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DOES WHAT COUNTRIES EXPORT MATTER? THE ASIAN AND LATIN AMERICAN EXPERIENCE

ANWESHA ADITYA[a] AND RAJAT ACHARYYA[b*]

[a,b] *Jadavpur University, India*

The present paper examines the differences in growth performances of Asia and Latin America, in particular, the roles of trade and institutions in explaining the differential growth experiences of the two regions. In examining trade policy instruments as a plausible explanation of growth divergence, we have focused on the emerging pattern and composition of export baskets in the two regions and regional integration and accession to WTO. In a GMM dynamic panel estimation for the period 1975-2005, though it is found that diversification and composition of exports have significant impacts on economic growth in both the regions, diversification within the manufacturing sector is important for Asia only. The common determinants of growth in the two regions are exports, investment, public debt and human capital. On the other hand, the differentiating factors on the diverging growth experiences of Asia and Latin America are infrastructure, regional integration and institutional aspects like patent protection, and WTO.

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JEL classification: F13, F43, H54, J24, O34, O43, O57

1. INTRODUCTION

Determinants of economic growth in general, and trade as an engine of growth in particular, have been one of the most interesting research topics for the economists, both theoretically and empirically. However, there has been a recent shift in the research question from *whether* trade promotes growth to *when* does trade promote growth due to the refinements of ideas over the years and new evidence from across the globe. More

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recent studies in this context emphasize on *what* a country exports may matter more than *how much* a country exports. Lederman and Maloney (2007), Agosin (2007) and Hesse (2008) emphasize on the diversification of export basket as one of the important determinants of economic growth. Hausmann *et al*. (2006) and Rodrik (2006), on the other hand, emphasize that it is the productivity content of the export basket of the countries that matters the most. A case in point is China's export of highly sophisticated products which is considered to be the main driver of its rapid growth over the last two decades.

At the same time divergence of growth rates and its pattern across regions and continents have provided the motivation for the economists to search for its plausible explanations. The two continents that have drawn particular interest for such comparative analyses are East Asia and Latin America. Latin America developed much earlier than Asia, in particular East Asia. But its growth rate started slowing down since the 1980s with East Asia catching up faster and then leapfrogging by the turn of the present century. However, these two regions share similar geographical and physical properties in terms of endowments and natural resources, similar proportion of their regions being in the tropic and proximity of the regions to major markets for their trade (Elson, 2006).[1]

Given such geographical similarity, the interesting research question is whether trade and institutions can be plausible explanations of the differential growth experiences of the two regions. Elson (2006) has identified three factors related to public policy, integration and institutions, which can account for the diverging growth performances. The first is the problem of macroeconomic instability in Latin America. The region has long been suffering from problems of fiscal instability and high inflation. The world energy crisis of 1973-1974, followed by heavy lending to the largest Latin American countries, led to the debt crisis of the early 1980s. In contrast, because of the stronger fiscal positions of its governments, low external public debt, and stability of financial system, East Asia dealt with any external shock better than Latin America. The second is the relatively weak state of integration of Latin America into the global economy. Latin America performed poorly in many aspects of global integration like competitiveness of manufacturing exports, high-technology exports and attracting foreign direct investment (FDI). On the other hand, intra-regional trade increased sharply among the East Asian countries. During the 1990s intra-regional trade accounted for around 37 per cent of total trade flows for East Asia, whereas it was only around 18 per cent for Latin America. Some time series studies using co-integration and error correction procedures have also found out that the causality between exports and economic growth work differently in Asia and Latin America. Barboza (2007) found that openness in Latin America does not have a straightforward positive relationship with productivity growth. Thus it cannot be

[1] The geographical differences that still persist between these regions account for a minor part of the growth differential (Elson, 2006).

concluded that more open economies of Latin America have grown faster. On the other hand, Rahman and Mustafa (1997) and Ekanayake (1999) found evidences of export-led growth for some Asian countries. The third factor is the quality of public institutions. Surveys of institutes like the Political Risk Services Group, the World Bank, and the World Economic Forum reveal that except for democratic accountability, in all other measures of government institutional capacity like control of corruption, bureaucratic quality, regulatory quality and political stability, East Asia was in a stronger position than Latin America.

While examining trade policy instruments as a plausible explanation of growth divergence, researchers have focused on the emerging pattern and the composition of export baskets in the two regions and the regional integration effects. As far as the export structure of Latin America is concerned, concentration of exports in primary products has been considered a major obstacle for the development prospects of the region. Since the seminal work of Prebisch (1959), volatility of terms of trade, slow productivity growth, and relatively low value added are some of the issues that are raised against this primary product dependence of Latin American exports (Bebczuk and Berrettoni, 2006). Though a World Bank study in 2002 revealed that most of the countries in the Latin American region have started diversifying their exports from the mid-1960s, the impact of export diversification has been examined mostly at the individual country levels. Gutierrez and Ferrantino (1997) and Herzer and Nowak-Lehmann (2006) examined the experience of Chile; Bebczuk and Berrettoni analyzed export diversification in Argentina at firm level; Shetty and Arispe (2008) examined the role of export diversification across markets and products in Colombia. Taylor and Francis (2003) analyzed the trends of agricultural export diversification using disaggregate data for the period 1961-2000 for nineteen Latin American countries. They found some evidences of export diversification in the post-1985 period. In a comparative study of Asia and Latin America, Agosin (2007) found that export diversification and an interaction term of diversification with per capita export growth rate are significant in explaining per capita GDP growth for Asia and Latin America taken together over the period 1980-2003, after controlling for the effects of factors like investment and the rule of law. Moreover, using the estimated coefficients of the instrumental variable regression, Agosin (2007) concluded that the diversification-weighted per capita export growth explains about 50% of the differences in growth rate between the fast growing Asian manufacturing countries and Latin America. In another comparative study of income content of exports of Latin America and Asia, Rodrik (2005) found that Argentina, Brazil and Chile have the lowest quality of exports relative to their income whereas China, with a lower level of per capita income, has the highest income content of exports. China has been able to produce goods that correspond to higher level of income, and this has led to the phenomenal growth of the Chinese economy.

This paper, though can be related to this literature as it carries out a comparative study, is at the same time different from the existing studies in many directions. First, it puts together the diversification and the quality or productivity dimensions of export

baskets along with both regional integration and market access effects to examine whether all or some of these factors explain growth experiences of the two regions. Whereas the regional integration effect is captured through the formation of MERCOSUR and ASEAN, the market access effect is captured through accession to the WTO. Secondly, we have considered diversification at a more disaggregated level - diversification within the manufacturing sector. Thirdly, in estimating the regional growth experiences, a two-stage estimation process is adopted. In the first-stage the impact of the level of exports on GDP is estimated in a GMM dynamic panel framework after controlling for other determinants of economic growth. In the second stage, we estimate the impacts of the diversification and the composition indices of exports and the regional integration and accession to WTO on the *export-induced growth component* obtained from the first stage estimation.[2] Fourth, a new set of control variables is introduced in the two-stage estimation process. In the first stage public debt and an index of patent protection are included as control variables along with other determinants of economic growth like lagged growth, exports, investment, and human capital. However, these control variables are included in alternative specifications rather than including all in one estimation. In the benchmark case, private investment and public debt are taken as control variables separately in two alternative specifications since public debt may crowd out private investment.

