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A Review of Modern International Trade Theories

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Abstract

Following the remarkable success of the first-tier East Asian countries (Hong-Kong, South Korea, Singapore and Taiwan) in the 1970s, and the second-tier South-East Asian countries (Indonesia, Malaysia, Thailand and the Philippines) in the 1980s, the export-led growth paradigm has received special attention, especially if compared to the large malfunction of import substitution policies in many countries of Africa and Latin America. This paper recapitulates some of the trade and growth theories in the history of development economics from the eighteenth century to the close of the twentieth century.

Keywords

Economic Growth, International Trade Theories, International Economics, Development Economics

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1. Introduction

In the past four decades, the question concerning the role of trade (exports) as an engine of growth for economic development in developing countries would be derived from the classical economic theories by Adam Smith (1723-90) and David Ricardo (1772-1823) in the eighteenth century. Adam Smith proposes that international trade plays an important role in economic growth by increasing the size of markets, and offering each country the possibility of taking advantage of the increasing returns to scale based on the division of labour and specialisation. David Ricardo focuses more on the differences in production technologies that induce a country to specialise in the production of commodities that it has comparative advantage, and that the increasing returns to scale are not necessary but the constant returns to scale in every production process may be needed. However, both Smith and Ricardo agree on one point that is, with trade, specialisation in the production of a commodity that a country can produce relatively more cheaply than other countries; each country then, with a given amount of resources, can consume more than it could without trade. In other words, the quantity of each commodity that a country

produces depends on its factor endowment and its production technology. As long as these two ratios differ, each country has a comparative advantage in the production of one of the commodities.

This paper provides a brief overview of related international trade theories and the possible relations between trade and growth. These international trade theories include: (1) Heckscher-Ohlin theory; (2) export base theory; (3) product cycle theory and Linder's theory of representative demand; (4) cumulative causation theory; (5) endogenous growth theory; and (6) new trade theory. Each following section, therefore, outlines each of these abovementioned theories.

2. Heckscher-Ohlin Factor Endowment Theory

The Heckscher-Ohlin theory (named after its original development by two Swedish economists, Eli Heckscher and his student Bertil Ohlin), leading studies of international trade between the 1920s and the early 1980s, states that a

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country's exports depend on its resources endowment whether it is capital-abundant or labour-abundant. If capital-abundant, it will produce and export the capital-intensive goods relatively more cheaply than the other country. Likewise, a labour-abundant country will produce and export the labour-intensive goods relatively more cheaply than the other.

It is worth to note that the difference between the Ricardian and Heckscher-Ohlin model is the former postulates differences in production technologies between countries, while the latter assumes that production technologies are the same. Also, the Heckscher-Ohlin model assumes there are no differences in the aggregate preferences between countries. The only difference existing is that different countries have different resource endowments, and this major discrepancy is sufficient to cause a different production possibility frontier in the two countries such that equilibrium price ratios would differ in an autarky.

There are six assumptions usually postulated for the analysis of the Heckscher-Ohlin theory of trade: 1) no transportation costs or trade barriers (implying identical commodity prices in every country with free trade); 2) perfect competition in both commodity and factor markets; 3) all production functions are homogeneous to the first degree (implying constant returns to scale); 4) production functions are such that the two commodities always show different factor intensities; 5) production functions differ between commodities but are the same in both countries; and 6) tastes are the same in both countries (more specifically, both countries have identical homothetic community indifference maps).

Furthermore, there are four major theorems in the Heckscher-Ohlin model: (1) the factor-price equalisation theorem; (2) the Stolper-Samuelson theorem; (3) the Rybczynski theorem; and (4) the Heckscher-Ohlin theorem. While (2) and (3) describe relationships between variables in the model, (1) and (4) present some of the key results of the model.

2.1. Factor Price Equalisation Theorem

This theorem assumes that if factors of production are freely mobile among countries, then factor prices would be the same in all countries. The factor price equalisation theorem says that if the prices of the output goods are equalised between countries engaged in free trade, then the price of the input factors will also be equalised between countries. This implies that the wages and rents will converge across the countries with free trade, or in other words, trade in goods is a perfect substitute for trade in factors.

Let us take an example to clarify this theorem. The opening-up to trade for a labour-abundant country such as Mexico

will increase the price of labour-intensive goods, say clothes, and thus lead to an expansion of clothes production. As there is a great demand for clothes in foreign markets, the demand for factors of production increases in the clothes sector. Because clothes are labour-intensive goods, an increasing demand for labour in Mexico's factor market will absorb labour from the capital-intensive industry, say steel, to boost the production of clothes. The expanding clothes industry absorbs relatively more labour than the amount released by the contracting steel industry. The price of labour is bid up, and while its relative price increases, the relative price of capital declines. As a result, the factors of production will become more capital-intensive in both sectors leading to a decline in the marginal productivity of capital and an increase in that of labour in both sectors.

