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**THE EMERGENCE OF “INTRA-MEDIATE TRADE”:
IMPLICATIONS FOR THE ASIA-PACIFIC REGION**

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Outline

I. Introduction

II. Literature Survey

II-1 Trade and growth

II-2 Trade and wage inequality

III New Aspects of International Trade in the Asia-Pacific Region

III-1 Conventional measures of the degree of trade openness

III-2 The emergence of “intra-mediate trade”

IV Do New Aspects of International Trade Deliver a Promising Result?

IV-1 Trade and productivity growth

IV-2 Mechanism by which trade impacts growth

IV-3 Trade and wage inequality

V Implications of Globalization for Least Developed Part of Asia

V-1 Analysis of the trade patterns of Cambodia, Laos and Viet Nam

V-2 Trade openness alone is not enough

VI Conclusion

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I INTRODUCTION

We have seen a dramatic integration of the global economy through trade since the last few decades. What seems to be distinctive is not the sheer volume of trade but novel features of modern international trade: the vertical disintegration of the industry and the concomitant increase in intra-industry trade largely consisting of trade in intermediate inputs (Feenstra 1998: 31, and Krugman 1995: 333).

Companies are now finding it profitable to produce a good in a number of stages in a number of locations, adding a little bit of value at each stage.¹ They are also outsourcing increasing amounts of the production process, a process which may occur either domestically or abroad. The combination of both vertically-disintegrated mode of production and the increasingly global outsourcing activities of firms is considered to be one of the important factors for the recent expansion of the world trade.

This paper empirically examines both the extent and the consequence of the emergence of this new type of international trade in the Asia-Pacific region for several reasons. First of all, the novel features of modern international trade is considered to become even more important in the future. Unlike in the past when inventions and innovations were considered breakthroughs, today they are a regular occurrence (Asian Development Bank 2003: 208). This means that the transformation process of each economy is continuous and the production process of goods and services, especially, manufactured goods will become increasingly more complex, which will make a substantial impact on the mode of production and international trade.

Second, recent empirical studies tended to focus too much on the relationship between trade and growth at the macro level, as discussed in Section II. We may need to investigate the empirical relationship between trade and growth at the more disaggregated level, although it is very hard to work out at what level of disaggregation such exercise can best proceed (Commander 2004: 525).

Third, the relationship between globalization, inequality, and poverty has received considerable attention in recent years. Of principal interest is its impact on wage inequality. It is interesting to empirically observe the relationship between outsourcing and wage inequality in the Asia-Pacific region.

The remainder of this article is structured as follows. This paper, first of all, overviews both theoretical and empirical studies investigating the relationship between trade, growth and inequality (section 2). Section 3 observes the extent to which novel features of international trade have emerged in the Asia-Pacific region since the

¹ Krugman (1995) calls it *to slice up the value chain*.

beginning of the 1990s in particular. Section 4 empirically analyzes the relationship between trade, growth and inequality. Simple regression techniques are utilized. Finally, the paper considers the implications of globalization for the least developed part of the Asia-Pacific region such as Cambodia, Laos and Viet Nam. As the new wave of globalization arrived, the distinction between the winners and the losers has become clear even among developing countries. Some have begun to break into the world markets. But, to many in the developing world, globalization has not brought the promised economic benefits. It is important to observe which force is stronger in the Asia Pacific region.

II. LITERATURE SURVEY

II-1 Trade and growth

(a) Theories

Economists at least seem to agree that the removal of barriers to free trade and the closer integration of national economies *can be* a force for good and that it has the potential to enrich everyone in the world for several reasons. First of all, economists believe that countries can specialize and do better. The significant gains from specialization through trade has been considered to be a potential source of growth for a long time.

Second, from Adam Smith on economists have suggested that the size of the market matters for growth. There are scale economies in production that can be exploited when trade expands markets. This seems to be particularly relevant for small-sized and poor economies (Bhagwati 2004: 61).

A larger market matters for growth for other reasons as well. A larger market may intensify competition and this can spur innovation and growth. It may also give access to more ideas, allows for investment in large fixed-cost investments and enables further division of labor (World Bank 2002: 36). The importance of the ability of importing ideas from richer countries is usefully emphasized by Paul Romer (1993) (see also Rodrik 1999:25). One advantage of backwardness is that ideas can be imported from abroad.

A larger market may enhance growth through widening choice. This will matter more for firms than for consumers in developing countries since the larger size of market gives a wider access to better-quality machine and a much greater variety of specialized intermediate inputs (World Bank 2002: 36). Since the work of Krugman (1979), product variety has played a central role in models of trade and growth.

More recent theories of endogenous growth, going beyond models of static

comparative advantage, substantially deepened our knowledge of the channels through which trade can affect growth. The new models demonstrate how benefits of scale economies, and imports of high-quality inputs and technology mentioned above can generate cumulative growth impact over the long term (Rodrik 1999: 25). Rodrik (1999) emphasizes, however, that according to the new growth theories openness may also increase the risk of specialization in technologically less dynamic sectors in which developing countries may have an initial comparative advantage.² Both cases can occur in existence of multiple equilibria.

The immiserizing growth is a classic example of the case against free trade for small open economies. The development of new growth theories has made it even harder to derive an ambiguous relationship between trade and growth. Although the review of both traditional and modern trade theories implies the existence of huge potential of benefits through trade, the relationship between two is far from clear. We need to further investigate the mechanism in which trade enhances growth, and to understand under what conditions the risk of specialization in undesirable activities becomes large.

