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REGIONAL INTEGRATION AND ECONOMIC DEVELOPMENT: AN EMPIRICAL INVESTIGATION

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ABSTRACT

This paper adopts the new growth model as developed by Mankiw, Romer, and Weil (1992) and Barro and Sala-i-Martin (1995) to estimate the impact of different levels of regional integration on individual income growth. In order to accomplish this, the variable integration is categorized and coded in a 4-scale, reflecting all forms of RTA along with taking the individual regional agreements' effective dates of implementation into consideration. Contrary to many past studies that concluded a negative or insignificant outcome of regionalism, this paper argues in favor of "open" regionalism and its empirical results support this argument. Specifically, findings report that a deeper level of regional integration (based on the ordinal scale) enhances the growth rate of individual income across countries by 0.264 per cent (holding other included variables constant). Governments should engage in regional integration to utilize or even create their comparative or competitive advantages. They should follow open regionalism by keeping external trade barriers down in such a way to benefit from major outside efficiencies, cooperate with other regional blocs, and design regional arrangements that would preserve national sovereignties and securities like ASEAN.

Keywords: *Regional Integration; Income Growth; New Growth Model*

I. INTRODUCTION

There is a strong belief among economists that ultimately regional integration provides negative outcomes. They argue that regional integration creates trade diversion, blocks attempts for global free trade, and reduces optimal efficiency of resources. These negative results would suggest a decline in the growth rate of income per capita. Contrary to these beliefs, this paper argues that "open" regional integration may increase individual income growth rate. The argument of income enhancement is hence a result of many layers implying that regional integration could be Pareto superior, could have a long-run net gain regardless of trade effects, might enhance structural changes in the economy, can establish or make use of comparative and competitive advantages, would increase international competition, and could generate positive net spillovers.

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The significance of this work is reflected by the inconclusiveness of regional integration studies as well as the widening gap between theoretical thinking and empirical evidence in similar frameworks. The ongoing debate on regionalism is best expressed by one of the major opponents of regional integration, Jagdish Bhagwati, who repeatedly trumpeted that all forms of regionalism are "stumbling blocs" rather than "building blocs". Still, this paper attempts to swim against the tide by empirically testing and arguing that the depth of regionalism could have a positive impact on individual income.

This paper adopts the new growth model as developed by Mankiw, Romer, and Weil (1992) and Barro and Sala-i-Martin (1995) to estimate the impact of different levels of regional integration on individual income. Subsequently, it assesses various kinds of economic integration in four different regions (North America, South America, Southeast Asia, and Europe) and their effects on long-run economic growth. This paper hypothesizes that a deeper level or fusion of regional integration increases economic growth per capita, holding other included determinants of growth constant.

Despite the large volume of regional integration empirics, still the majority of research has been conducted within specific regions, and not sufficiently "between" as well as "within" these regions. Moreover, within the growth framework, the bulk of past studies used either computable general equilibrium (CGE), neoclassical, or endogenous models to estimate the effect of regionalism. The contribution of this paper is reflected by: (1) estimating the effects of the four major regional arrangements within the new growth model; (2) constructing a regional integration scale taking into consideration the time lag for the effective implementation of the individual regional agreements; and (3) testing the model on a well-representative panel setup including the four major integration blocs for a period of sixteen years.

Within this context, regional integration, regional trading arrangements (RTA), and regionalism are used interdependently and they describe the process of when country members have a different trade arrangement (e.g. lower tariff) between them as compared to the rest of the world. Such preferential arrangements could involve one or more aspects, such as lowering or eliminating tariff or non-tariff barriers (like quotas, voluntary export restraints, etc.), and allowing a free flow of labor and capital. Moreover, the term "openness" implies trade openness, and is used interdependently with trade liberalization and freer trade, which indicate the elimination or reduction of tariff and/or non-tariff barriers. The term "growth" indicates economic growth and is used to describe the growth rate of real and constant GDP per capita or individual income.

Following section I, section II offers a brief overview of modern growth theories, as well as some recent research on regional integration. Section III discusses the methodology, including the mechanics of the new growth model and the incorporation of the explanatory variable, depth of regional integration. Section IV analyzes the empirical findings. Finally, section V provides the summary, conclusion, and policy implications of this paper.