Likewise, in a capital-abundant country like the US for instance, the producers try to produce more of the capital-intensive good, say steel, to supply to a great demand internationally. Since more steel is produced, which means more capital is relatively needed for production, the relative price of capital thus increases and so on. In brief, this theorem postulates that, with free trade, the price of a labour-abundant country will increase and the price of a capital-abundant country will decrease. This factor price equalisation theorem implies that, 'if there were no complete specialisations in any country, with free trade the factor prices will become not only relatively but also absolutely identical in both countries' (see Hong, n. d., Chapter 7).

According to Suranovic (2006), this theorem formed the basis for some arguments often heard in the debates leading up to the approval of the North American Free Trade Agreement (NAFTA) between the US, Canada and Mexico. Opponents of NAFTA feared that free trade with Mexico would lower US wages to the level in Mexico, although a more likely outcome would be a reduction in US wages coupled with an increase in Mexican wages.

Factor price equalisation is hardly seen in the real world as, for example, the cost of the hourly rate in Mexico is much lower than in the US. Reasons may vary for not seeing factor price equalisation including: (1) differences in factor quality; (2) differences in production technology across countries; and (3) more obviously, differences in output prices across countries of the same product. In reality, there is a positive correlation between labour productivity and wages, so if we adjust wages according to labour productivity then factor price equalisation looks like a more realistic result. As such 'a better interpretation of the factor price equalisation theorem applied to real world settings is that free trade should cause a tendency for factor prices to move together if the countries' trade is based on differences in factor endowments' (Suranovic, 2006).

2.2. Stolper-Samuelson Theorem

This theorem states that an increase in the price of a good will cause an increase in the price of the factor used intensively in that industry, and a decrease in the price of the other factor.

Making it clear, let us take the example of the US and Mexico as discussed above. We would agree that the US is a capital-abundant and Mexico a labour-abundant country. In the long process of trading between the two countries, the prices of goods would converge to the same in the US as in Mexico. In particular, the relative price of labour-intensive goods in the US should fall and the relative price of capital-intensive goods should rise. This used to be a good reason, based on the Stolper-Samuelson theorem, for the US trade unions to oppose NAFTA, as the trading process between two countries should increase the return to capital owners, but decrease the wage of workers. More specifically, say, steel is a capital-intensive good produced by the US and clothing is a labour-intensive good produced by Mexico. Therefore, the relative price of steel in the US is lower than in Mexico, and vice versa. What happens if the two countries start trading?

- *In the US:* the relative price of steel rises due to trade. This raises the rental rate (gain for capital) because steel is capital-intensive, but lowers the wage rate (loss for labour).
- *In Mexico:* the relative price of steel falls due to trade and the relative price of clothes rises. This raises the wage rate for workers as the manufacture of clothing is labour-intensive, but lowers the rental rate (loss for capital).

2.3. Rybczynski Theorem

Like the Stolper-Samuelson theorem, the Rybczynski theorem depicts the relationship between endowments and outputs by assuming a small open economy engaged in free trade. It demonstrates how changes in an endowment affect the output of the goods when full employment is maintained. This theorem states that an increase in the endowment of a factor will increase the output of the industry using it intensively and decrease the output of the other industry.

2.4. Heckscher-Ohlin Theorem

This theorem states that a capital-abundant country will export a capital-intensive good and a labour-abundant country will export a labour-intensive good.

Consider two countries, the US and Mexico in the example above and recall that the assumptions applied to the Heckscher-Ohlin theory include a similarity in production functions (identical technology) and aggregate preferences

across the two countries. The difference in resource endowments between two countries is sufficient to generate different PPFs, such that equilibrium price ratios would be different in autarky.

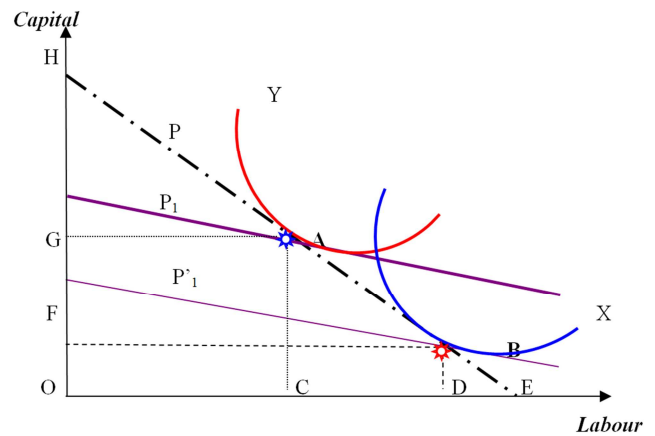


Figure 1. Factor Abundance Defined by Factor Prices.