(b) Empirical evidence

The last two decades observed a large amount of cross-country regression evidence on openness and growth. Some of the representatives are Dollar (1992), Sachs and Warner (1995), Edwards (1998), Rodriguez and Rodrik (1999), Frankel and Romer (1999), Dollar and Kraay (2001). World Bank (2002), Baldwin (2004) and Hallak and Levinsohn (2004) review some or all of the previous empirical studies.

These three reviewers seem to agree that it is difficult to find a rigorous relationship between trade and growth at least at the macro level. They also agree that the growth process is far more complex than we generally think. Trade is, therefore, not sufficient for growth.

This suggests the importance of future research in two directions. One is to investigate the relationship between trade and growth at a little more disaggregated level, although it is hard to find out the best level of disaggregation. The other is to pay more attention to the mechanism by which trade impacts growth and test it empirically.

II-2 Trade and wage inequality

² See, also, Grossman and Helpman (1992), Chapter 9, and Feenstra (1990).

The relationship between trade and the distribution of income also remains a hotly debated issue. This is partly because the link is very complex and influenced by many other factors (Milanovic and Squire 2005:3). The degree of the complexity may be even bigger than in the case of the link between trade and growth.

The standard theoretical framework such as the two-factor, two-country Heckscher-Ohlin (HO) model leads to an unambiguous prediction between free trade and wage inequality. In this model, freer trade will increase the relative price of the abundant factor which is usually considered to be unskilled labor in the case of developing countries. This in turn is expected to lead to the reduction in inter-occupational wage inequality in developing countries.

This type of model does not, however, seem to reflect the complexity of today's globalization. The H-O model presumes the expansion of inter-industry trade as countries resort to freer trade. Feenstra and Hanson (1996) focus on a different form of globalization: trade through outsourcing. In their model, the wage gap between skilled and unskilled workers enlarges both in developed and developing countries. The reason is that outsourcing is expected to reduce the relative demand for unskilled labor both in developed and developing economies: the outsourced activities are unskilled labor-intensive relative to those done in the developed countries, but skilled labor-intensive relative to those done in the less developed economy. Other models also predict the rising wage inequality between skilled and unskilled labors both in developed and developing countries.³

Whenever theory leads to different predictions, empirical evidence is required to help choose among alternatives. The available empirical literature, however, does not lead to robust conclusions between trade and wage inequality, either. The combination of a complex phenomenon and data inadequacies seems to make it difficult for empirical studies to come up with the robust relationship (Milanovic and Squire 2005: 3).

III NEW ASPECTS OF INTERNATIONAL TRADE IN THE ASIA-PACIFIC REGION

III-1 Conventional measures of the degree of trade openness

The merchandise trade as a share of merchandise value-added (trade in goods to goods GDP ratios) in addition to trade-GDP ratios are often used as a measure of

³ See Feenstra (1998) for a good review of theoretical models predicting the skilled- and unskilled wage gap both in developed and developing countries.

openness.⁴ The reason is that the fact that GDP figures include not only goods but also services sectors hides the increasing integration of trade through outsourcing in the manufacturing sector. The degree of openness of the services sector is still by far less than that of the manufacturing sector.

Table 1 shows both ratios of the Asia-Pacific countries. First of all, both ratios indicate that the degree of economic integration increased substantially in the 1990s in the Asia-Pacific region except Chile and Pakistan. Chile seems to have had become very open by 1990, but there was no change in the 1990s.

Second, the degree of economic integration is much greater in the goods than in the services sectors. The best examples are Japan and the U.S. Trade-GDP ratios of both countries were not only small in 1990 in the absolute term, but also did not show much increase over the 1990-2000 period. This is especially the case with Japan. Trade-GDP ratio was very small (19.8 percent) in 1990. Besides, the ratio increased only up to 20.1 percent in 2000 (Table 1). Merchandise trade as percentage of goods GDP shows a different story. The merchandise trade ratio went up from 44.1 up to 60.3 percent in Japan, and from 44.8 to 70.4 percent in the U.S over the same period.

Third, the degree of economic integration substantially differs among sub regions in the Asia-Pacific. For instance, countries in Southeast Asia are not only highly integrated but also the degree of integration increased substantially in the goods sector in the 1990s. This is even applied to such a big country as Indonesia in which the merchandise trade to goods GDP ratio exceeded over 100 percent in 2000. The speed and the degree of economic integration seem to be still much low, on the other hand, in Latin America and in South Asia except Sri Lanka,

III-2 The emergence of “intra-mediate trade”

Many countries in the Asia-Pacific region are distinctive not only because the degree of economic integration in the goods sector substantially increased but also the new mode of international trade emerged over the last decade. Although there is no single perfect measure to indicate the degree of vertical disintegration of production process and integration through trade, the shares of both exports and imports by end-use categories could be one measure (Feenstra 1998). There the values of both export and import are broken down into five categories⁵: (1) food, feeds and beverages,

⁴ See Feenstra (1998). The difference between Feenstra and this paper is, though, that this paper includes both goods and services trade in trade-GDP ratios while Feenstra includes only merchandise trade in trade-GDP ratios.

⁵ The classification of trade by end-user categories is utilized widely, for instance, by

(2) industrial supplies and materials, (3) capital goods, (4) consumer goods (except auto), and (5) automotive vehicles and parts.⁶ The capital goods are used by firms for not only investment (such as machinery) but also as intermediate inputs.⁷ Outsourcing takes on greatest value when the products being imported or exported are neither basic raw materials, nor finished consumer goods, but are at an intermediate stage of processing. In this case, “it is very plausible that stages of the production process (or value chain) shift across borders as new trade opportunities emerge” (Feenstra 1998: 38).