II. LITERATURE REVIEW

1. Growth Models

Neoclassical models (Solow, 1956; and Swan, 1956) are easily identified by their convexity feature (convex shaped-curve), which is derived from the assumption of diminishing returns to

capital. This implies that growth cannot continually persist increasing. However, this growth convexity contradicts historical evidence. The major contribution of Solow and Swan neoclassical models is the convergence property, i.e. poorer countries tend to grow faster than richer ones. Later, Romer (1986), Lucas (1988), and Rebelo (1991) constructed the first endogenous growth models where human capital becomes endogenous and growth may continue to improve because the returns to investment in this broader capital element do not necessarily diminish. This non-convexity feature provided endogenous models with an edge over their neoclassical counterparts. Although endogenous theories restored the neoclassical problem of convexity through the endogenous role of human capital, they were unable to predict the conditional convergence property. This property is strongly supported by empirical evidence in many settings.

Both neoclassical and endogenous models have major shortcomings in predicting continuous long-run growth in the former, and convergence in the latter. The contributions of Mankiw, Romer, and Weil (1992) and Barro and Sala-i-Martin (1995) in developing the new growth models attempted to restore both pitfalls, continuous growth and convergence. However, the important contribution to the new growth theory came with models of technological diffusion (Barro and Sala-i-Martin, 1997) that combines the long-run growth of the endogenous models (from the discovery of ideas in the rich developed economies) with the convergence property of the neoclassical growth theories (from the gradual imitation by followers).

2. Regional Integration

Regional integration or RTA, as discussed earlier, describes the process of when country members have a different trade arrangement between themselves as compared to the rest of the world. Article XXIV of the General Agreement on Trade and Tariffs (GATT) sets the rules for the creation of regional arrangements, while Article VI and XIX regulates antidumping and voluntary export restraints, respectively. Intense debate still transpires between the advocates and opponents of regional integration, where each group tries to relate the issue to the overall welfare of the world, including the gains of participant members and losses of nonmembers.

Advocates of regional integration accredit its benefits to several reasons, such as the efficient resource reallocation according to the comparative advantage concept, economies of scale achieved by specialization, reduction in transportation costs, and trade creation. Conversely, opponents indicate that RTA might create trade diversion, hurt nonmembers' standards of living, and most of all discriminate against WTO ideologies of a global free trade area, where all nations should be treated equally, in regards to tariffs and non-tariff barriers, on the basis of most favored nation (MFN).

A great amount of empirical research examined regionalism, but no clear-cut solution has been discovered yet. Studies dealing with even the same micro issues ended up with conflicting results. For instance, transportation costs, one of the benefits of RTA, were found to be substantial and justified in initiating a RTA (Frankel, Stein, and Wei, 1996), while those same costs were found unjustified and outweighed by the overall negative effect of a RTA (Panagariya, 1998).

Panagariya (1999), one of the strongest opponents of regional integration, argued in an overview on the regionalism debate that a real trading system should never be discriminatory.

In a different study on Mercosur, a RTA among Brazil, Argentine, Uruguay, and Paraguay, Connolly and Gunther (1999) showed that by encouraging intra-trade (trade within the bloc) at the expense of inter-trade (trade with nonmembers), Mercosur might limit member countries' access to high-technology imports, an important stimulus to growth. He also postulated that Mercosur has shifted trade in many manufactured goods to higher cost member countries, which is a symptom of trade diversion.

Martin (1998) endeavored another specific case of regionalism, the European Union, and found that contrary to the neoclassical paradigm, the new growth theory does not predict that income convergence between rich and poor regions is the only possible result. He explained that regional integration might be the cause of inequality between regions. Other studies showed that regional integration via inner-union trade liberalization can lead to a decline of the steady-state growth rates (Walz, 1997).

Moreover, Panagariya (1994; 1996) emphasized that nondiscriminatory regionalism promises to be the most feasible option since, despite its negative trade effects, it offers more chances for liberalization and may result in long-term gains. He also contended that NAFTA and FTAA would be more beneficial for the US than Latin American countries because the former can provide little preferential access to the latter while the reverse is not true. As a final example on RTA's opponents, Bryant (1994) noted that economic integration might have a negative effect on political sovereignty. He explained that with deeper economic integration, the differences in nations' domestic policies, formerly neglected, have increasingly been exposed to international scrutiny.