In an extension of the benchmark case, human capital (as proxied by years of schooling) and the Ginarte-Park index of patent protection (as a proxy variable for R&D stimulus for growth) are included. These are taken together in the extended model to control for the productivity effect on growth. In both the specifications – the benchmark and the extended – the infrastructure index is taken as a control variable in the second stage. It is intended to capture the domestic growth policy of a country that may influence the export-growth relationship.

For a sample of twelve East and South-East Asian countries and fourteen Latin American countries for the period 1975-2005, the GMM dynamic panel estimation establishes the following results. Both diversification and composition of exports are found to be important determinants of economic growth in the two regions. This result is in contrast with Agosin (2007). A plausible explanation is that export diversification may have only indirect effect on growth, and thus it may not be relevant for the overall growth process but for the export-induced growth component only which is considered in our two-stage estimation. Moreover, the relationship between export diversification and economic growth is non-linear suggesting that beyond a threshold income level, specialization rather than diversification may matter. It is found that the critical level of CCI at which the turnaround in GDP occurs is higher for Asia than Latin America. It is also found that the impact of export composition is stronger for those countries whose

[2] Similar two-stage method is used by Acharyya (2009) in estimating the growth impact of FDI inflow in India on CO_2 emission.

manufacturing exports grow at a faster rate than the world average. However, diversification within the manufacturing sector is important for Asia only. The differences in the growth processes of the two regions, on the other hand, are found to have two main sources that provide empirical support to Elson's (2006) argument. First, regional integration and globalization policies both have contrasting effects on growth in these two regions. It may be due to the growth of intra-regional trade in Asia, and the consequent trade diversion effect. Second, whereas the level of infrastructure development in Asia has a favourable impact on its *export-induced growth component*, patent protection favourably affects *overall growth* in this region. For Latin America, both these factors appear to be insignificant. This result more or less corroborates with better government policy environment in Asia than in Latin America (Elson, 2006). The improved governance and policy environment create favourable conditions for growth and makes the export-growth relationship stronger in Asia compared to Latin America.

The rest of the paper is organized as follows. Section 2.1 specifies the benchmark model, the methodology and the data sources. Section 2.2 discusses the estimation results. Section 3 extends the benchmark model to study the productivity constraints on growth. Finally, the concluding Section summarizes the findings of the study.

2. BENCHMARK MODEL

2.1. Model Specification, Methodology and Data Sources

2.1.1. Model Specification

The benchmark model investigates the roles of the diversification and the composition of exports on growth processes in Asia and Latin America, after controlling for other determinants of growth like lagged growth, investment, and public debt in a two-stage estimation procedure. The impacts of the diversification and the composition of export basket of a country on its output growth is at best an *indirect* one as these aspects augment export growth, which in turn favourably affects the country's GDP growth. Thus, we believe that it is more reasonable to estimate the impacts of the diversification and the composition of exports on the export-induced growth component, rather than on overall growth. The first stage investigates the impact of aggregate exports on output after controlling for the impacts of lagged output and investment, and the second stage then estimates the impacts of the diversification and the composition indices on the export-induced growth component after controlling for the effects of infrastructure.

Thus, in the first stage the following cross-country growth equation is estimated:

$$Y_{ct} = \alpha_0 + \alpha_1 Y_{ct-k} + \alpha_2 X_{ct} + \eta_c + \gamma_t + u_{ct}, \quad (1)$$

where Y_{ct} is the natural log of GDP in country *c* at time *t*, Y_{ct-k} is the *k* years lag of Y_{ct}, X_{ct} is a set of potential explanatory variables. The term η_c is an unobserved country specific time-invariant effect like, the geographical characteristics and institutions which do not change much over time but varies across countries. γ_t is an unobserved period effect that is common across countries. u_{ct} is the random disturbance term that varies across both countries and years and is assumed to be uncorrelated over time. Inclusion of a lagged dependent variable as a regressor along with other explanatory variables incorporates dynamics in the model.[3] Such a dynamic framework captures the persistence in GDP growth.[4] It also provides consistent estimator of other parameters because without the lagged dependent variable the model would suffer from specification bias.

In the benchmark model, other than the lagged dependent variable exports, investment (measured in terms of gross capital formation) and public debt are taken as the control variables. Investment is an important determinant of income which is supported by the literature that dates back to the Harrod-Domar model to the recently developed endogenous growth theories. Public debt is intended to capture the effects of macroeconomic instability accounting for the divergent growth processes of the two regions (Obstfeld and Rogoff, 1996; Elson, 2006). Public debt crowds out private investment, and retards growth (Obstfeld and Rogoff, 1996; Diamond, 1965). Thus, growing public debt has adverse impact on GDP growth.[5] Cunningham (1993) found out significant negative relationship between the growth of debt burden and economic growth in sixteen heavily indebted developing countries during the 1970's and 1980's. He argued that heavy debt burden of an economy may reduce the productivity of labour and capital influencing technical change.

The dependent variable in the second stage of the model is the log of GDP multiplied with the estimated coefficient of exports ($\hat{\beta}_2$) obtained from the first stage of the

[3] Dynamic framework has been used in the trade-growth literature by Dollar and Kraay (2004), Hesse (2008), Lederman and Maloney (2007).

[4] Historical sociologists emphasized the importance of initial conditions. The impact of initial conditions on current outcome is defined as "path dependence" (Mahoney, 2000; Goldstone, 1998). The initial condition is important in assessing the early path and equilibrium dependence of a time series (Freeman, 2010). The lagged dependent variable not only captures history but also captures the impact of any domestic reform policy.

[5] High level of public debt may create inflation, lead to capital flight, volatility of exchange rate leading to macroeconomic instability (Mankiw, 2005). Many Latin American countries suffering from sovereign risk in the 1980s were cut off from the world capital markets as foreign creditors anticipated that they would default on foreign obligations (Obstfeld and Rogoff, 1996). Many believed that the 'debt overhang' problem was responsible for the Latin American crisis in the 1980s.

estimation. The term, $Y^*\hat{\beta}_2$, thus captures the effect of exports on income, controlling for the effects of lagged income and investment and can be interpreted as the trade-induced growth component. This new variable, denoted as $Y^*\hat{\beta}_2$, is regressed on its own lagged value and a set of explanatory variables Z_{ct}:

$$Y^*\hat{\beta}_{2ct} = \delta_0 + \delta_1 Y^*\hat{\beta}_{2ct-k} + \delta_2 Z_{ct} + \eta_c + \gamma_t + u_{ct}. \quad (2)$$

Z_{ct} includes an infrastructure stock index (ISI), the indices of export diversification and composition, and the dummy variables for accession to WTO, and regional trading blocs like MERCOSUR and ASEAN. Infrastructure plays an important role in economic growth as availability of quality infrastructure reduces cost and raises profit, providing higher level of output, income and employment. The reason for including the infrastructure development in this second-stage estimation is that infrastructure facilitates exports and consequently makes the export-growth relationship stronger. Infrastructure can also be taken as a proxy for domestic growth policy that might influence the export-growth relationship. As infrastructure can be of various types like physical, financial and energy, so a single variable cannot capture the overall quality of infrastructure. For this purpose, an index, named as the Infrastructure Stock Index (denoted as ISI), is constructed taking into account different aspects using the Principal Component Analysis (PCA) following the methodology of Johnson and Wichern (2006).[6]

Export diversification is measured using Hirschman's (1945) commodity concentration index (CCI) as in Michaely (1962). A higher value of the index indicates a more concentrated export basket. However, some of the earlier studies have observed that both diversification and specialization may be important for growth, which is indicated by the non-linearity in the relationship between export diversification and income (Hesse, 2008; Imbs and Wacziarg, 2003). To account for this non-linearity, a squared term of the commodity concentration index is included.