Table 2 shows the shares of products at an intermediate stage of processing (category 3) both in exports and imports by country. According to the table, almost all of the countries in Northeast and Southeast Asia started to demonstrate some new pattern of trade in the 1990s, that is, intra-industry trade largely consisting of goods in intermediate inputs, or what is sometimes called “intra-mediate trades.”

The higher degree of openness observed in Table 1 does not take a form of vertical specialization in the case of Australia and New Zealand, though. Table 3 shows shares of exports and imports by end-use categories for these two economies. It reveals that the inter-industry specialization continues to be an important part of trade of Australia and New Zealand. The bulk of export consists of primary commodities or industrial supplies, and on the import side the most expansion is observed in the category of final consumer goods and the automotive sectors. This indicates that the distance is still a very important determinant of the pattern of international trade.

IV DO NEW ASPECTS OF INTERNATIONAL TRADE DELIVER A PROMISING RESULT?

IV-1 Trade and productivity growth

The review of literature summarized in section II implies that the vertical disintegration of production and integration of trade will lead to higher productivity growth in the manufacturing sector for several reasons. First, it is expected to enhance the vertical specialization and generate gains through specialization. Second, the new pattern of trade will widen the variety of intermediate inputs in which the most

U.S. Bureau of Economic Analysis, *Survey of Current Business*, various issues.

⁶ In this paper, category (1) corresponds to SITCR2 0- 1; category (2) to SITCR2 2-6 except 696-697 ; category (3) to SITCR2 7, except 775 and 76; category (4) to SITCR2 8, 696-697, 775, and 76; and category (5) to SITCR2 78.

⁷ For example, all electrical parts and components are included within capital goods of category (3).

modern technology is embodied. Firms can enhance productivity growth through the wider access to good-quality capital and intermediate goods. Third, the new pattern of trade will enable firms to enter global production networks at their own level of capability and climb the technology ladder along global value chains. Or if globalization results in the outsourcing of activities, skill upgrading would be the direct consequence of trade. In other words, trade and technological change could be observationally equivalent (Feenstra 1998: 6).

Figure 1 shows a simple relationship between changes in the magnitude of new form of economic integration and industrial productivity growth in the Asia-Pacific region. The change in the degree of new form of economic integration is defined here as follows:

$$\text{INTEG}_{(1990-2000)} = (d(\text{export share of intermediate inputs}) + d(\text{import share of intermediate inputs})) / 2.$$

In other words, the variable of INTEG is defined here as the simple average of changes in shares of export and import of intermediate inputs included in category (3).

Figure 1 indicates that except the case of the Philippines there is a positive and statistically significant relationship between the degree of vertical specialization and productivity growth in the manufacturing sector in the Asia-Pacific region. For a comparative purpose, the author observes a simple relationship between the conventional degree of openness (increases in trade in goods to goods GDP ratios) and industrial productivity growth between 1990 and 2000. Figure 2 shows the result. It demonstrates that there is no statistically significant relationship whatsoever between the sheer openness of trade and industrial productivity growth.

These two simple exercises imply that although the rigorous relationship between the degree of intra-mediate trade and the productivity growth remains to be derived, the pattern of trade has a higher predictability of productivity growth than a simple measure of trade openness in the goods sector.

IV-2 Mechanism by which trade impacts growth

The recent models of the endogenous growth theory demonstrate how the benefits of scale that economies reap through participation in world markets and imports of technology can cumulate into faster growth over the long-term (Rodrik 1999: 24). The direct empirical testing of the mechanism described in the new models will not be possible, however, unless the testing is conducted at the individual- firm level. What this paper examines instead is whether intra-mediate trade or intra-industry trade in capital goods and intermediate inputs will contribute to reinforcing economic

fundamentals of Asia-Pacific countries.

Rodrik (1999) argues that in the long run, investment is key to economic performance, and the openness of trade has a significant positive impact on long-term growth performance only when economic integration enhances investment activities especially in developing countries. The participation in the global value chain will lead to the higher level of investment activities for several reasons. First, to enter and to climb the technology ladder countries need to continue to import new technology or invest themselves in innovation activities. The former will lead to the higher importation of new capital goods and intermediate inputs, while the latter is expected to lead to increases in R&D activities. New capital goods and intermediate goods are often a good source of new technology. Second, to continue to climb the quality ladder also requires the upgrading of skill-levels of labors. That will enhance investment in human capital.

Figures 3, 4 and 5 show impacts of the increase in the degree of trade integration on investment activities respectively. First of all, the higher degree of integration in the form of intra-mediate trade does not make any impact on investment in physical assets whatsoever (Figure 3). There is no statistically significant relationship between two at all.

The higher degree of intra-mediate trade, however, seems to be more compatible with the increases in investment in human capital and innovation activities. Figure 4 shows the relationship between the changes in the degree of vertical specialization and enrollment ratios in tertiary education. According to the figure, there is an upward sloping relationship between two variables except the case of the Philippines, although the relationship is statistically weak.

The more statistically significant relationship is found between the changes in the degree of trade integration and R&D activities measured in R&D-GDP ratios (Figure 5). There is a clear and statistically significant relationship between the degree of trade integration and innovation activities as seen in an upward sloping of Figure 5.

Although it is very difficult to find out exact mechanism by which trade impacts growth, the above simple exercises tend to indicate that if globalization results in outsourcing activities, trade, skill upgrading and technological changes could be observationally equivalent.