Alternatively, supporters of regionalism have also tackled pertinent issues with rigor and zeal. For instance, Torstensson (1999) employed both the neoclassical and endogenous growth models to examine growth and knowledge transfer in the case of European integration. Her results showed that member countries do in fact experience more knowledge spillovers as compared to nonmembers, and that trade variables are especially important for growth. Moreover, Wei and Frankel (1998) contended that it might not be politically feasible for trade blocs to dramatically reduce their trade barriers against nonmembers. However, they argued that an open regionalism, in which trade blocs undertake relatively modest external liberalization, could usually produce Pareto improvement.

Hassan (2001) used a gravity model to examine the intra-trade of the South Asian Association for Regional Cooperation (SAARC) bloc. His findings revealed that intra-SAARC trade is neither trade creating nor trade diverting. Subsequently, Hassan suggested a move towards trade liberalization and deeper regional or multilateral integration, which would considerably benefit the SAARC countries as well as all the economies in the region.

Hassan and Islam (2001) examine the success and failures of various economic groupings among the OIC countries by estimating a gravity model. This paper primarily presents a synthesis of the Islamic perspectives on the Islamic Common Market (ICM), reviews the present state of economic integration among the contemporary Islamic countries, identifies relevant tasks for the Islamic governments, and offers feasible recommendations for the governments of Islamic countries within the framework of the prevailing theories of international trade and free market.

The establishment of an Islamic Common Market would require a firm political commitment on the part of the Member States of the OIC, expressing their political will and a common understanding on the coverage, extent, mechanisms and stages of implementation, as well as modalities of realization, of such an advanced mode of economic integration.

Mehanna and Hassan (2002) investigate the intra-trade effects of the Gulf Cooperation Council (GCC) bloc in a Middle Eastern framework by using a gravity model. This paper offers a Middle Eastern framework to allow the inclusion of non-Arab major trading partners and incorporate geographical proximities. Results indicate that although the GCC bloc was initially founded on security and political grounds, its economic viability from a trade creation perspective seems encouraging. In addition, findings reveal that despite the similarities in factor endowments and a lack of product complementary among the GCC members, the magnitude of trade creation prevailed, thus showing encouraging signs that other Middle Eastern countries will follow suit This paper suggests an expansion of the GCC bloc to include other Middle Eastern countries, integrate with large economies as well as to pursue and/or expand alliances with other trading blocs.

Walz (1998) investigated the enlargement of a common market using the endogenous growth model. He showed that integration of a third technologically lagging country via trade liberalization causes a reallocation of resources, which stimulates overall growth. He also noticed that liberalizing trade with the third country leads to income convergence between the two established countries. Kirkpatrick (1994) studied regionalism in East Asian countries and noted that their growth correlates with regional trade and investment flows within these countries. He also explained that fears have been expressed regarding the threat posed by the East Asian regional cooperation to global trade liberalization are unfounded since the concept of open regionalism continues to be the guiding principle behind regionalism in East Asia.

Finally, Rivera-Batiz and Romer (1991) analyzed the impact of north-north economic integration (between two developed countries) on worldwide steady-state growth rates, and found a positive link between them. In addition, their findings showed that starting from a position of isolation, closer integration could be achieved by increasing trade in goods or by increasing flows of ideas. In return, this encourages the worldwide exploitation of increasing returns to scale in the R&D sector.

III. METHODOLOGY

1. Model Design

This cross-country study starts initially by collecting data on twenty countries for a period of sixteen years ranging from 1982 to 1997. This panel setup of 320 observations (20 countries * 16 years) combines cross-sectional (between countries) with time-series (within countries) sample information. Due to the underlying long-run growth theoretical framework of this work and following Barro's approach (1997), the model categorizes the pertinent determinants of growth into initial and steady-state positions in the following form:

$$\Delta\gamma = f(\gamma, \gamma^*)$$

Where $\Delta\gamma$ is the growth rate of per capita GDP, γ is the initial level of per capita GDP, and γ^* is the long-run or steady-state level of per capita GDP. Note that the growth rate, $\Delta\gamma$, is diminishing in γ for given γ^* and rising in γ^* for given γ.