To examine the impact of export composition, on the other hand, we take two measures: manufacturing exports as percentage of merchandise exports and high-technology exports as percentage of manufacturing exports (denoted as HTX). The first one captures the importance of the manufacturing sector and the second captures the role of vertical specialization within the manufacturing sector. However, high-technology

[6] The infrastructure index (ISI) is based on six infrastructural variables: air transport, freight (million tons per km); air transport, passengers carried (per 1000 population); telephone mainlines (per 1,000 people); irrigated land (% of cropland); domestic credit provided by the banking sector (% of GDP), and electric power consumption (kWh per capita). These variables are first normalized and then factor loadings are calculated using PCA in econometric software SPSS. The factor weights are then computed which are used to construct the ISI.

exports may be important for only those countries whose manufacturing exports are growing at a faster rate than the world average.

Therefore, HTX is interacted with a variable D_m which captures the growth rate of manufacturing exports (as percentage of merchandise exports) of a country relative to the world average manufacturing exports where the variable D_m is defined in the following way:

$$D_m = \begin{cases} 1 & \text{if growth rate of manufacturing exports is greater than} \\ & \text{the world average growth rate,} \\ 0 & \text{otherwise.} \end{cases}$$

As pointed out by Elson (2006), trade policy in the form of regional integration and globalization may be important determining factors for diverging growth processes in Asia and Latin America. This aspect is captured through two types of dummy variables: the first is WTO year dummy as the indicator of integration with the global economy and also market access effects, and secondly, MERCOSUR and ASEAN Free Trade Area (AFTA) year dummies to capture regional integration generating both trade creation and trade diversion effects. The dummy variables are defined in the following way:

$$D_{WTO} = \begin{cases} 1 & \text{after a country becomes WTO member,} \\ 0 & \text{otherwise.} \end{cases}$$

$$D_{MERCOSUR} = \begin{cases} 1 & \text{if a country is a member of MERCOSUR after} \\ & \text{the formation of MERCOSUR,} \\ 0 & \text{otherwise.} \end{cases}$$

$$D_{AFTA} = \begin{cases} 1 & \text{if a country is a member of ASEAN after} \\ & \text{the formation of ASEAN,} \\ 0 & \text{otherwise.} \end{cases}$$

The purpose of constructing dummy variable is to capture the policy shock which is common for a group of countries in a region and to investigate whether it pushes the countries to a different growth path, other things remaining unchanged. Choice of WTO year dummy is to capture the common universal shock that affects all countries. But there is also specificity according to the year of membership in the WTO for each country. Accession to the WTO may facilitate exports through market access effects, and thereby may contribute to growth. Similarly, regional integration is expected to affect growth (either way) through its trade creation and trade diversion effects. If trade creation is stronger, regional integration may benefit all. In contrast, if trade diversion

effect dominates, the non-member countries are hurt and their growth is retarded.

2.1.2. Methodology

Cross-section regression is inappropriate to estimate Equation (1) because of the following shortcomings:

First, the cross-section estimator will be inconsistent in the dynamic framework because the unobserved effect is correlated with the explanatory variables as

$$E[\eta_c Y_{ct-k}] = E[\eta_c(\alpha_1 Y_{ct-2k} + \alpha_2 X_{ct-k} + \eta_c + \gamma_{t-k} + u_{ct-k})] \neq 0,$$

where the last inequality follows from the assumption that at least $E(\eta_c^2) \neq 0$.

Secondly, cross-section growth regression is not applicable in the presence of endogeneity of the explanatory variables.

To get around these inadequacies, the dynamic panel model is estimated using Generalized Method of Moments (GMM) as developed by Arellano and Bond (1991) and Arellano and Bover (1995). The estimation process takes first differences of the regression equation. Taking first difference removes the unobserved country-specific time-invariant effects so that there is no omitted variable bias. Thus, we estimate the following equation:

$$Y_{ct} - Y_{ct-k} = \alpha_1(Y_{ct-k} - Y_{ct-2k}) + \alpha_2(X_{ct} - X_{ct-k}) + (\gamma_t - \gamma_{t-k}) + (u_{ct} - u_{ct-k}). \quad (3)$$

The dynamic specification of the cross-country growth equation is estimated using the system GMM method developed by Arellano and Bover (1995) as this method is more appropriate in estimating equations with dependent variables which are highly persistent like output (Blundell and Bond, 1998). To solve the inconsistency problem arising from the endogeneity of the explanatory variables lagged values of the explanatory variables have been used as instruments. To use as instruments a variable must satisfy two conditions: it should be strictly exogenous in the sense that it should be uncorrelated with the error terms in the structural equation. Secondly, it should be highly correlated with the variables for which it is used as instruments. For practical purposes it is difficult to find out proper instruments that satisfy the two above-mentioned criteria. So the GMM method is used as the advantage of this method is that it uses the lagged values of the explanatory variables as instruments. The GMM estimator will be consistent if the lagged values of the dependent and the other explanatory variables are valid instruments.

The consistency of the GMM estimator is checked by considering some specification tests suggested by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1997). First, the Sargan test for the overall validity of the instruments used in the estimation process, where the null hypothesis is of no-correlation between the

instruments and the errors. Second, the Arellano-Bond AR(2) test of second order serial correlation, where the null hypothesis is the non-existence of second order serial correlation.

At the same time lagged variables as instruments make economic sense as well. The lagged values of the variable signify path dependence as the sequence of realization of the explanatory variables affects the values of Y_t (Page, 2006). Moreover, the equilibrium value of Y_t constantly varies as it depends on past explanatory variables and indicate equilibrium dependence. So using lagged values of the explanatory and dependent variable as instruments provides information about the lagged effects of all these variables, and hence capture both path and equilibrium dependence (Freeman, 2010).

Equation (3) is also estimated using the system GMM estimation method developed by Arellano and Bover (1995) as in Equation (1) described above.

2.1.3. Data Sources

The data on GDP (constant 2000 US$), exports (constant 2000 US$), gross capital formation (constant 2000 US$), public debt, infrastructure variables and manufacturing exports as percentage of merchandise exports are taken from World Bank's World Development Indicators (WDI CD Rom, 2007) from 1965 to 2005. However, data on many infrastructure variables were available from 1975 onwards. The measures of export diversification and composition, CCI and HTX, of the Asian and Latin American countries with respect to the world market has been calculated using World Bank data (World Integrated Trade Solution or WITS data) at the SITC-1 four digit classification level from 1975 to 2005. However, the dataset is an unbalanced panel as data for certain cross section units in the sample are missing in some years.