Since the Heckscher-Ohlin theorem assumes identical constant-returns-to-scale production technologies in both countries, the relationship between factor price ratio and commodity price ratio should be examined. Figure 1 shows the unit isoquant curve for the labour-intensive good X (clothes) and the capital-intensive good Y (steel). The US is relatively capital abundant and has a factor price ratio represented by the line P, while that of Mexico is represented by the line P₁. One unit of capital-intensive good Y is produced by OG units of capital and OC units of labour. However, capital and labour can be exchanged for each other, therefore OC units of labour can be exchanged for GH units of capital, and OG units of capital are worth CE units of labour. Thus, the cost of producing one unit of the capital-intensive good Y in the US, measured in units of capital, is OH; and measured in units of labour is OE. Similarly, the cost of producing one unit of the labour-intensive good X is OE when measured in units of labour, and OH when measured in units of capital.

The factor price ratio P₁ of Mexico is tangent to the unit isoquant curve for good Y (steel) at point A, which means capital is relatively more expensive in Mexico than in the US. A parallel shift of P₁ to P'₁ is tangent to the unit isoquant curve for good X (clothes) at point B, certainly below P₁. Therefore, in Mexico, it is relatively more expensive to produce good Y (steel) than X (clothes).

All of the above implied that any difference in autarky prices between the US and Mexico is sufficient to induce profit-seeking firms to trade. The higher price of the capital-intensive good Y (steel) in Mexico will induce firms in the US to export steel to Mexico to take advantage of the higher price. Likewise, the higher price of the labour-intensive good

X (clothes) in the US will induce Mexican firms to export cloth to the US. For that reason, if the price definition of factor abundance used, a country is relatively more capital abundant than the other if the price of capital is relatively cheaper in that country. So, in conclusion, we can say that the capital-abundant country will export the capital-intensive good, and the labour-abundant country will export the labour-intensive good.

2.5. Heckscher-Ohlin Theory: The National Welfare Effects of Free Trade

Figure 2 illustrates autarky and free trade equilibria for the US and Mexico. The US autarky production and consumption is determined at point A, where the aggregate indifference curve I_{US} is tangent to the PPF_{US} . Opening to free trade, US production and consumption are at point E and C respectively. In free trade, the US realises a level of aggregate utility which corresponds to the indifference curve I_{FT} , which moves to the right of the autarky indifference curve I_{US} , therefore US national welfare increases in free trade.

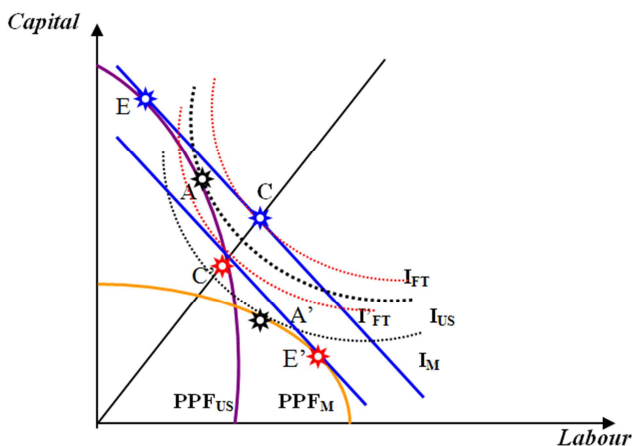


Figure 2. National Welfare Effects in Free Trade.

Likewise, Mexico's autarky production and consumption are determined at point A', where PPF_M is tangent to I_M . In free trade, Mexico's production is at point E and consumption at point C'; Mexico realises a level of aggregate utility corresponding to the indifference curve I'_{FT} , which shifts to the right of the autarky indifference curve I_M , therefore Mexico's national welfare increases in free trade. This means that both countries will be better off and benefit in free trade with an increase of aggregate welfare for both.

In general, the arguments in favour of trade liberalisation are often based on the Heckscher-Ohlin theory. The idea that opening a nation to trade, and thereby allowing its economy to specialise according to its relative endowments is beneficial, was fundamental to the liberal trade position of the US after World War II (Goldstein, 1993). More recently,

the notion that free trade provides more benefits to participant countries is supported by advanced countries, or organisations and trade blocs such as GATT (WTO), EU, AFTA etc.; although several studies suggest that the distributional impacts of such measures are likely to be highly uneven (Conroy and Glasmeier 1993; Glasmeier and Leichenko 1996). While liberalisation of trade may lead to one-time gains in economic efficiency, the growth of exports actually occurs as the result of growth in a country's or a region's labour or capital supplies. Growth of exports thus follows from the growth of a country's or region's economy (Leichenko, 2000).