IV-3 Trade and wage inequality

Trade theories do not lead to an unambiguous relationship between trade and

wage inequality as reviewed in section II. The more recent model incorporating the breakdown of the production process and outsourcing activities, however, predict the rising inter-occupational wage equality both in developed and developing countries. What has happened, then, on the inter-occupational wage gap in the Asia-Pacific region in the 1990s when vertical specialization at the intermediate processing stage progressed?

Data inadequacies, especially those of wage data, make empirical work both hazardous and partial in many cases. The author utilizes inter-occupational wage data of workers in the manufacturing sector in Asia employed either by Japanese companies or Japanese affiliates overseas. The Japan External Trade Organization (JETRO) has published the range of wages for three types of workers in Asia by country since 1995: production workers, engineers, and managerial class workers.⁸ JETRO collects wage data by interviewing Japanese companies directly. Since Japanese companies have been one of the main drivers of intra-mediate trade in East Asia, the analysis of those wage data could be useful in illustrating impacts of trade on wage gaps.

Table 4 shows the results. First of all, countries in Northeast, Southeast and South Asia are divided into three groups. Group 1 includes countries in which the wage gaps between unskilled workers such as production workers and skilled workers such as engineers and managerial-class workers have increased unambiguously since the mid-1990s. Group 2 includes those in which the inter-occupational gaps have narrowed almost unambiguously since the mid-1990s. Group 3 includes countries in which the trend of the wage inequality is ambiguous. Moreover, each group divides countries further into two: globalizers and non-globalizers. The definition of globalization in this table is whether a country demonstrated the new pattern of international trade in the 1990s, as seen in Table 2.

What we can observe from Table 4 is, first of all, there does not seem to a rigorous relationship between trade and wage inequality. Whether your country is a globalizer or not, some showed an increase in wage gaps while others showed the opposite trend. This implies that the link between trade and wage inequality is far more complex than theoretical models predict. What is interesting is, however, that the *level* of inter-occupational wage gaps between 2000 and 2002 is far greater in non-globalizers such as India, Pakistan and Indonesia than globalizers except Sri Lanka. Besides, although some are nowadays concerned considerably with the increasing income inequality as a result of globalization in such country as China, Table 4 shows that the

⁸ *JETRO Sensors*, various years.

magnitude of inter-occupational wage inequality of China is far smaller than many other developing countries such as those in Southeast Asia.

Although it is too dangerous to conclude just from the above simple exercise, it seems that there is no reason that we should worry too much about impacts of trade on wage inequality.

V IMPLICATIONS OF GLOBALIZATION FOR LEAST DEVELOPED PART OF ASIA

The last part of this paper considers implications of globalization for new ASEAN members such as Vietnam, Cambodia and Laos for several reasons. First of all, they are the least developed areas in the Asia Pacific and their development is one of the most pressing issues in the region. Second, since the 1990s they have begun to opt for their integration into the world economy through joining ASEAN as well as through their unilateral trade and investment liberalization. Besides, all three applied for the membership of WTO, to which Cambodia was accepted as its member last year.

New economic geography also suggests that many of the least developed countries may become increasingly marginalized from the dynamics of international production in the era of globalization (Henderson, Shalzi and Venables 2001). The removal of restrictions to trade and investment alone may not bring long-term growth nor alleviate poverty. It is, therefore, interesting to analyze whether openness has created a growth momentum and a convergence force between these three countries and the rest of the Asia Pacific region, and if so, how fast they are converging.

V-1 Analysis of the trade patterns of Cambodia, Laos and Viet Nam

According to table 2 shown in section III, both Cambodia and Viet Nam have increasingly integrated into the world economy since the beginning of the 1990s. Trade in goods to goods GDP ratios increased from 65 to 156 percent for Cambodia, and from 88 to 149 percent for Viet Nam between 1990 and 2000. The degree of openness is significantly higher than that of countries in South Asia. Has trade openness created a growth momentum for new ASEAN members?

Discussion in section IV concludes that there is no empirical evidence to show that trade openness measured by merchandise trade-GDP ratios alone leads to high rates of productivity growth. Changes in the pattern of trade seem to have a more significant impact on growth at least in the goods sector than just the measures of trade openness. Since none of new ASEAN members report trade data to the U.N. well at the disaggregated level, the author estimated shares of export and import by end-user

categories using those of their trading partners. Table 5 shows the comparison.

Cambodia, Laos and Viet Nam have one commonality in their trade structure. That is, all of them became successful in shifting away from an exporter of primary commodities only to an exporter of manufactured goods, especially, consumer goods in the 1990s (see Table 5). Besides, the export expansion of consumer goods concentrates in textile and apparel industries, though it is not shown in Table 5.⁹ This shift makes an economic sense since they are considered to possess a comparative advantage in the labor-intensive sectors.

The change in trade structure, especially, export structure seems to be too drastic, though, in Cambodia and Laos. While Viet Nam was successful in diversifying export commodities, other two countries seem to have changed their focus just from one commodity to the other. They may end up creating another enclave.

Table 5 also indicates that there is one more big difference between Viet Nam, and Cambodia and Laos. While Viet Nam started to reveal the new mode of international trade we observed in East and Southeast Asia in the 1990s, others did not. Shares of capital and intermediate inputs both in export and import started to increase especially after the mid-1990s in Viet Nam: from 1.2 to 5.9 percent on the export side and from 20.5 to 27.0 percent on the import side between 1995 and 2002. This implies that only Viet Nam started to participate in global value chains (GVCs), although the magnitude of its participation is still low compared with other original ASEAN countries (see also Table 2). Viet Nam could gain substantially through its entry into the GVCs for the reasons mentioned in Section IV, and catch up with the more advanced nations in the Asia-Pacific region.