2.2. Estimation Results

The GMM dynamic panel estimation results for Asia and Latin America are reported in Tables 1-4. They reflect the effect of changes in various explanatory variables like lagged income, exports and investment on changes in income. As the estimation method takes first difference, these estimation results do not include the effect of any time-invariant omitted variable like the impacts of economic geography or institutional quality. In most of the cases two period lag of the dependent variable and all the predetermined variables have been used as instruments.[7] The instrumentation strategy

[7] The optimum lag length is determined using Akaike Information Criterion (AIC). Discussion on the use of this criterion is available in the text book by Greene (2006). Love and Chandra (2004) and Pradhan (2010) have used this criterion to investigate the export-led growth hypothesis for India, Pakistan and Sri Lanka in time series models.

corrects the problem of endogeneity of the explanatory variables. In all the specifications the regressions satisfy the Sargan specification test implying the validity of the instruments used in estimation and there is no evidence of second-order serial correlation as the AR(2) test gives p-values such that the errors are uncorrelated.

Table 1. Stage 1: Asia

Explanatory Variable	(1) 1965-2005	(2) 1970-2005
LGDP(-1)	0.87	0.97
	(0.00)***	(0.00)***
LEXP	0.04	0.015
	(0.00)***	(0.00)***
LGCF	0.05	
	(0.00)***	
Public Debt (% of GDP)		-0.0004
		(0.00)***
Sargan	0.9	0.59
AR(2)	0.97	0.82

Notes: 1. p values in parentheses. 2.* denotes significant at 10%, ** denotes significant at 5%, *** denotes significant at 1%; all estimations. 3. Sargan refers to the p-value of the Sargan test for the validity of instruments, where the null hypothesis is of no-correlation between the instruments and the errors. 4. AR(2) refers to the p-value of second order serial correlation test, where the null hypothesis is absence of second order serial correlation. 5. Estimation is done in econometric software Stata. 6. Dependent variable: LGDP =log of GDP (constant 2000 US $), Explanatory variables: LEXP=log of exports of goods and services (constant 2000 US$), LGCF=log of gross capital formation (constant 2000 US$).

Table 2. Stage 1: Latin America

Explanatory Variable	(1) 1965-2005	(2) 1970-2005
LGDP(-1)	0.76	0.92
	(0.00)***	(0.00)***
LGDP(-2)	0.04	0.02
	(0.00)***	(0.00)***
LEXP	0.042	0.036
	(0.00)***	(0.00)***
LGCF	0.1	
	(0.00)***	
Public Debt(% of GDP)		-0.0002
		(0.00)***
Sargan	0.1	0.13
AR(2)	0.89	0.92

Table 3. Stage 2: Asia (1975-2005)

Explanatory Variable	(1)	(2)	(3)	(4)	(5)
BxLGDP(-1)	0.83	0.73	0.99	0.98	0.99
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***
BxLGDP(-2)	0.3	0.33			
	(0.002)***	(0.03)**			
BxLGDP(-3)	0.09	0.55			
	(0.4)	(0.04)**			
ISI	0.001	0.002	0.002	0.001	0.002
	(0.001)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***
CCI	-0.0008	-0.0009	-7.90 E-04	-0.0016	-0.0007
	(0.05)*	(0.002)***	(0.4)	(0.008)**	(0.5)
CCI^2	6.25E-06	6.50 E-06	6.16E-05	1.30E-05	6.18E-05
	(0.15)	(0.002)***	(0.3)	(0.001)***	(0.4)
HTX	9.76E-06				
	(0.1)				
HTX* D_m		7.28E-06	5.02E-06	6.56E-06	4.96E-06
		(0.00)***	(0.00)***	(0.00)***	(0.00)***
D_{WTO}			-0.0002		-0.0003
			(0.00)***		(0.00)***
D_{AFTA}				-0.0002	8.64E-05
				(0.04)**	(0.4)
Sargan	0.74	0.29	0.8	0.7	0.74
AR(2)	0.11	0.55	0.4	0.4	0.5
CCI*	64	69	64	61.5	56.6

Notes: Dependent variable: log of GDP (constant 2000 US $) multiplied by the estimated coefficient of exports. Explanatory Variables: CCI =commodity concentration index, HTX=high-technology exports as percentage of manufacturing exports. CCI* denotes the critical level of CCI.

$$D_m = \begin{cases} 1 & \text{if growth rate of manufacturing exports is greater than the world average growth rate,} \\ 0 & \text{otherwise.} \end{cases}$$

$$D_{WTO} = \begin{cases} 1 & \text{after a country becomes WTO member,} \\ 0 & \text{otherwise.} \end{cases}$$

$$D_{AFTA} = \begin{cases} 1 & \text{if a country is a member of ASEAN after the formation of ASEAN,} \\ 0 & \text{otherwise.} \end{cases}$$

Table 4. Stage 2: Latin America (1975-2005)

Explanatory Variable	(1)	(2)	(3)	(4)	(5)
BxLGDP(-1)	0.75	0.95	0.94	0.92	0.89
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***
BxLGDP(-2)	0.55	0.21	0.26		0.34
	(0.003)***	(0.004)***	(0.04)**		(0.02)**

ISI	0.001	-0.004	0.001	-0.004	-0.005
	(0.8)	(0.4)	(0.4)	(0.15)	(0.1)
CCI	-1.32E-03	-2.70E-03	-1.61E-03	-2.60E-03	-0.001
	(0.00) ***	(0.00)***	(0.05)*	(0.00)***	(0.0008)***
CCI^2	2.16E-05	3.28E-0	2.40E-05	3.63E-05	1.45E-05
	(0.004)***	(0.00)***	(0.05)*	(0.0001)***	(0.006)***
HTX	-4.38E-06				
	(0.7)				
HTX* D_m		1.30E-05	3.50E-06	7.95E-06	9.03E-06
		(0.00)***	(0.06)*	(0.00)***	(0.00)***
D_{WTO}			0.0007		0.0004
			(0.00)***		(0.01)**
$D_{MERCOSUR}$				0.002	0.002
				(0.002)***	(0.002)***
Sargan	0.12	0.64	0.6	0.9	0.51
AR(2)	0.56	0.26	0.24	0.24	0.9
CCI*	30.6	41.2	33.5	36	34.5

Note:

$$D_{MERCOSUR} = \begin{cases} 1 & \text{if a country is a member of MERCOSUR after the formation of MERCOSUR,} \\ 0 & \text{otherwise.} \end{cases}$$

The estimation results show that equilibrium path dependency (as captured through lagged income) explains large part of the growth process for both Asia and Latin America. Thus, there is persistence of growth. Generally one period lag of the dependent variable has been used to capture the dynamics of growth. However, in some cases there seems to be a longer path dependency, that is, stronger persistence of growth (as in Column 1 and 2 of Tables 2 and 3).

Both exports and private investment have the predicted positive significant impact on growth in all the cases. Public debt is also significant with negative sign which is expected since higher public debt should lower GDP growth.