However, problems with the Heckscher-Ohlin theory appeared in the late 1950s based on Leontief's input-output studies of the US economy. His empirical studies suggest that US exports require a higher proportion of labour to capital than US imports, and thus the US is not capital-abundant compared with the rest of the world as normally supposed. Also, from the early 1960s, there has been a growing volume of world trade with similar factor endowments occurring between advanced countries. Furthermore, much of this trade particularly after 1980 was either intra-industry trade or intra-firm trade, neither of which can be explained by the Heckscher-Ohlin theory (Dicken, 1998).

2.5.1. Static Gain from Trade

Static gains from trade are those which accrue from international specialisation according to the doctrine of comparative advantage. As a result of the international division of labour, according to Thirlwall (2006: 521), the increase of world production is followed by the increase of world welfare. Specialisation on the basis of comparative advantage maximise the production from a given amount of factor resources. The opportunity obtaining foreign products more cheaply thanks to trade increases consumers' welfare, in terms of real resources forgone, than the alternative of import substitution or producing domestically. As Corden (1971) notes, the opening-up of an economy to trade generates static efficiency gains that are very similar to 'once-and-for-all' technical progress in raising the absorption-possibility frontier of a country at the given factor supplies. Furthermore, with a given constant propensity to save, the static efficiency gains will induce the rate of capital accumulation to rise and consequently will raise the growth rate of the economy. This may be described as the 'induced-growth gains' from trade. If investment goods were mostly imported, then these induced growth gains will also include the effect of reduced prices of investment goods. On the other hand, the opening-up to free trade may raise the rate of growth of an economy not only through static-efficiency gains and the associated 'induced-growth gains', but also by

directly raising the country's propensity to save. Thirlwall (2006) adds that the gain from trade is the value added between the value of things obtained and the value of things given up. Through the international division of labour, a country is supposed to obtain more than it gives up. If comparative advantage were exactly the same in the two countries there would be, of course, no static gains and the justification for trade would be to reap economies of scale and other dynamic gains.

2.5.2. Dynamic Gains from Trade

According to classical trade theory, moving from a closed economy to free trade produces substantial economic gains because trading countries benefit from specialisation and more efficient resource allocation. In general, the impact of trade on production possibilities such as economies of scale, international investment and the transmission of new technologies and skills, etc. leading to higher productivity are dynamic gains from trade. Thirlwall (2006: 521) puts in his words:

The major dynamic benefit of trade is that export markets widen the total market for a country's producers. If production is subject to increasing returns, the total gains from trade will exceed the static gains from a more efficient allocation of resources. There is also a close connection between increasing returns and the accumulation of capital. For a small country with no trade there is very limited scope for large-scale investment in advanced capital equipment; specialisation is limited by the extent of the market. But if a poor developing country can trade, there is some prospect of industrialisation and of dispensing with traditional methods of production. The larger the market, the easier capital accumulation becomes if there are increasing returns to scale. The smaller country, however, may need substantial protection for a commodity before it can be produced economically and compete in world markets.

3. Export Base Theory

We all know that the economic activities of a country are divided into those that produce for the export markets and those for the local (residential) markets. The belief that trade is an engine of growth stems from the notion within export base theory that growth of exports provides externality and productivity benefits to regional economies. In its simplest form, export base theory suggests that regional growth in output and employment is a function of exogenous demand for a region's exports, assuming perfect elasticity of input supply and export demand. Growth is generated not only through direct sales of export goods, but also through

Keynesian income multiplier: income growth associated with the growth of a region's exports results in further increases in demand for local goods, which in turn, leads to further growth in regional income (Leichenko, 2000: 304). Earlier, North (1955: 257) extended the simple version of export base theory by stating the following.