Neither Cambodia nor Laos, on the other hand, have showed new aspects of international trade yet. In Cambodia, as import's share of industrial supplies and materials increased, so did export's share of consumer goods in Cambodia. This indicates that Cambodia still imports a bulk of raw or low-processed industrial materials and export consumer goods after the certain stage of simple production process. Trade openness alone does not seem to be generating a dynamic long-term growth process, yet.

Trade openness does not seem to promise much especially in the case of Laos. Table 5 shows while export's share of consumer goods increased dramatically, the expansion of imports concentrated on food, consumer goods and automobiles, but not on industrial supplies nor capital and intermediate inputs. This implies that export

⁹ This is according to UN COMTRADE Data of the trading partners of new ASEAN members.

revenues do not seem to be spent on the purchases of goods and services for the productive purpose. Not only Laos failed to reveal a new pattern of trade, but also failed to generate the import structure compatible with long-term growth and development.

V-2 Trade openness alone is not enough

Table 6 confirms the above analysis. Table 6 shows the growth performance and some important economic fundamentals such as physical investment ratios and human capital development of Cambodia, Laos and Viet Nam in comparison with the original ASEAN members. According to the table, Viet Nam has grown faster than any other ASEAN countries since the early 1990s, and its fundamentals are strong. This indicates that the potential benefits of globalization are being realized in Viet Nam. The entry to the intra-industry trade at an intermediate processing stage may enhance its growth performance further through skill-upgrading and technological progress.

Trade openness per se may not, however, generate much promising results for Cambodia and Laos. Despite the increasing degree of openness and the change in export structure, they are not growing faster than other ASEAN members in the first place. They are catching up with Indonesia and the Philippines, but not because Cambodia and Laos are doing fine, but because Indonesia and the Philippines has been growing slowly especially since the Asian crisis. Cambodia and Laos are not catching up with relatively better performing ASEAN economies such as Malaysia, Thailand and Singapore. One serious problem of Cambodia and Laos is that investment in human capital is extremely poor (Table 6). The secondary school enrollment ratio of Cambodia even dropped between 1995 and 2000. This means that the swift shift to a new form of globalization may be difficult. The reason is simple: even labor-intensive activities often need to be combined with new technologies and advanced skills (UNCTAD 2001: xvii) in the recent years, especially in the machinery sector. Unless they put a large effort in developing human resources, both Cambodia and Laos may end up staying at technologically non-dynamic activities.

VI CONCLUSION

The review of previous literature suggests that the link between trade, growth and income inequality is complex and far from conclusive both theoretically and empirically. The paper has examined impacts of trade on growth and wage inequality by focusing on a new form of globalization such as “intra-mediate trade” for several reasons. First,

this new mode of economic integration has become important and will be increasingly so in the future in the Asia-Pacific region. It is useful to consider the economic consequence of its emergence. Second, past empirical studies, especially cross-country regression analyses, focused too much on the link between trade and growth at the macro level. It may hide the dynamic growth force that is being created in the Asia-Pacific region.

The paper found, first of all, that the increase in the degree of vertical specialization at an intermediate processing stage has a tendency of bringing in higher productivity growth. It is not just trade openness but a type of economic integration that seems to account more for high growth rates of industrial productivity. Although the mechanism by which the new mode of economic integration cumulates into long-term growth is still unknown, this paper suggests that it may do so through inducing skill upgrading and technological progress. Trade and technological change could be observationally equivalent. Future research is recommended to find out the exact mechanism using much more disaggregated level data such as industry-level or firm-level data.

Second, the link between a new form of international trade and wage gap is far more complex than that of trade and growth. It is quite difficult to draw a robust relationship between two. What it seems to suggest that we do not have to worry too much about impacts of trade on the wage gap. Many others could be much more important factors for the widening wage gap among different occupations.

Third, the case of new ASEAN members such as Cambodia, Laos, and Viet Nam illustrates well that trade openness alone does not ignite a cumulative long-term growth process. Despite their opening up to the world economy, Cambodia and Laos, especially, the latter failed to catch up with original ASEAN members. They could be stuck at technologically non-dynamic sectors. It is only Viet Nam that shows some promising results. First, Viet Nam began to enter the global value chain. Second, the new form of economic integration is accompanied by strong fundamentals such as the high level of investment activities in Viet Nam.

What this paper suggests is that whether trade impacts growth or not highly depends on how each country integrates into the global economy. Trade openness alone does not seem to promise any cumulative long-term growth process. The new mode of international trade that have emerged in many parts of the Asia-Pacific region since the last couple of decades ago seems to bring about somewhat more promising results by enhancing technological change and productivity growth without endangering income inequality too much.