In the second stage the estimated coefficient of exports obtained from the estimation with public debt is multiplied with log of GDP in the second stage. The term, $Y^* \hat{\beta}_2$, can be interpreted as the trade induced effect on economic growth, after controlling for the effects of other explanatory variables. The GMM dynamic panel results of Equation (3) presented in Tables 3 and 4 show that the coefficients of the lagged dependent variable are high and significant in all the specifications for both Asia and Latin America. Infrastructure has expected positive significant impact on economic growth for Asia but no effect in Latin America. This is quite expected as Latin American countries like Brazil, Mexico, and Peru have under-invested in infrastructure in the 1970s and 1980s (Rioja, 1997). However, the impacts of export diversification and composition are no less important. The linear term of export concentration index has negative significant

impact on income whereas the squared term impacts on income positively in all the estimations. The negative sign of the coefficient of CCI implies that export concentration is detrimental to GDP growth. The significance of squared export concentration shows that the relationship between export diversification and income is non-linear which supports the findings of Hesse (2008) and Imbs and Wacziarg (2003). The non-linearity implies that export diversification leads to economic growth up to a certain level of export concentration. Beyond that critical level the trend is reversed so that export specialization is associated with GDP growth. For each of the estimation the critical levels of CCI (denoted as CCI*), at which the turnaround in GDP occurs, have been derived from the estimated equations.[8] These CCI* values are found to be higher for Asia than Latin America. Thus, relatively speaking, export diversification seems to be more important for growth in the Asian region. For Latin America, on the other hand, specialization matters. Note that this is consistent with the general observation that Asian exports are much more diversified than Latin American exports.

The impact of export composition, when captured through high-technology exports as percentage of manufacturing exports (denoted as HTX), is found to be insignificant. But export composition becomes significant when manufacturing exports grow at a faster rate than the world average growth rate as indicated by the significance of the coefficient of the interaction term HTX* D_m .

So far we have considered diversification of merchandise exports, that is, the measure of diversification, CCI, is calculated over merchandise exports which include both agricultural and manufacturing exports. The estimation results reveal that export diversification has significant impact in both the regions. Also export composition as measured by high technology exports and the interaction term was significant. Though the estimation results suggest that both diversification and composition of exports have significant impacts on Asia and Latin America, it is true that manufacturing exports may not be that important for Latin America. A simple comparison of the share of manufacturing exports as percentage of merchandise exports show that the Asian average is higher than the Latin American average for most of the years (Data source: WDI, 2007) during 1965-2005 even after not including Venezuela – the major oil exporting country of Latin America. To capture this aspect we have calculated the commodity concentration index for manufacturing exports (denoted as CCI-MFG) and have replaced CCI by CCI-MFG. The results reported in Tables 5-8 are interesting. When we consider diversification within the manufacturing sector only, CCI and CCI^2 calculated over the manufacturing export base are statistically significant for Asia but insignificant for Latin America in most of the specifications. Thus, though diversification and composition of exports in general have significant impacts in both Asia and Latin America, but diversification within the manufacturing sector is important

[8] Partially differentiating Equation (2), viz., $Y^* \hat{\beta}_{2ct} = \delta_0 + \delta_1 Y^* \hat{\beta}_{2ct-k} + \delta_2 CCI + \delta_3 CCI^2 + \delta_2 Z_{ct} + \eta_c + \gamma_t + u_{ct}$, with respect to CCI and equating that to zero yields the critical value of CCI as CCI*= $-\delta_2 / 2\delta_3$.

for Asia only.

In Tables 5 and 6 we have employed as measure of export composition the share of manufacturing exports as percentage of merchandise exports which is positively significant for both Asia and Latin America. In Tables 7 and 8, HTX and the interaction term HTX*$D_{M,}$ used as measures of export composition are significant in all the estimations.

Table 5. Asia (1975-2005)

Explanatory Variable	(1)	(2)	(3)	(4)
BxLGDP(-1)	0.94	0.96	0.98	0.80
	(0.00)***	(0.00)***	(0.00)***	(0.00)***
BxLGDP(-2)	0.35	0.36	0.32	0.22
	(0.00)***	(0.00)***	(0.00)***	(0.04)**
BxLGDP(-3)	0.07	0.15	0.24	
	(0.00)***	(0.00)***	(0.00)***	
ISI	0.001	0.0005	0.0006	0.001
	(0.00)***	(0.00)***	(0.00)***	(0.00)***
CCI-MFG	-1.26E-05	-0.0001	-5.04E-05	-1.06E-05
	(0.03)**	(0.00) ***	(0.00)***	(0.05)*
CCI^2-MFG	2.03E-07	1.71E-06	5.36E-07	5.97E-06
	(0.02)**	(0.00)***	(0.00)***	(0.02)**
MFGMERCH	4.69E-06	1.20E-05	1.21E-05	
	(0.00)***	(0.00)***	(0.00)***	
D_{WTO}		-0.0004		-7.77E-05
		(0.00)***		(0.00)***
D_{AFTA}			-0.0002	-0.0001
			(0.001)***	(0.002)***
Sargan test	0.6	0.56	0.8	0.57
AR (2)	0.2	0.9	0.2	0.9

Notes: 1. CCI-MFG denotes the commodity concentration index calculated over manufacturing exports. 2. MFGMERCH denotes manufacturing exports as percentage of merchandise exports.

Table 6. Latin America (1975-2005)

Explanatory Variable	(1)	(2)	(3)	(4)
BxLGDP(-1)	0.92	0.97	0.93	0.94
	(0.00)***	(0.00)***	(0.00)***	(0.00)***
BxLGDP(-2)	0.22	0.23	0.41	0.3
	(0.00)***	(0.00)***	(0.00)***	(0.00)***
BxLGDP(-3)			0.22	0.22
			(0.00)***	(0.03)**

ISI	0.0001	0.0014	0.002	0.003
	(0.1)	(0.5)	(0.3)	(0.2)
CCI-MFG	-5.38E-05	-9.12E-06	-1.72E-06	-1.39E-05
	(0.4)	(0.8)	(0.9)	(0.7)
CCI^2-MFG	1.48e-06	3.33E-07	2.44E-07	3.36E-07
	(0.03)**	(0.4)	(0.5)	(0.4)
MFGMERCH	6.54E-06	3.55E-05	2.79E-05	2.45E-05
	(0.02)**	(0.001)***	(0.006)***	(0.01)**
D_{WTO}		0.0005		0.0005
		(0.00)***		(0.00)***
$D_{MERCOSUR}$			0.002	0.001
			(0.002)***	(0.001)**
Sargan test	0.12	0.27	0.63	0.6
AR (2)	0.12	0.13	0.97	0.55

Table 7. Asia (1975-2005)

Explanatory Variable	(1)	(2)	(3)	(4)	(5)
BxLGDP(-1)	0.75	0.4	0.67	0.55	0.80
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***
BxLGDP(-2)	0.51	0.3	0.52	0.29	0.22
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.04)**
BxLGDP(-3)	0.19	0.2	0.4	0.34	0.15
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.08)*
ISI	0.001	0.006	0.001	0.0007	0.001
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***
CCI-MFG	-9.21E-06	-1.44E-05	-1.00E-06	-6.77E-06	-8.07E-05
	(0.2)	(0.00)***	(0.8)	(0.2)	(0.00)***
CCI^2-MFG	1.24E-07	2.18E-07	2.09E-08	5.77E-08	1.03E-06
	(0.2)	(0.00)***	(0.7)	(0.3)	(0.00)***
HTX	1.95E-06				
	(0.002)*				
HTX*D_m		1.19E-06	2.48E-06	4.04E-06	3.85E-06
		(0.007)**	(0.00)***	(0.00)***	(0.00)***
D_{WTO}			-0.0001		-8.11E-05
			(0.00)***		(0.00)***
D_{AFTA}				-0.0002	-0.002
				(0.00)***	(0.01)**
Sargan test	0.42	0.8	0.38	0.4	0.35
AR (2)	0.16	0.17	0.9	0.2	0.9