- The success of the export base has been the determining factor in the rate of growth of regions. Therefore, the locational factors that have enabled the staples to develop need to be examined.
- The importance of the export base is a result of its primary role in determining the level of absolute and per capita income in a region, and therefore in determining the amount of residential secondary and tertiary activity that will develop. It also has significant influence on the character of subsidiary industry, the distribution of population and pattern of urbanisation, the character of the labour force, the social and political attitudes of the region, and its sensitivity to fluctuations of income and employment.
- In a young region dependence on staples is reinforced by the concerted efforts of the region's residents to reduce processing and transfer costs through technological research, and state and federal government subsidisation of social overhead benefits, as well as the tendency for outside suppliers of capital to reinvest in the existing staple base.
- Some regions, because of locational advantages, have developed an export base of manufactured products, but this is not a necessary stage for the sustained growth of all regions. A great deal of secondary and tertiary industry will result from the success of the export base. This residential industry will provide for widening the export base as a region develops.
- The growth of regions has tended to be uneven. A given increase in demand for a region's exports has resulted in a multiple effect on the region, inducing increased investment not only in the export industry but in all other kinds of economic activity as well.
- As a region's income grows, indigenous savings will tend to spill over into new kinds of activities. At first, these activities satisfy local demand, but ultimately some of them will become export industries. This movement is reinforced by the tendency for transfer costs to become less significant. As a result, the export bases of regions tend to become more diversified, and they tend to lose their identity as regions. Ultimately, we may expect more equalisation of per capita income and a wider dispersion of production with long-run factor mobility.

Worth noting is that there was a debate between North and Tiebout regarding the export base theory, which suggests that the applicability of this theory is largely a function of the scale and scope of a region's economy. Whereas North (1955) states as above, Tiebout (1956: 164) argues that: (1) the concept of export base is merely one aspect of a general theory of short-run regional income determination; in the case of large regions, other variables may play as important a role as exports; (2) the concept of export base may be useful in describing regional income growth, but this need not be considered the same problem as general economic development; (3) as an explanatory factor in regional growth, the idea of the export base should not subsume the key role of residentiary activities in determining factor costs of possible regional exports; and (4) since a region must optimise the use of factors as between exports and residentiary outputs, a decline in export activity may even be accompanied by rising regional income.

Despite these and other criticisms, the theory of export base continues to be widely used for regional development and planning and for analyses of international trade and growth. Although numerous methodological approaches have been developed to define the export base, the most recent of which involve the application of advanced time-series methods (Brown, Coulson and Engle 1992). The idea that exports provide an engine of growth is also frequently applied in studies of the regional and national impacts of foreign export growth (Feder 1983; Kavoussi 1984; Webster, Mathis and Zech 1990).

4. Endogenous Growth Theory

Endogenous growth theory (EGT) was developed in the 1980s as a response to criticism of the neoclassical growth models, which assume that a country's long-run growth rate is exogenously determined by a savings rate (the Solow model) or a rate of technical progress. These factors had not been used in the neoclassical models, and come out to be very unrealistic. Leichenko (2000: 309) states that, although growth within the neoclassical model may also occur as a function of increases in human capital, physical capital or population; these types of growth are assumed to have diminishing or constant returns to scale, and thus cannot bring about sustained growth in per capita income. A major prediction of the neoclassical model is that growth rates of countries or regions will converge over time (Barro, 1993). However, studies have found that a large share of economic growth cannot be explained by technological change and that empirical evidence does not support convergence (Tallman and Wang 1992; Romer 1994). Also, the new empirics of regional convergence in the industrialised world reveal a rate

of regional convergence that is much slower than the rate proposed by orthodox neoclassical models (Martin and Sunley, 1998).

Also, according to Martin and Sunley (1998: 208), endogenous growth theory attempts to rectify some of the problems of neoclassical theory by developing models in which long-run growth rates are endogenous to the model, based on certain assumptions about increasing returns, human or physical capital and technology investment. There are two different types of endogenous growth theory, which envisage different sorts of increasing returns: endogenous broad capital models and endogenous innovation models. Endogenous broad capital models can be further separated into two sets: (a) those that simply show capital investment as generating externalities; and (b) those that emphasise human capital and relate technological change to 'learning by doing' and 'knowledge spillovers'. The second type, endogenous innovation growth theory, has been labelled Schumpeterian because it emphasises the returns to technological improvements arising from deliberate and intentional innovation by producers.

The EGT suggests that improvements in productivity can be linked to a faster pace of innovation and extra investment in human capital. Further, it predicts positive externalities and spillover effects from development of a high valued-added knowledge economy, which is able to develop and maintain a competitive advantage in growth industries in the global economy. In summary, the main points of the endogenous growth theory are as follows: 1) the rate of technological progress should not be taken as a given in a growth model, appropriate government policies can permanently raise a country's growth rate particularly if they lead to a higher level of competition in markets and a higher rate of innovation; 2) there are potential increasing returns from higher levels of capital investment; 3) theory emphasises that private investment in R&D is the central source of technical progress; 4) protection of property rights and patents can provide the incentive to engage in R&D; and 5) investment in human capital (education and training of the workforce) is an essential ingredient of growth.