This empirical approach allows the model to estimate the effects of the initial determinants—those variables that take time (years) before they change significantly such as fertility rate, life expectancy, education, and initial individual income—on subsequent growth rates (Mankiw, Romer, and Weil, 1992). Additionally, the model allows us to examine the impact of the steady-state variables—variables that inherent the long-term nature of the theory, and hence are averaged over 1982-1997 such as the dependent variable economic growth, and the explanatory variables: government expenditures, trade openness, investment, terms of trade, and stability.

Consequently, this study breaks down the sixteen years into four equal periods by transforming all annual steady-state (long-term) variables into periodic ones—expected values of every four consecutive years, while sorting the initial year (first year) of each period of some control variables, such as per capita GDP, fertility rate, education, and life expectancy. Therefore, the panel data is being transformed from three hundred and twenty observations into eighty (20 countries times 4 periods).

On another hand, this research does not use a longer period because from this perspective, the selected sample and years under study are not expected to include relatively major shocks. More interestingly, the current phenomena of globalization, technological progress, higher speed and lower costs of communications, more reliance on international trade and FDI, greater vulnerability to Contagion effects, and so on, shortened the traditional perception of the "long-term" period. Moreover, the design would benefit more from the larger number of information.

The sample of twenty countries is selected as follows from the four regional integration blocs under study: (a) all three members of NAFTA—US, Canada, and Mexico; (b) all four major members of MERCOSUR—Brazil, Argentina, Uruguay, and Paraguay; (c) the five major members of ASEAN—Indonesia, Malaysia, Thailand, Philippines, and Singapore; (d) eight out of the fifteen members of the EU are randomly selected—Germany, France, UK, Italy, Spain, Ireland, Portugal, and Greece. These geographic regions are selected due their convenience and data availability, especially for measures of life expectancy and education.

The new growth model uses a multivariate double-log regression represented by the following equation:

$$\text{Log } \Delta\gamma\, p = \beta 0 + \text{Log } \beta 1\, \gamma t\text{-}4 + \beta 2\, \text{edu } t\text{-}4 + \text{Log } \beta 3(\gamma^* \text{edu})\, t\text{-}4 + \text{Log } \beta 4\, \text{lif } t\text{-}4 + \beta 5\, fert\, p + \beta 6\, Gexp\, p + \beta 7\, \Delta\, tmtrade\, p + \beta 8\, open\, p + \beta 9\, integ\, p + \varepsilon p$$

For country i

Whereas the dependent variable is represented by:

$\Delta\gamma$: Growth rate of real gross domestic product (GDP) per capita, measured by per cent.

βk is the estimated coefficient of each of the following independent and explanatory variables:

(a) Independent control variables at initial levels:

γ: Lagged real GDP (or income) per capita, measured by US $, also used as a proxy for physical capital.

edu: Lagged enrollment in total (male and female) secondary education, measured by per cent.

γ**edu:* Interaction between physical capital and human capital (only education), measured by the product of lagged real GDP per capita and lagged secondary school enrollment.

lif: Lagged life expectancy, measured by the expected number of years to live, also used as a proxy for health.

(b) Independent control variables at steady-state levels:

fert: Fertility rate, measured by the U.N. as the typical woman's prospective number of live births over her lifetime, used also as a proxy for population growth.

Gexp: Government expenditures as a per centage of GDP.

Δ *tmtrade*: Growth rate of terms of trade. The terms of trade is measured by the ratio of export to import prices.

(c) Explanatory variables at steady-state or initial levels:

open: Trade openness, represented as the steady-state sum of import and export as a per centage of real GDP.

integ: An ordinal variable indicating the degree of regional integration. This variable ranges from 1 to 4 representing no integration as "1", up to a common market and economic union as "4".

ε: Stochastic error term.

All variables are estimated for a period "p" (indicating the expected value of a 4-year period) or "t-4" (implying a 4-year lag or the initial year in a 4-year period) and a country "i".

All coefficients pertaining to the above-stated regression equation were estimated using a simple ordinary least squares (OLS) technique applied in a seemingly unrelated (SUR) framework, and the panel setup was sorted by country, which differs from a pure cross-sectional approach. A simple OLS technique used in a pure cross-sectional data that contains one observation for each country, where the system uses means of all variables, was not used because it may have resulted in estimation errors. The choice of OLS-SUR was also made over alternative advanced techniques (e.g. Cointegration or Rolling Regressions) that rely more on time-series information because they eliminate the cross-sectional information, which is the principal strength of this cross-country study. In addition, these time-series techniques tend to emphasize measurement error. (Barro, 1997).