Note:

$$D_M = \begin{cases} 1 & \text{if a growth rate of manufacturing exports is greater than the world average growth rate,} \\ 0 & \text{otherwise.} \end{cases}$$

Table 8. Latin America (1975-2005)

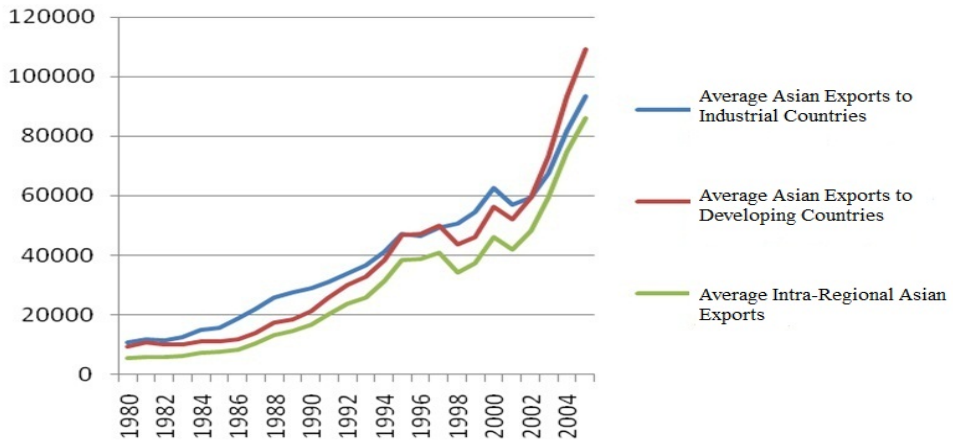
Explanatory Variable	(1)	(2)	(3)	(4)	(5)
BxLGDP(-1)	0.95	0.97	0.93	0.96	0.92
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***
BxLGDP(-2)	0.51	0.28	0.3	0.37	0.28
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.04)**
B_xLGDP(-3)	0.16	0.01	0.01		
	(0.00)***	(0.001)***	(0.06)*		
ISI	0.007	0.0008	0.0001	0.004	0.007
	(0.6)	(0.7)	(0.8)	(0.5)	(0.2)
CCI-MFG	-1.60E-05	-2.57E-06	-1.88E-05	-1.51E-05	-0.0001
	(0.6)	(0.9)	(0.3)	(0.7)	(0.05)*
CCI^2-MFG	1.54E-07	3.34E-07	3.76E-08	4.18E-07	1.34e-06
	(0.7)	(0.3)	(0.8)	(0.3)	(0.06)*
HTX	1.56E-05				
	(0.05)*				
HTX*D_m		1.80E-05	9.13E-06	6.51E-06	9.10E-06
		(0.004)***	(0.004)***	(0.07)*	(0.005)**
D_{WTO}			0.0005		0.006
			(0.00)***		(0.001)**
$D_{MERCOSUR}$				0.002	0.003
				(0.00)***	(0.01)**
Sargan test	0.77	0.72	0.72	0.78	0.67
AR (2)	0.8	0.13	0.17	0.12	0.16

However, another major divergence in the growth performances of Asia and Latin America are with regard to regional integration and accession to WTO. As far as regional integration is concerned the estimated coefficient of the MERCOSUR dummy is positively significant for Latin America, whereas in case of Asia the dummy for AFTA (the ASEAN Free Trade Area) is negatively significant. Thus, it seems from the estimation results that MERCOSUR had created trade for its member countries than it diverted trade. However, in case of ASEAN diversion of trade from non-member countries may perhaps have outweighed trade creation. For eight non-member countries in our set of twelve Asian countries, AFTA meant loss of exports, whereas for members AFTA just replaced one destination of exports by another.

It is also found that WTO membership has a very strong and significant effect on Latin American growth, whereas it is negatively significant for Asia. This result is quite interesting. The empirical studies have found mixed results on the impact of WTO formation on trade and growth. Rose (2004) did not find any evidence that the WTO has played a strong role in encouraging trade in a gravity model of bilateral merchandise trade for a panel data set of 175 countries covering the period 1950-1998. However,

Subramanian and Wei (2003) found robust evidence that the WTO formation has significant impact on trade though the impact is uneven. They pointed out three types of asymmetries: across members (between developed and developing countries); across time (between developing countries that joined WTO pre and post Uruguay Round); and between sectors (liberalized versus protected sectors like agriculture, textiles, and clothing where WTO is almost ineffective). The industrial countries experienced faster increase in imports compared to the developing country members. However, countries which joined WTO after the Uruguay Round negotiations, like China, had to complete the liberalization obligations earlier than the developing country members.

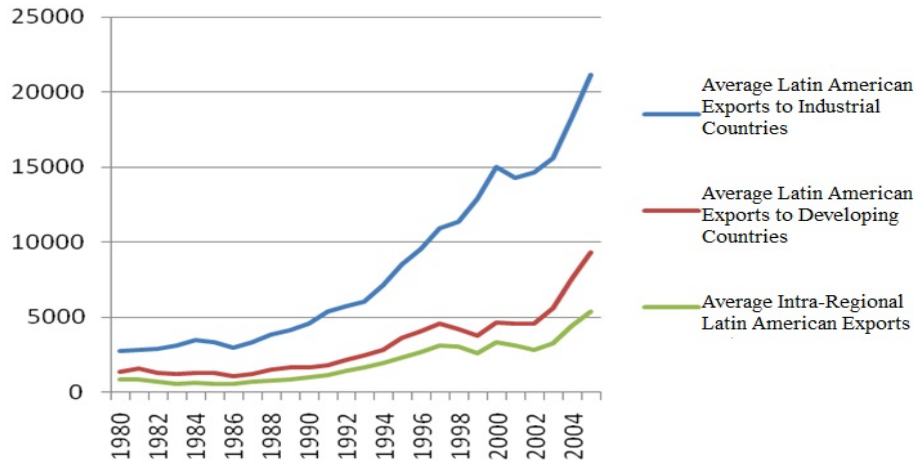
Thus, under WTO negotiations the developed country members had to pursue more drastic tariff liberalization. So imports of the industrialized countries increased at a faster rate than the developing countries. Consequently, the developing countries joining the WTO are expected to have significant increase in their exports through market access effects if the developed countries are their major export destinations. An analysis of the average Latin American and Asian exports during 1980-2005 reveals that average Asian exports to the industrialized countries and the developing countries moved in a similar fashion over the years with not much difference between the two till 2000. However, it is clear from Figure 1 that after 2000 Asian exports seem to have diverted away from the industrialized countries to the developing economies.