In emphasising the importance of spillovers associated with new technologies, endogenous growth theory suggests that differential patterns of growth may emerge as the result of specialisation in different types of export goods. While all regions may benefit from growth of exports, regions that specialise in goods with greater potential for spillovers may tend to experience more rapid growth than other regions. Although several tests of endogenous growth theory have been conducted at the regional level, these studies have not addressed the linkages between foreign trade and regional growth (Leichenko 2000: 310).

5. Product Cycle Theory & Linder's Theory of Representative Demand

Vernon's theory (1966) of the product cycle is developed from the viewpoint of the US market (developed countries), where the theory puts less emphasis on the factor-proportion theory of comparative advantage and more on the timing of innovation, the effects of scale economies, and the roles of ignorance and uncertainty in influencing trade patterns. Vernon claims that a large gap exists between the knowledge of scientific principles and the application of these principles in the generation of new, marketable products (Hong, Chapter 17: 1).

The product cycle of Vernon encompasses three general stages of product development: (1) *introduction*, where advanced countries developing and exporting a particular product to foreign markets; (2) *standardisation*, where inventing countries lose export market shares to other countries who imitate the innovation; and (3) *maturation*, where the inventing countries become net importers of the product. The core of this theory is the assumption that diffusion of new technology transpires slowly enough to create temporary differences between countries in available production technology. Leichenko (2000: 306) states that, home market characteristics are particularly important during the first stage of the product cycle, when a new product is introduced into the US market. Production during the first stage is typically characterised by high per unit costs, low price elasticity of demand and monopoly power over the product design. Because the need for flexibility in use of inputs, and the need for rapid communication between producers and consumers as the product are test-marketed, are more important than production costs during this first stage, but producers will also export to other countries with levels of income and demand similar to those of the US.

At the same time, in the developing countries, where the new product is imported and introduced, consumer demand gradually picks up and demand induces domestic production starts. Nevertheless, the inferior quality and high costs of production impede the competition with foreign imports. Hence, imports remain high and a run on the country's foreign exchange may occur. The next stage (second) of development from Balassa's five-stages of development, according to Dowling and Cheang (2000: 447), is often to substitute foreign imports with domestic products in the hope of correcting the current account deficits, which result from increasing domestic demand. In order for this to happen, it is necessary for the state to implement certain level of tariffs and other import restrictions to protect the domestic industry from foreign competition, as happened in the ASEAN-4 in

the 1970s. The advantageous position of having an established and often protected domestic market, coupled with the acquisition of standardised production technology, makes large-scale production possible. Hence, domestic products gradually replace foreign imports as product quality improves and price becomes competitive. This stage corresponds with the standardisation stage (second) in the inventing advanced country (Vernon's theory). Foreign investors will start investing, but in small amounts, into developing countries. This may be because the domestic market is relatively small since the income per capita is still low, or because of an undeveloped or inappropriate commercial and legal framework, inadequate transport and communication facilities, and the lack of an educated workforce.

By the third stage, the growth of domestic demand has slowed down and exports of the product have begun. Production is kept at a high level through additional production for export. Imports diminish in absolute terms. The strong exports enable the country to import capital goods for continued expansion of production. Inward FDI becomes significant as the same industry in the advanced countries has lost its comparative advantage, and has started to relocate to developing countries. This stage in the developing countries corresponds with the maturation stage (third) in the inventing country. In addition, as the economy develops, the commercial and legal framework, as well as transport and communication facilities will be better developed. The workforce will also be better educated.

Back to inventing developed country, 'as demand for the product increases, the process of standardisation (Vernon's second stage) accordingly takes place and the need for flexibility will decline' (Vernon, 1966: 196). Concurrently, some demand for the product will emerge elsewhere. In this stage, the requirement of significant inputs from the local inventing country such as skilled labour, spare parts, industrial materials processed according to exacting specification etc., is still needed in manufacturing processes of maturing products. These are not possible to find in developing countries but would be possible in other developed countries. However, at a later period in the standardisation stage, growth of demand may become slow in the United States and other developed countries, but may increase in developing countries. Consequently, the production may be shifted to developing countries due to cost advantages. The reason is standardised products require significant inputs of labour, which is cheap in developing countries, and may not require extensive external economies and elaborate industrial support facilities. The US and other developed countries may become net importers of standardised products during Vernon's third stage, and this is

also the third stage of Balassa's five-stage theory.

As the industry gets into its mature stage (stage four), production slows down in face of increasing costs and intensified competition from late-starting countries. Consequently, exports will increase less slowly if not decrease; and domestic demand is sluggish. FDI also falls as foreign investors are attracted to the late-starting countries.

