (MERCOSUR) Argentina, Brazil, Paraguay, and Uruguay	1992	South-South
MERCOSUR/Chile	1997	South-South
MERCOSUR/Bolivia	1997	South-South
Chile/Mexico	1992	South-South
Argentina/Colombia	1991	South-South
Argentina/Venezuela	1992	South-South
Argentina/Ecuador	1993	South-South
Brazil/Peru	1993	South-South
Brazil/Venezuela	1994	South-South
Bolivia/Chile	1993	South-South
Chile/Colombia	1994	South-South
Chile/Venezuela	1994	South-South
Group of Three Colombia, Mexico and Venezuela	1995	South-South
Mexico/Bolivia	1995	South-South
Chile/Ecuador	1995	South-South
Mexico/CARICOM	1993	South-South
Colombia/CARICOM	1994	South-South
Costa Rica/CARICOM	1994	South-South
Venezuela/CARICOM	1994	South-South
Mexico/Costa Rica	1995	South-South
Mexico/Nicaragua	1998	South-South
Chile/Peru	1998	South-South
Tripartite Agreement Egypt, India, and Yugoslavia	1968	South-South
Central African Customs and Economic Union (UDEAC) relabeled Communauté Economique et Monétaire d'Afrique Centrale (CEMAC) Cameroon, Central African Republic, Chad, Congo, Gabon, (Equatorial Guinea (since 1985))	1966	South-South
Common Market for Eastern and Southern Africa (COMESA) Angola, Burundi, Comoros, Democratic Republic of Congo, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Seychelles, Sudan, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe	1995	South-South
Economic Community of Western African States (ECOWAS) Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leon, and Togo	1975	South-South
Economic Cooperation Organization (ECO) Islamic Republic of Iran, Pakistan, and Turkey	1992	South-South
South Asian Preferential Trade Arrangement (SAPTA) Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka	1996	South-South
Bangkok Agreement Bangladesh, India, Laos People's Democratic Republic, Philippines, the Republic of Korea, Sri Lanka, and Thailand	1976	South-South
ASEAN Preferential Trade Arrangements (AFTA) Indonesia, Laos (1997), Malaysia, Myanmar (1997), The Philippines, Singapore, and Thailand	1977	South-South

** Regional integration agreements notified to the GATT/WTO and in force on 1 January 2000 (excluding RIAs deemed to be inactive as of 1 January 2000).

^a Following Pritchett (2000) North Countries are all OECD Countries (except for Turkey, Mexico, Hungary, Korea, and Poland), Cyprus and Malta. South Country = Otherwise. Source: Pritchett (2000)
Source: WTO, The World Bank, IADB, the European Union, and Soloaga and Winters (1999).

APPENDIX 2: VARIABLES, DESCRIPTION, AND DATA SOURCES

Growth: Growth rate of Real GDP Per Capita in constant dollars (international prices, base year 1985). Source: Penn World Table 5.6 and World Bank. Missing data calculated from 1985 GDP per capita and GDP per capita growth rates (Global Development Finance and World Development Indicators).

Initial Income: Log of Real GDP Per Capita in constant dollars (international prices, base year 1985). Source: Penn World Table 5.6 and World Bank. Missing data calculated from 1985 GDP per capita and GDP per capita growth rates (Global Development Finance and World Development Indicators).

Government Consumption: General government final consumption expenditure (% of GDP). Source: Global Development Finance & World Development Indicators.

Black Market Premium: Black Market premium on the official exchange rate.

$$BMP = [(Parallel\ Rate / Official\ Rate - 1) * 100]$$

Source: Levine and Renelt; World's Currency Yearbook (for 1985, 1990-93); Adrian Wood, Global trends in real exchange rates: 1960-84, WB Discussion paper no. 35. 1988 (filling in missing observations); Global Development Finance and World Development Indicators (for 1996-1997, calculated as); values for industrial countries are added as 0).

Investment: Gross domestic investment as % of GDP. Source: World Development Indicators 2001.

Foreign direct investment: Net inflows as % of GDP. Source: World Development Indicators 2001 and World Bank.