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Table 1 Ratios of Trade to GDP (Percent)
Trade-GDP Ratios

	Trade-GDP Ratios		Trade in Goods - Goods GDP ¹ Ratios	
	1990	2000	1990	2000
Australia	33.5	45.7	68.7	98.0
New Zealand	53.8	70.8	121.0	132.6
Japan	19.8	20.1	44.1	60.3
Korea	57.4	78.5	102.7	152.9
China	31.9	49.1	47.4	65.9
Hong Kong, China	255.9	287.4	772.3	1380.8
Taiwan	88.5	106.6	164.4	263.9
Singapore	NA	NA	750.1 ²	889.6
Indonesia	49.1	76.4	68.1	100.5
Malaysia	147.0	229.3	232.3	365.0
Philippines	60.8	108.9	84.7	201.8
Thailand	75.8	124.9	132.2	210.1
Cambodia	18.9	113.9	64.9	155.7
Vietnam	81.3	112.5	88.1	149.3
United States	20.6	26.3	44.8	70.4
Canada	52.0	86.8	115.1	187.3
Mexico	38.3	63.9	78.9	159.7
Bangladesh	19.7	33.2	33.3	59.5
India	15.7	28.5	24.3	48.0
Pakistan	38.9	34.3	68.9	55.4
Sri Lanka	67.2	88.6	117.3	186.3
Chile	66.0	58.5	100.5	98.1
Peru	29.6	34.1	NA	NA

Source: World Bank, *WDI Indicators Online* (except Taiwan).

Data of Taiwan were obtained from Asian Development Bank, *Key Indicators*, downloaded from WWW.ADB.ORG.

Notes: 1 Goods GDP combines agriculture, mining, and manufacturing, construction and public utilities.

2 1995 figure.

Table 2 Shares of Capital Goods and Intermediate Inputs
both in Exports and Imports (Percent)

	EXPORTS		IMPORTS	
	1990	2000	1990	2000
OCEANIA				
Australia	6.6	7.6	31.5	26.9
New Zealand	5.6	8.0	25.3	21.7
North East Asia				
Japan	38.2	45.4	11.2	21.6
Korea	23.3	39.9	31.2	32.5
China	6.7	20.9	27.5	33.9
Hong Kong	15.0	26.6	17.4	30.3
South East Asia				
Singapore	36.9	61.0	35.0	54.0
Indonesia	0.9	10.8	34.6	20.6
Malaysia	24.6	49.0	45.5	57.6
Philippines	12.9	71.4	23.1	43.4
Thailand	15.4	33.7	31.8	38.7
South Asia				
Bangladesh	0.9	0.7	13.6	16.5
India	5.6	5.9	19.3	14.8
Pakistan	0.9	0.9	17.0	13.9
Sri Lanka	2.6	5.8	11.8	12.8
NAFTA				
Canada	15.4	15.9	28.9	30.8
USA	37.8	42.2	22.6	26.5
Mexico	13.4	29.8	28.9	36.5
LA				
Chile	0.9	1.4	30.9	19.1
Peru	0.9	0.8	24.4	20.0

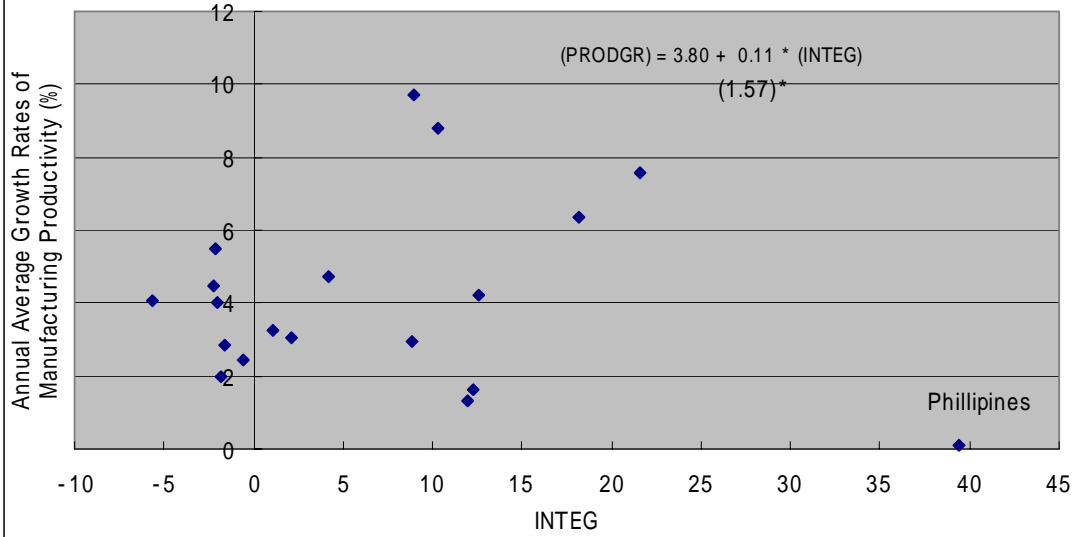
_Source: the author's calculation based on UN COMTRADE.

Table 3 Shares of Exports and Imports by End-Use Categories
(Percent)

	Export		Import	
	1990	2000	1990	2000
Australia				
Food, feeds, and beverages	21.8	20.9	4.7	4.4
Industrial supplies and materials	66.3	62.3	34.6	32.9
Capital goods	6.6	7.6	31.5	26.9
Consumer goods (except autos)	3.7	5.9	19.2	23.2
Automotive vehicles and parts	1.6	3.3	9.9	12.7
New Zealand				
Food, feeds, and beverages	45.6	45.7	6.3	7.3
Industrial supplies and materials	43.6	38.9	39.1	39.1
Capital goods	5.6	8.0	25.3	21.7
Consumer goods (except autos)	4.6	6.4	18.4	20.9
Automotive vehicles and parts	0.6	1.0	10.9	11.0