Finally, in stage five, when wages and other costs of production become so high that even the best-practice domestic firms loses comparative edge, the industry will have to relocate in order to survive (Dowling and Cheang, 2000: 447). By the time of stage five, the developing country has already become a developed country. Furthermore, as stated by Vernon, the overall scarcity of capital in developing countries will not prevent investment in facilities for the production of standardised products. Capital scarcity may not be a problem for two reasons: (1) the investment will take place in industries with significant labour inputs in the production process, and (2) the capital may be supplied at low cost due to the concession of beneficiary developing countries (Hong, Chapter 17: 7). Therefore, at the end of the product cycle's maturation stage, the inventing developed countries will become net importers of the standardised products.

A key problem with product cycle theory is that, despite the model's emphasis on firm strategy and the changing nature of demand, the model is deterministic. Once a new product is introduced, the transitions from one stage to the next, and the subsequent patterns of production location and trade, are seen as inexorable (Leichenko, 2000). Despite this limitation, product cycle theory has also been widely applied to analyse US regional growth and development (e.g., Markusen 1985; Rees 1979). In addition, Linder (1961) earlier develops his arguments as follows. In a world of 'imperfect knowledge', e.g. lack of information about products, preferences, competitors, etc. in foreign markets, entrepreneurs first will produce goods for domestic needs of which they are aware. As a successful firm grows, the local market becomes insufficient for further expansion. The trade horizon of the firm is gradually lifted. But, only after what has probably been a considerable period of producing for the domestic market will the entrepreneur become aware of the profit opportunities offered by producing for foreign countries. The export market will not be entered until then. In other words, the trade horizon of the firm will extend 'across national boundaries'. On the contrary, the country would not start on domestic production if the domestic demand for a certain good is less than the specified minimum amount; because it could not survive in the competition with foreign producers during the beginning period when the scope of domestic producers is limited to the local market. We can thus expect

that the minimum-efficient-scale argument would not change the basic solutions of the Heckscher-Ohlin theorem, but would contribute to narrow more realistically the range of possible productive activities of each country. It also conforms to Linder's intention to narrow the range of potential exports by introducing the concept of 'representative demand'.

In summary, according to Hong (Chapter 17: 8), Linder's central hypothesis can be stated as follows: (1) the precondition for a good to be produced domestically is the presence of 'home demand'; (2) for a good to emerge as a potential export product, the internal demand for the good should be 'representative'; and (3) since the representative demand pattern determines the range of goods that can be produced with comparative advantage, the pattern of production and trade can be predicted on the basis of the internal demand patterns of the countries. Basically, Linder's world is regarded as a subset of the worlds, which could be generated by the Heckscher-Ohlin theory of factor proportions.

6. Cumulative Causation Theory

The theory of cumulative causation developed by Kaldor (1970) views regional growth as determined by the growth of demand for a region's exports. Kaldor's first law is that there exists a strong causal relation between the growth of manufacturing output and the growth of GDP. His second law of growth (1966) states that the manufacturing sector is subject to substantial increasing returns to scale. The central point of this law not only provides support for the hypothesis that the manufacturing sector is the 'engine of growth', but also sets the basis for the cumulative causation models of growth. According to Verdoorn's law (1949), a positive correlation exists between the growth of productivity, measured by the rate of growth of output per employee and the growth rate of employment. Later Kaldor (1967) modified this reasoning by replacing employment growth by output growth. The resulting relationship became known as the Verdoorn-Kaldor law, which suggests that growth of productivity in manufacturing is an endogenous result of the growth of output, because of static and dynamic economies of scale. Economies of scale can be divided into two groups: (1) economies resulting from large-scale production (static economies of scale); and (2) economies of scale derived from 'the insight that the spatial concentration of economic activity can produce externalities' (dynamic economies of scale) (Malecki and Varaiya, 1986). The latter consists of cumulative advantages that originate from the growth of industry itself, like learning-by-doing, and the development

of skill and know-how, the opportunities for easy communication of ideas and experience, and the opportunity of ever-increasing differentiation of process and of specialisation in human activities (Kaldor, 1970).

Kaldor's third law states that there exists a strong positive causal relation between the growth rate of the manufacturing sector and that of productivity outside the manufacturing sector, because the diminishing returns in agriculture and the small service sectors will supply excessive labour to the industrial sector. If the marginal product of labour is below the productivity in these sectors, the productivity will rise as employment is contracting. According to Thirlwall (2002: 42), Kaldor's arguments on the driver of growth in the manufacturing sector come from demand in agriculture in the early stages of development, and export growth in the later stages. In the later stages, a fast growth of exports and output may set up a virtuous circle of growth with rapid export growth leading to rapid output growth, and rapid output growth leading to fast export growth through the favorable impact of output growth on competitiveness.