On the other hand, simultaneous equations (SE) in a SUR framework, which combine both cross-sectional and time-series data, while accounting for instrumental variables, are favorable in this setup. However, several studies showed that in a similar framework, there are no significant differences between OLS and SE as compared by Wald tests of equality of the coefficients, and as long as the errors are assumed to be independent over the time periods. In addition to the estimation technique limitation, the "bold" four-year time period, compared to the traditional ten-year time period, could fall short in reflecting a "long-term" horizon, even with today's conceptual changes and volatilities.

2. Determinants of Growth

The initial real income per capita reflects stocks of physical capital and natural resources, effort, and the unobserved level of technology. Subsequently, the empirics of this work expect a negative relationship between the initial GDP per capita and the growth rate per capita reflecting the convergence property of the neoclassical theories.

One of the most important elements of human capital is education, which is expected to have a positive relation with growth rates. According to growth literature, it would have been much more preferable to use only males instead of total school enrollment, but the lack of a breakdown of this variable for many countries in early years led to the use of the more accessible, though less preferable, total school enrollment data. In general, international educational measures, whether school attainment or enrollment, fall shorter than expected and are mostly inaccurate because they do not capture the quality of education. Further, they are not properly standardized across countries (Kerckhoff and Dylan, 2000). Still other researchers used public expenditures on education as a proxy to measure education and quality of education in particular, but this measure did not appear to be robust enough to hold scrutiny (Beanton and others, 1996).

The other important element of human capital is life expectancy. A higher initial level of log life expectancy is expected to increase the steady-state growth per capita, holding other independent variables constant. The effect of this variable reflects a better and longer health of the labor force. Fertility rate (endogenous) is used as a proxy for population growth (exogenous). When the population grows, aggregate investment tends to be used by a larger labor force. Thus, the estimated coefficient of fertility rate has a negative impact on growth rates.

The variable "government expenditures" enters into this regression as the total government consumption per cent of GDP. Large public (non-capital) spending is perceived as a source of big government or a fat bureaucracy, which is less efficient, and prone to increased market distortion. Eventually, taxes are raised to finance this spending and the allocation of society's resources becomes increasingly Pareto inferior. Thus, nonproductive government expenditures hinder economic growth, and enter into this study as inversely related to growth per capita.

Some researchers used government expenditures net of defense and education spending, and postulated that such outlays do not impede growth, since they were viewed as a kind of investment. However, empirical studies showed that if the goal was to improve security and property rights, then government spending on defense could indeed have a positive effect on national security, but still not a direct significant impact on growth.

Government spending on education is also not necessarily productive, and might not have a positive significant effect on economic growth. Some scholars used public expenditures on education as a proxy for the quality of schooling (Barro and Sala-i-Martin, 1995). However, this proxy does not have sufficient empirical evidence. In particular, when the main objective of spending is to improve the quality of education, studies show no sign of significant causality. For instance, Beanton and others (1996) found that public expenditures on education do not guarantee quality education measured by mathematics test scores. Public spending on education

does not necessarily stimulate growth, except possibly in cases of providing universal access for basic education (via public schools) in underdeveloped countries or rural areas.

This paper uses the variable "total government expenditures" for the following reasons: (1) the productivity of public spending on defense and education is still inconclusive; (2) the sample under study covers a wide array of specific circumstances in regards to education and defense; and (3) many years included spending on education with many other social amenities in one variable, which would make it difficult to break this variable out.

The inclusion of the growth rate of terms of trade is important to growth regressions because it complements the role of openness. In addition, the change in terms of trade has a substantial influence on developing countries, which specialize their exports in a few primary products and its estimated coefficient usually has a positive impact on long-run growth per capita. Trade openness is also included in the growth regression and is expected to have a positive link with growth rates.

Interestingly, the pertinent methodology employed in this study is using the regional integration as an ordinal variable (neither proxies nor dummy variables) with a scale of 1 (no integration) to 4 (common market or economic union). This employed ordinal variable helps to account for deeper levels of fusion, captures the broader effect of trade agreements, and enables to find the means of each of the four periods ranging from 1982 to 1997. A more detailed description of the degrees, blocs, and countries is presented in Table 1.