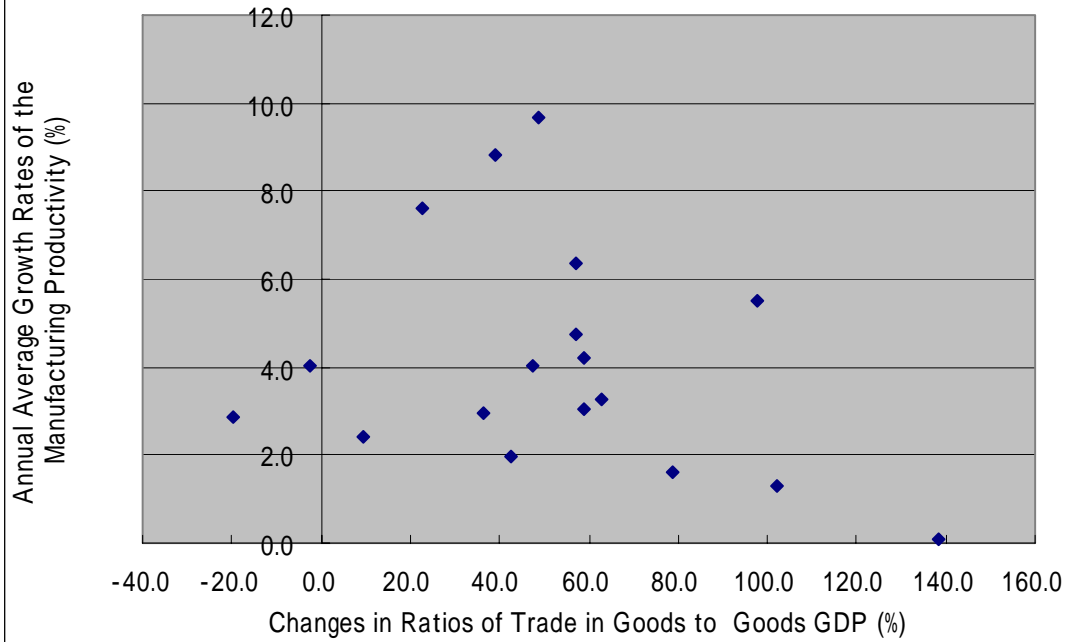
Source: See Table 2.

Figure 1 The New Pattern of Trade and Productivity Growth



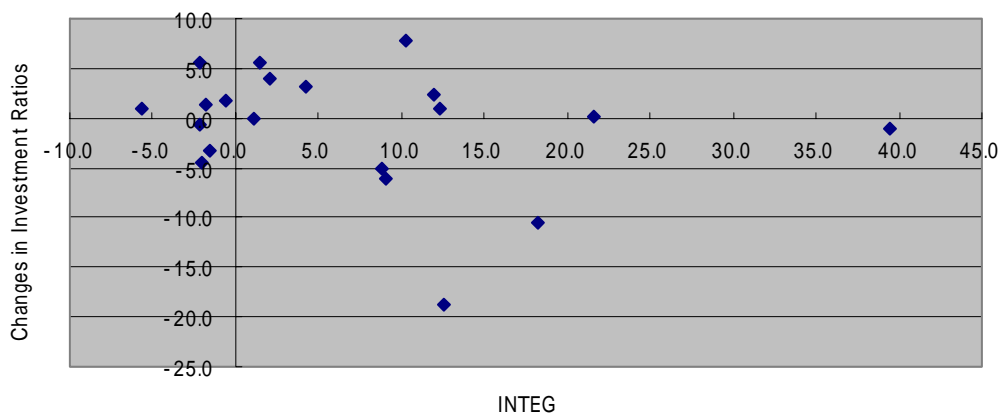
Source: the author's calculation.

Figure 2 The Conventional Measure of Trade Openness and Productivity Growth



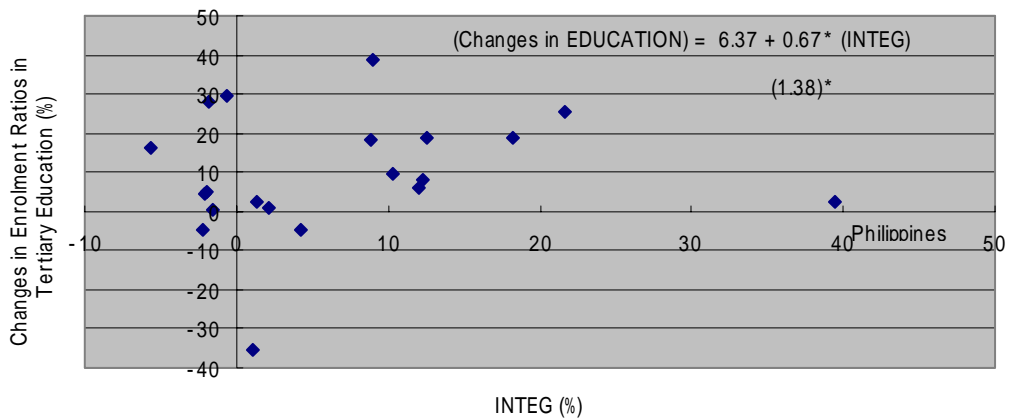
Source: the author's calculation.