Source: Compiled from Direction of Trade Statistics, IMF (www.imf.org) (exports measured in US dollar millions)

Figure 1. Destinations of Asian Exports: 1980-2005

In contrast, the average Latin American exports to the industrial countries have always been much higher than Latin American exports to the developing nations as is evident in Figure 2. Thus, the gains from market access in the industrialized countries through WTO accession for Latin America may have been higher than that of Asia.

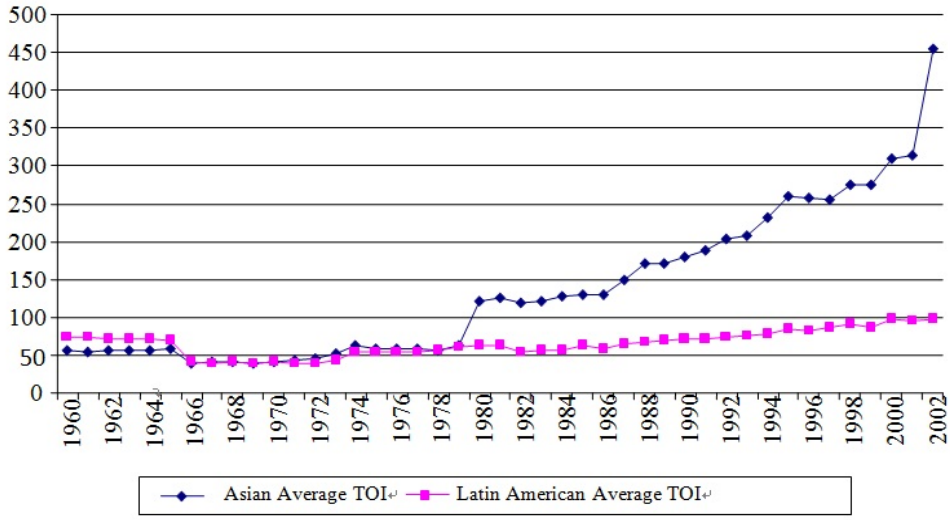


Source: Compiled from Direction of Trade Statistics, IMF (www.imf.org) (exports measured in US dollar millions)

Figure 2. Destinations of Latin American Exports: 1980-2005

Another plausible explanation may lie in the difference in the extent of trade openness of the two regions. The Trade Openness Index (TOI) in Figure 3 shows that Asia has been far more open than Latin America since the late 1970s. Most of the Asian countries also had unilaterally lowered their applied tariff rates to a larger extent as a result of which the average applied tariff rates have also been lower in Asia than in Latin America. Consequently, not much market access the Asian countries could bargain for bilaterally with the WTO members in reciprocation of access in their own markets. But their already lower tariff rates allowed other member countries to gain significant market shares in the Asian countries, thereby displacing local production, and hence retarding growth in this region.[9]

[9] The accession package is decided upon by the Working Party of the WTO along with terms and conditions of entry for a new country as a WTO member. The package includes and consolidates bilateral negotiations of the applicant country with interested Working Party members on concessions and commitments on market access for goods and services.



Source: Compiled from World Development Indicator, World Bank.

Figure 3. Trade Openness: Asia and Latin America

3. AN EXTENSION: PRODUCTIVITY CONSTRAINTS ON GROWTH

The export-GDP growth relationship may not work well if there are other constraints on economic growth. Apart from investment, public debt and infrastructure, another important constraint that may influence the export-growth relationship is the productivity constraint. This section, thus, extends the above analysis by examining the extent to which, if at all, productivity constraints may have influenced the differential growth experiences in Asia and Latin America. To investigate this issue two types of productivity constraints will be considered: the availability of skilled labour or human capital and the R&D constraint.

The importance of human capital, which has been proxied by years of schooling, is emphasized in the new growth theories from time to time. Intellectual Property Rights (IPR), on the other hand, arguably stimulates R&D, and hence growth. However, the impact of stronger patent laws on economic growth is a debatable one. The effect could be positive or negative. Theoretically, intellectual property protection can augment growth through productivity improvement by encouraging domestic innovation and technology diffusion. Helpman (1993) analyzed the effect of tightening of IPR policies in the South on the growth rate and welfare in both North and South. Stronger intellectual protection can attract greater inflows of high-technology goods, thereby enriching the stock of knowledge capital. Empirical studies, like studies by Coe and Helpman (1995), Blyde (2003) found evidences that technology diffusion has significant impact on the productivity of the importing countries. Also stronger IPR attracts foreign

direct investment which has important spillover effects on the domestic economy. On the other hand, Falvey *et al*. (2006) argued that strong IPRs may adversely affect the developing countries which undertake little or no R&D. This is because imitation can be a significant source of technological development in the developing countries with low level of innovative capabilities. Horii and Iwaisako (2007) concluded that IPRs lead to market imperfection by concentrating market power with the monopolist which limits output below socially desirable levels reducing consumer welfare. Empirically, cross-country studies like studies by Ginarte and Park (1997) and Thompson and Rushing (1999) revealed that the effect of tightening of IPRs on growth is positive and significant in the advanced countries whereas insignificant in the developing countries.

3.1. Methodology and Data Sources

The two-stage estimation method discussed in the benchmark model has been used in this section also. Only change is that two additional control variables, years of schooling and the IPR index are included in the first-stage of the estimation process. The data on years of schooling is taken from Barro and Lee (2000) on 5-year interval for 1965-2005. The Ginarte-Park Index (Ginarte and Park, 2005) has been used to measure patent protection for the period 1970-2005, again on a 5-year interval. The index is an indicator of the strength of patent protection. It is the unweighted sum of separate scores for the following five aspects: coverage (patentable inventions), membership in international treaties, duration of protection, enforcement mechanisms, and restrictions.

Since data on these two sets of control variables are available on 5-year interval basis, this extended model is estimated with data for all the variables averaged over five year periods from 1965-69, 1970-74,…, 1999-2004 which gives us a time dimension of eight periods.[10]

3.2. Estimation Results

The first stage estimation results using 5-year average data with additional control variables are reported in Tables 9 and 10, respectively, for Asia and Latin America. In all the estimations the Sargan tests for over-identifying restrictions give p-values which indicate that the instruments are valid. Also the p-values for AR (2) test which tests for no second-order serial autocorrelation in the error terms are satisfied. In cases where the AR (2) test is not satisfied with one period lag of the dependent variable, a longer lag length makes the errors uncorrelated in the second-order implying stronger persistence effect of the trade-induced growth. Lagged growth, exports, investment and public debt are found to be important determinants of growth as in the model with annual data.

[10] In the dynamic panel growth literature, variables are often averaged over 5-year time interval even when continuous time series data are available to eliminate the short-run business cycle effects which may distort the growth estimations.

Among the additional control variables human capital as measured by the log of years of schooling is significant in both Asia and Latin America. The Ginarte-Park index of patent protection to measure IPR is positively significant for Asia whereas negative and insignificant for Latin America. One reason for this asymmetric effect is low levels of patent protection in Latin America. As observed by Blyde (2006), while assessing the impacts of IPR on trade flows in Latin America, average Ginarte-Park index was the lowest for Latin America in 1985 and 1990 compared to other regions, though it improved in 1995 but was still weak.