Manufactures exports: Ratio of manufactured exports to merchandise exports (%). Source: World Development Indicators 2001

Terms of Trade Shocks: Growth rate of export prices minus growth rate of import prices (%). Source: LDB central database.

Trade Share: Exports and Imports as % of GDP. Source: World Development Indicators and Global Development Finance

Trading Partners' Growth: Weighted GDP Per Capita growth of Trading Partners.

$$TPG_j = \sum_i (ShareT_{ij} * g_i), \text{ where } ShareT_{ij} = \frac{X_{ij} + M_{ij}}{\sum_j (X_{ij} + M_{ij})}, X_{ij} \text{ are exports from country } i \text{ to}$$

j , M_{ij} are country's i imports from j , and g_i is the growth rate of country i . Source: IMF: Directions of Trade (for trade data); Global Development Finance and World Development Indicators (for growth of Real GDP Per Capita in constant dollars at international prices, base year 1985) in Easterly (2001).

Trading Partners' Investment: Weighted Investment rate of Trading Partners.

$$TPG_j = \sum_i (ShareT_{ij} * I_i), \text{ where } ShareT_{ij} = \frac{X_{ij} + M_{ij}}{\sum_j (X_{ij} + M_{ij})}, X_{ij} \text{ are exports from country } i \text{ to}$$

j , M_{ij} are country's i imports from j , and I_i is gross domestic investment as % of GDP. Source: IMF: Directions of Trade (for trade data), and World Development Indicators 2001 (for investment rate).

Neighbors: Share of World GDP of all neighboring countries.

$$Neighbors_i = \sum_j (N_{ij} * SWGDP_j), \text{ where } N_{ij} \text{ is a dummy variable that takes the value of 1 when country } j \text{ a neighbor of country } i, \text{ and } SWGDP_j \text{ is the share of world GDP of country } j. \text{ Source: World Development Indicators (for share of World Real GDP).}$$

Human Capital: Average years of secondary schooling in the total population plus average years of higher schooling in the total population. Source: Barro R. and J.W. Lee.

Democracy: general openness or closedness of political institutions. The operational indicator is derived from authority characteristics according to the following criteria: Regulation of Executive Recruitment: institutionalized procedures regarding the transfer of executive power. Competitiveness of Executive Recruitment: extent to which executives are chosen through competitive elections. Openness of Executive Recruitment: opportunity for non-elites to attain executive office. Executive Constraints: operational (de facto) independence of chief executive. Regulation of Participation: development of institutional structures for political expression. Competitiveness of Participation: extent to which non-elites are able to access institutional structures for political expression. Range = -10 to 10 (-10 = high autocracy; 10 = high democracy). Source: Polity IV Project, Political Regime Characteristics and Transitions, 1800-1999. Center for International Development and Conflict Management at the University of Maryland, College Park.

APPENDIX 3: LIST OF COUNTRIES

Europe	Americas	Asia	Africa	Oceania
Austria	Argentina	China	Algeria	Australia
Cyprus	Barbados	India	Benin	New Zealand
Denmark	Bolivia	Indonesia	Cameroon	
Finland	Brazil	Iran	Central African Republic	
France	Canada	Israel	Congo	
Greece	Chile	Japan	Egypt	
Hungary	Colombia	Jordan	Ghana	
Iceland	Costa Rica	Korea	Kenya	
Ireland	Dominican Republic	Malaysia	Malawi	
Italy	Ecuador	Nepal	Mali	
Malta	El Salvador	Pakistan	Niger	
Netherlands	Guatemala	Philippines	Rwanda	
Norway	Haiti	Singapore	Senegal	
Portugal	Honduras	Sri Lanka	Sierra Leone	
Spain	Jamaica	Syria	South Africa	
Sweden	Mexico	Thailand	Sudan	
Switzerland	Nicaragua	Turkey	Togo	
United Kingdom	Panama		Tunisia	
	Paraguay		Uganda	
	Peru		Zambia	
	Trinidad and Tobago			
	U.S.A			
	Uruguay			
	Venezuela			
(18)	(24)	(17)	(20)	(2)

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