The integration variable is expected to have a positive link with growth rates, while the other variables are held constant. In addition, regional integration data was collected and assigned a value from 1 to 4, according to their degree of integration, and the date of signing the agreement by using a year rounding-up technique. For example, if a pact was signed in August 1992, was entered in the system as 1993. This is more logical because it takes after the pact is signed to implement its technicalities and put it into effect. Table 1 includes information about the degrees of integration as assigned to a 4-scale, signatures' or effective dates of trading blocs, and other pertinent remarks.

IV. EMPIRICAL ANALYSIS

Table 2 shows the descriptive statistics of all control, explanatory, and dependent variable(s). The number of observations is eighty, 20 countries from 1982 to 1997, arranged in four 4-year periods. The descriptive statistics show the dispersions (standard deviation), the averages (mean), and the minimum/maximum values of each of the cited variables. The results of descriptive statistics in Table 2 show that the dependent variable as represented by the growth rate of the natural logarithm of GDP per capita appears to have little variation and has a mean of 2.2 and a standard deviation of 0.86. This relatively small dispersion implies a preliminary sign of no serious heteroskedasticity. Nonetheless, standard Park test is used and is necessary to detect any heteroskedastic error term (and weighted least squares to correct it). Conversely, much variation is detected in the logarithm lagged GDP per capita with a mean of 1.52 and a standard deviation of 1.13. This may reflect the diverse representation of the sample under study, which encompasses countries with different income levels per head; thus, the random selection of countries includes developed as well as developing countries.

Table 1
Degrees of RTAs and Dates of Memberships

Degree of Integration & [Scale Coding]	*PTA & partial FTA [2]*	*Full FTA & Customs Union [3]*	*Common Market & Econ. Union [4]*
RTA			
NAFTA	US, Canada (1989) Mexico (1993)		
ASEAN	Indonesia, Malaysia, Thailand, Philippines, Singapore (1994) *ASEAN was established (1967). *Expected full FTA (2005)—if not before.		
MERCOSUR	Brazil, Argentina, Uruguay, Paraguay (1991)	Brazil, Argentina (1995) Uruguay, Paraguay (1996)	
EU *European Steel & Coal Community (1951) *Treaty of Paris, effective (1952)	Germany, France, UK*, Italy, Spain, Ireland, Portugal, Greece *EEC (early 1960s) *EC (1968) *EFTA including UK joins EC (1972)	EC (Mid 1970s) *All intra-tariffs were eliminated.	EU: Maastricht Agreement (Dec. 1992) *Monetary Policy: Introduction of Euro (January, 1999), except UK opted. *Expected introduction of the Euro currency (Jan., 2002)

Notes: (1) The symbol (*) represents some helpful remarks.
(2) Years earlier than PTA/FTA dates indicate "No RTA" and are coded [1] on a 4-scale.
(3) As discussed earlier, some of the country members included in this Table represent a sample of the actual number (e.g. EU's sample is 8 out of the actual 15).

Table 2
Growth Descriptive Statistics

Variable	*N*	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Growth Rate per capita	80	-1.61	4.19	2.2	0.863
Log GDP per capita	80	-0.79	3.24	1.516	1.131
Education	80	29	100	70.325	23.671
Education * Log GDP per cap.	80	-42.84	325.42	126.505	107.815
Log Life Expectancy	80	3.97	4.36	4.266	0.077
Fertility	80	1.23	4.65	2.467	0.966
Government Expenditures	80	8.23	58.77	30.532	12.8
Terms of Trade Growth Rate	80	-12.22	12.36	0.931	4.025
Openness	80	14.64	316.34	60.093	62.405
Regional Integration	80	1	4	2.178	1.059
Valid N (listwise)	80				

Source: IMF Direction of Trade Statistics; The World Bank Development Report

1. Model 1

Model 1 includes the following control variables: initial levels of income per capita, education, interaction between education and income, life expectancy, and steady-state levels of fertility, government expenditures, terms of trade, and openness. The model takes the following function:

$$Log\ \Delta\gamma p\ i = f\ (X\ t\text{-}4,\ p\ i) \qquad (1)$$

Where "t-4", "p", and "i" represent initial and steady-state levels, and country, respectively.