Table 9. Stage 1: Asia (1975-2005)

Explanatory Variable	(1) 1965-2005	(2) 1970-2005
LGDP(-1)	0.67	0.56
	(0.00)***	(0.00)***
LEXP	0.11	0.156
	(0.001)***	(0.002)***
Public Debt (% of GDP)	-0.001	-0.003
	(0.07) *	(0.001)***
Log (Years of Schooling)	0.44	
	(0.002)***	
IPR (Ginarte Park Index)		0.05
		(0.01)**
Sargan test	0.98	0.67
AR (2)	0.42	0.76

Table 10. Stage 1: Latin America (1975-2005)

Explanatory Variable	(1) 1965-2005	(2) 1970-2005
LGDP(-1)	0.53	0.5
	(0.00)***	(0.00)***
LGDP(-2)		0.24
		(0.00)***
LEXP	0.1	0.083
	(0.04)**	(0.07)*
Public Debt (% of GDP)	-0.0006	-0.0007
	(0.001)***	(0.00)***
Log (Years of Schooling)	0.34	
	(0.07)*	
IPR (Ginarte Park Index)		-0.01
		(0.6)
Sargan test	0.85	0.99
AR (2)	0.56	0.45

In this extended model with average data, time dummies are also included though they are not reported in the tables. In the first stage estimation with years of schooling as additional control variable (column 1 of Tables 9 and 10) time dummies are insignificant which implies that there is no time effect. However, when the years of schooling variable is replaced by the Ginarte-Park Index of IPR, then some of the time variables become significant. Thus, it can be concluded that years of schooling can explain more variation in GDP compared to IPR. So for the purpose of second stage estimation the estimated coefficient of exports from the model with human capital (reported in column 1 of Tables 9 and 10) has been used.

The second stage results are more or less the same as in the estimation with annual data in the benchmark model. Here also infrastructure development has significant impact only in Asia. The impact of CCI is found to be negative and significant in all the specifications for both Asia and Latin America. The squared term of export concentration is significant which confirms non-linearity of export diversification and economic growth. The critical levels of export concentration are found to be higher for Asia than Latin America as in the estimations with annual data.[11] HTX, as the measure of export composition, is insignificant (column 1 of Tables 11 and 12). However, the interaction term HTX*D_M is significant which implies that export composition becomes important when manufacturing exports are growing at a faster rate than the world average growth rate. It is interesting to note that in the specification with HTX some of the time dummies (not reported due to space constraint) are significant whereas when HTX is replaced by the interaction term HTX*D_M the time dummies are no longer significant. Thus, the interaction term, rather than the HTX variable alone, is a better explanatory variable. In this extended model with average data, the impact of WTO is positive for Latin America and negative for Asia, similar to what we have found in the benchmark model with annual data. This establishes robustness of the results. The only difference in this extended model is that now the ASEAN dummy is though negative but insignificant for Asia whereas the MERCOSUR dummy is still positively significant for Latin America.

[11] The results with CCI and CCI^2 calculated over the manufacturing export base in this average data model are similar to that of the estimations with annual data, and hence are not reported in the paper. Manufacturing exports as percentage of merchandise export as the measure of export composition is also significant.

Table 11. Stage 2: Asia (1975-2005)

Explanatory Variable	(1)	(2)	(3)	(4)	(5)
BxLGDP(-1)	0.73	0.81	0.8	0.91	0.80
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***
BxLGDP(-2)					0.22
					(0.04)**
ISI	0.05	0.05	0.06	0.01	0.05
	(0.005)***	(0.07)*	(0.02)**	(0.05)*	(0.03)**
CCI	-0.0009	-0.0006	-0.0005	-0.006	-0.004
	(0.00)***	(0.00)***	(0.004)***	(0.00)***	(0.00)***
CCI^2	6.51E-06	5.44E-06	4.23 E-06	4.58E-05	3.23E-05
	(0.005)***	(0.00)***	(0.06)*	(0.001)***	(0.003)***
HTX	-0.0001				
	(0.2)				
HTX*D_m		8.28E-05	3.24E-05	2.59E-05	2.55 E-05
		(0.05)*	(0.08)*	(0.07)*	(0.05)*
D_{WTO}			-0.008		-0.009
			(0.04)**		(0.03)**
D_{AFTA}				-0.0007	-0.0025
				(0.5)	(0.5)
Sargan test	0.89	0.31	0.35	0.28	0.31
AR (2)	0.43	0.45	0.46	0.35	0.11
CCI*	69	55	59	65.5	62

Table 12. Stage 2: Latin America (1975-2005)

Explanatory Variable	(1)	(2)	(3)	(4)	(5)
BxLGDP(-1)	0.81	0.78	0.7	0.7	0.7
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***
ISI	0.01	0.01	-0.02	0.01	0.02
	(0.5)	(0.4)	(0.2)	(0.4)	(0.4)
CCI	-0.0016	-0.004	-0.0025	-0.003	-0.0009
	(0.001)***	(0.00)***	(0.003)***	(0.00)***	(0.01)**
CCI^2	2.69E-05	6.70 E-05	0.00003	0.00004	1.50 E-05
	(0.004)***	(0.002)***	(0.005)***	(0.00)***	(0.01)**
HTX	-0.0001				
	(0.7)				
HTX*D_m		2.07E-05	5.84E-05	0.0001	0.0001
		(0.01)**	(0.06)*	(0.01)**	(0.005)***
D_{WTO}			0.015		0.02
			(0.00)***		(0.00)***
$D_{MERCOSUR}$				0.005	0.01
				(0.05)*	(0.03)**

Sargan test	0.72	0.239	0.16	0.48	0.61
AR (2)	0.84	0.60	0.81	0.90	0.62
CCI*	30	30	42	37.5	30

4. CONCLUSION

The present paper examines the differences in the growth performances of Asia and Latin America, in particular, the roles of trade and institutions in explaining the differences in growth experiences. The GMM dynamic panel estimation results for the period 1975-2005 for Asia and Latin America reveal that there are some common determinants of economic growth like exports, investment, public debt and human capital. Trade policy instruments like the emerging pattern and the composition of export baskets in the two regions are quite similar. Both diversification and composition of exports in general are found to have significant impacts on economic growth in the two regions. However, it is also found that growth of high-technology exports itself does not explain output growth; its impact gets stronger when manufacturing exports grow faster than the world average. Moreover, the relationship between export diversification and economic growth is non-linear in both the regions. It is also found that manufacturing exports as percentage of merchandise exports are significant for Asia and Latin America. The paper also identifies the aspects which are not uniform in the two continents. Diversification within the manufacturing sector is significant only in Asia. This means for Latin America, while the composition of export basket as measured by manufacturing exports relative to agricultural exports is important, the diversity in manufacturing exports does not matter.

Among other determinants of economic growth, infrastructure development and institutional aspects like patent protection are significant only in Asia. On the other hand, trading institutions like regional integration and WTO membership have asymmetric effects on Asia and Latin America. The gains from greater market access after WTO formation have been higher for Latin America than Asia. Thus, the present paper identifies the major determinants of economic growth in the two regions which have important implications for policy formulation.

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Mailing Address: Rajat Acharyya, Department of Economics, Jadavpur University, Kolkata, 700 032, India. E-mail: rajat.acharyya@gmail.com.

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