Figure 3 The Link between the Degree of Integration and Changes in Investment Ratios



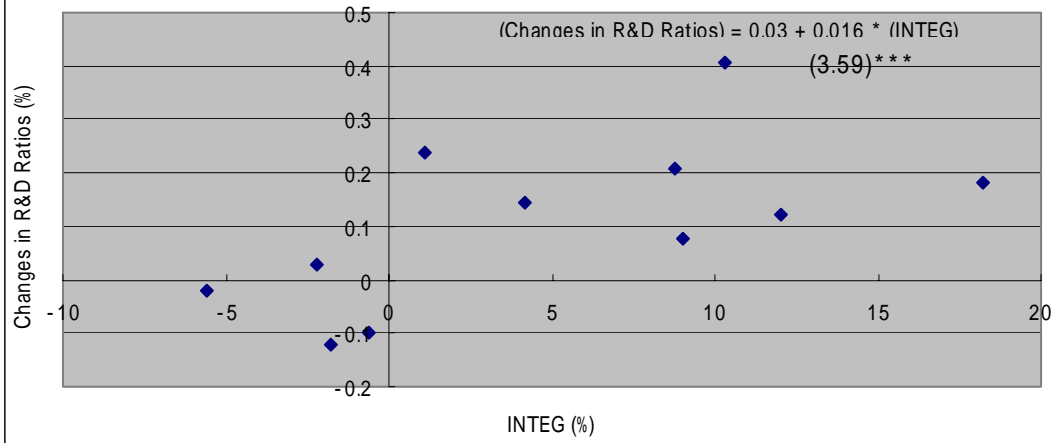
Source: the author's calculation.

Figure 4 The Link between the Degree of Integration and Skill Upgrading



Source: the author's calculation.

Figure 5 The Link between the Degree of Integration and Innovation Activities



Source: the author's calculation.

Table 4 Wage Inequality: Decreased or Increased? (between 1996-98 and 2000-02)

Group 1 Unambiguously increased			Group 2 Unambiguously decreased		
Inter-occupational Wage Gap in 2000-02 (Production workers=100)			Inter-occupational Wage Gap in 2000-02 (Production workers=100)		
	Engineers	Managers		Engineers	Managers
Globalizers			Globalizers		
Japan	160	219	Korea	108	160
China	206	357	Malaysia	297	640
Taiwan	196	301	Philippine	242	391
Singapore	300	475	Thailand	206	431
Non-globalizers			Non-globalizers		
India	286	513	Indonesia	272	721
Pakistan	309	567	Sri Lanka	193	399
Group 3 Indeterminate					
Inter-occupational Wage Gap in 2000-02 (Production workers=100)					
Engineers Managers					
Globalizers					
Hong Kon		104	172		

Source: the author's own creation based on data obtained from *JETRO Sensors*, various years.

Notes: 1 Globalizers and non-globalizers are defined depending on whether a country has shown a new pattern of international trade. Please see Table 2 for details.

2 Inter-occupational wage gaps shown in Table 4 are those over the period of 2000-02.

Table 5 Shares of Export and Import by End-User Categories for New ASEAN Members (Percent)

	Export				Import			
	1990	1995	2000	2002	1990	1995	2000	2002
Viet Nam								
Food, feeds, and beverages	41.6	34.7	20.3	19.0	11.2	11.1	8.0	8.2
Industrial supplies and materials	53.4	31.5	36.3	30.0	41.1	46.9	54.3	48.5
Capital goods and intermediate input	0.1	1.2	5.5	5.9	21.4	20.5	20.8	27.0
Consumer goods (except autos)	4.7	32.4	37.6	44.3	15.5	11.9	8.3	10.1
Automotive vehicles and parts	0.2	0.2	0.4	0.8	10.7	9.6	8.5	6.2
Cambodia								
Food, feeds, and beverages	1.0	1.0	0.7	0.3	39.2	17.0	7.4	8.7
Industrial supplies and materials	94.0	77.7	7.7	3.9	27.7	35.4	66.9	60.8
Capital goods and intermediate input	1.0	0.3	0.2	0.2	13.8	17.0	8.5	11.8
Consumer goods (except autos)	3.9	20.9	91.4	95.6	8.5	12.3	11.6	13.9
Automotive vehicles and parts	0.1	0.1	0.1	0.0	10.9	18.4	5.6	4.7
Laos								
Food, feeds, and beverages	3.5	11.9	11.4	9.3	11.3	18.5	12.4	23.0
Industrial supplies and materials	85.1	50.6	36.5	10.7	34.4	38.2	48.2	23.9
Capital goods and intermediate input	0.7	0.3	0.3	0.2	30.3	17.6	10.2	17.4
Consumer goods (except autos)	10.3	37.3	51.7	79.8	11.8	11.2	12.6	14.8
Automotive vehicles and parts	0.5	0.1	0.1	0.0	12.2	14.6	16.6	20.8

Source: the author's calculation.

Table 6 Growth Performance of ASEAN Countries

Country	Per Capita GNP in US dollars 2003	Annual Average of Per Capita GDP Growth Rates (%)		Gross Fixed Capital Formation as Percentage of GDP (%)			School Enrolment Ratios (%)			
		1991-2000	2001-2003	1995	2000	2002	Secondary		Tertiary	
							1995	2000	1995	2000
Cambodia	310	3.5	4.4	14.2	18.7	22.7	26.5	18.1	1.9	2.2
Laos	320	3.5	2.8	NA	NA	NA	26.8	37.6	2.7	3.2
Viet Nam	480	5.8	5.8	25.4	27.6	30.0	47.0	67.1	4.1	9.7
Indonesia	810	2.7	2.4	28.4	21.8	20.3	51.5	56.8	11.3	14.4
Philippines	1080	0.7	1.8	22.2	21.2	19.2	77.5	77.1	29.0	30.5
Malaysia	3780	4.5	1.1	43.6	25.6	23.2	58.7	69.3	11.7	26.3
Thailand	2190	3.5	4.0	41.1	21.9	22.9	54.1	82.8	20.1	35.6
Singapore	21230	4.7	-1.2	33.4	30.1	25.8	73.4	NA	33.7	NA

Source: *World Bank Development Indicators* (On line).