Although several previous studies used "trade openness" as a proxy for "regional integration", this paper places a major emphasis on differentiating between the two variables. Trade openness is the freer flow of goods and services, while regional integration is the free flow of goods, services, people, and capital, in addition to other political or economic factors, depending on the depth of integration. Hence, there are many methodological and theoretical reasons including trade openness as one of the independent control variables.

The findings in Table 3 show that all the estimated coefficients of the control variables hold their expected signs, except for education. This is probably due to its inaccurate and unreliable measures (as previously discussed in this paper). Further, there is no sign of specification error. The initial individual income has a significant negative ($p<0.1$) relation with economic growth, thus supporting the convergence property. Life expectancy and trade openness are positive and statistically significant at p-values less than 0.1 and 0.05, respectively. The Durbin-Watson d-statistics of 2.1 shows no sign of first order positive serial correlation.

Table 3
Growth Regression Results for Model 1
The following table includes all independent control variables including trade openness

	Model 1	
Variable	*Coefficient*	*t-statistics*
Constant	-22.238	-1.561
LOG lagged GDP cap.	-0.819*	-1.788
Lagged Education	-0.01431	-1.405
(lag. Edu*LOG GDP cp)	0.005938	1.194
LOG Lag. Life Expectancy	6.23*	1.815
Fertility	-0.24	-1.362
Government Expenditures	-0.008925	-0.976
Terms of Trade growth rate	0.03857	1.478
Openness	0.003057**	1.923
R-square	0.179	
adj. R-square	0.087	
F-value	1.937	
p-value of F	0.068	
DW	2.118	

Notes: The following control variables: GDP per capita, education, the interaction term between education and GDP per capita, and life expectancy are lagged four years. The remaining control and explanatory variable(s) are presented in four-year periodic averages. N=80 for all models. *p<0.1; **p£0.05

2. Model 2

In model 2, the explanatory variable "Regional Integration" is entered into the regression by adding it to the other control variables taking the following function:

$$Log\ \Delta g\ p\ i = f\ (X\ t\text{-}4,\ p\ i,\ Integ\ p\ i) \quad (2)$$

The regression results of model 2 are shown in table 4. After integration enters into the system (model 2), there is still no significant change in the estimated coefficients and they kept their expected signs. This consistent behavior of the estimates implies no sign of specification errors. The R-square is 0.22, the adjusted R-square is 0.11, and no sign of significant positive first order autocorrelation appears to exist as shown by the Durbin-Watson value of 2.02.

Table 4
Regression Results for Model 2

The following table presents results of model 2, which includes all control variables and the explanatory variable "Regional Integration". This table also compares the growth regression results "with" (model 2) and "without" (model 1) the variable "Regional Integration"

	Model 2		*Model 1*	
Variable	*Coefficient*	*t-statistics*	*Coefficient*	*t-statistics*
Constant	-19.578	-1.387	-22.238	-1.561
LOG lagged GDP cap.	-0.88**	-1.944	-0.819*	-1.788
Lagged Education	-0.01361	-1.356	-0.01431	-1.405
(lag. Edu*LOG GDP cp)	0.006129	1.251	0.005938	1.194
LOG Lag. Life Expectancy	5.504	1.617	6.23*	1.815
Fertility	-0.192	-1.097	-0.24	-1.362
Government Expenditures	-0.01899*	-1.788	-0.00893	-0.976
Terms of Trade growth rate	0.04566*	1.756	0.03857	1.478
Openness	0.004085**	2.449	0.003057**	1.923
Regional Integration (RTA)	0.264*	1.788		
R-square	0.215		0.179	
adj. R-square	0.114		0.087	
F-value	2.13		1.937	
p-value of F	0.038		0.068	
DW	2.024		2.118	

Notes: The following control variables: GDP per capita, education, the interaction term between education and GDP per capita, and life expectancy are lagged four years. The remaining control and explanatory variable(s) are presented in four-year periodic averages. N=80 for all models. *p<0.1; **p≤0.05

The initial income per capita appears to be significantly negative with a p-value of less than 0.05, which reflects the conditional convergence property in the new growth model, where developing countries, depending on their steady-state positions or potential to grow, grow faster than developed ones.

The variable government expenditure comes out significant and negatively correlated with growth rates (at p<0.1). Also, trade openness and its complementary variable terms of trade, show positive links with economic growth per capita, at 0.05 and 0.1 significance levels, respectively. Most importantly, the estimated coefficient of the regional integration variable is found positive with a p-value less than 0.1. Specifically, findings reveal that a deeper level of

integration (e.g. from an FTA to a Common Market) increases the growth rate per capita by 0.264 per cent, holding other variables constant.

This study has a sample size of eighty observations and nine independent variables; thus, leaving seventy degrees of freedom (80-9-1 = 70). The overall fit of all jointly estimated coefficients in model 2 is significant with a p-value of $F < 0.05$. It is important to note here that if the fertility and log life expectancy variables are dropped from the regression, then the openness and regional integration variables become respectively more significant. However, this study keeps fertility and log life expectancy in the empirical model due to their theoretical soundness.

V. SUMMARY AND CONCLUSION

This paper uses the new growth model to estimate the impact of the depth of regional integration on the growth rate of individual income. In order to accomplish this, the variable integration is categorized and coded in a 4-scale, reflecting all forms of RTA along with taking the individual regional agreements' effective dates of implementation into consideration. Further, this paper does not use a traditional proxy for regionalism such as trade openness, or FDI. In fact, trade openness was incorporated in the model along with terms of trade to differentiate and control for both factors: the "flow of goods and services" and the "flow of goods, services, capital, labor, and other politico-economic factors".

Contrary to many past studies that concluded a negative or insignificant outcome of regionalism, this paper argues in favor of "open" regionalism and its empirical results support this argument. Specifically, findings report that a deeper level of regional integration (based on the offered scale) enhances the growth rate of individual income across countries by 0.264 per cent (holding other included variables constant).

The logic behind this study's policy prescription for open regionalism is multifaceted. It is argued that regional integration encompasses more than the traditional fundamentals of improving the efficient allocation of resources (according to the comparative advantage concept), reducing transport costs due to agglomeration forces as described in economic geography and the factor 'distance' (this factor is found in the Gravity model and some other trade models), and achieving economies of scale due to specialization. As a matter of fact, regionalism has much more positive or negative effects on several activities, such as trade flows, FDI, technological spillovers, illegal migration, transportation and safety standards, labor mobility, drug-trafficking, endangered species trafficking, energy, security issues, cultural and educational externalities (language, fashion, music, etc.), sovereignty risk, and stability.

However, those small economies with no significant comparative or competitive advantages due to their small domestic markets, low incomes, economic and political structures, and exploited natural resources (if they have any), might not be able to integrate in that global system, and will not have any leverage to bargain with on the international scene, even not with their cheap (but unskilled) labor. These countries can practically exist in Africa, Latin America, or the Middle East (non-Oil exporters) where their long time authoritarian or military regimes do not allow room for much free-market reforms, at least not in the foreseeable future. Therefore, realistic actions could be taken to overcome political turbulences and sensitivities by engaging

in economic regionalism, which could lock in reforms, create competitive industries, encourage equal cooperation with other regional blocs, and provide leverage on the global arena.

Governments should engage in regional integration to utilize or even create their comparative or competitive advantages. They should follow open regionalism by keeping external trade barriers down in such a way to benefit from major outside efficiencies, cooperate with other regional blocs, and design regional arrangements that would preserve national sovereignties and securities like ASEAN.

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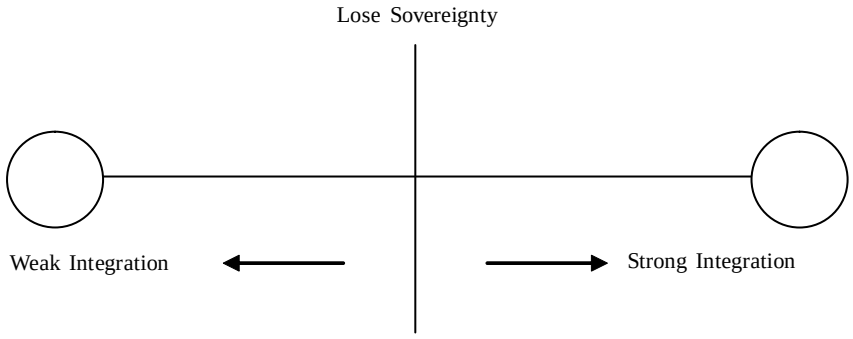
Figure 1: Integration and Sovereignty



Source: Urwin (1995).