In the regional literature, a detailed interpretation is given to the Verdoorn-Kaldor law. For this law to be true, according to regional economists, it has to be assumed that 'the increased investment resulting from higher growth in a region is located in the same region' (Malecki and Varaiya, 1986: 632). The reason is the growth in investment of a region is enhanced by higher growth of that region. According to Caniels (1996), part of this investment will be devoted to research and development (R&D), and the resultant benefits of this increased R&D investment are only reaped in this same region, thus only in this region productivity grows. This in turn will cause a rise in the output of the region, i.e. the region will experience growth. In this process, there is no diffusion of technology at all. The benefits of technical progress stay within the region that experiences the benefits of increased investment, and therefore only this region shows an increase in productivity. This reasoning (referred to as *the principle of circular and cumulative causation* by Myrdal (1957) explains why differences in productivity among regions may be persistent rather than a transitory state, as in the neoclassical model. As Kaldor (1970: 340) argues, the principle of circular and cumulative causation 'is nothing else but the existence of increasing returns to scale in processing activities'.

Of course, by assuming technology to be completely immobile, as opposed to the neoclassical view of complete mobility, Kaldor advocates another extreme and therefore unrealistic assumption. A theory based on imperfect mobility and slow diffusion of technology might approach reality much more (Caniels, 1996). Despite the cumulative causation theory has limited success; it has had a substantial influence on conceptions about regional growth

(Thirlwall, 1980).

With respect to the question of causality between exports and regional output growth, the Verdoorn-Kaldor's theory suggests that, for a given country an expansion of the export sector may cause specialisation in the production of export products, which may increase the productivity level, and the level of skills in the export sector. This may then lead to a reallocation of resources from the relatively less efficient non-trade sector to the more productive export sector. This productivity increase may then lead to output growth. Also, Kaldor's model suggests that growth outside export demand is the triggering mechanism for the growth of a region's economy and the subsequent feedback relationship

7. New Trade Theory

According to Ezeala-Harrison (1999: 22), the new trade theory (NTT) emanates from the new growth theory (NGT) that emerged within the international trade and economic growth and development literature during the early 1990s. The NGT emphasises technological progress (and the determinants of technological progress) as well as the externalities that the development and application of new knowledge confers, as explicit variables that determine economic growth. Apparently, it posits that innovations take place more in some countries than others because of, among other things, differences in the development of science in the countries, the relative levels and quality of their research institutions, and the relative levels and quality of their educational systems.

The central point of this theory is the diffusion of knowledge between firms as knowledge is given as a key factor of production. Therefore, the main fundamental nature of NGT is its implications that firms should invest more in knowledge, as much as in other capital resources in order to be productive or maintain productivity. The association between the NGT and the NTT lies in their common magnitude of technology and the diffusion of knowledge in the relative flow of the gains from trade to trading countries. These theories are regarded as 'new' as they derive from the traditional neoclassical trade theories based on the principles of comparative advantage, which emphasises the differences between nations' resource endowments (Ezeala-Harrison 1999). The NTT was developed to explain high levels of intra-industry trade and the large proportion of world trade that takes place between similar countries (Dicken 1998; Poon 1997). It suggests that the existence of increasing returns to scale and imperfect competition provides reasons for specialisation and trade, even when countries are similar in factor endowments (Krugman 1979; Helpman and Krugman 1985).

The importance of increasing returns to scale and imperfect competition not only help to reshape traditional trade theory, but it also has had a significant influence on thinking about trade policy, providing new justification for trade protectionism (Grant 1994; Poon 1997). Although the majority of work within NTT assumes that increasing returns are internal to the firm, several studies from Marshall (1920) show that increasing returns are external to the firm (e.g. Krugman 1991; Krugman and Venables 1993).

Also, Krugman model (1991) shows that trade, in the presence of external economies of scale, leads to regional concentration of scale-intensive industries. With respect to longer term regional impacts of trade, Krugman also points out that these impacts tend to be cumulative and self-reinforcing. Economies of agglomeration, which increase with increasing regional size where a centre for production and exporting is set up (e.g. industrial park, export zones etc.), tend to provide this centre permanent cost advantages over other locations. These scale and cost advantages are reinforced by the relatively higher wages that are paid to workers in the scale-intensive industries.

A key problem with this model and with other external increasing returns models is the lack of, and adequate explanation for, the initial establishment of the industrial core and for shifts in the location of the core (Martin and Sunley 1966).

8. Conclusion

Following the remarkable success of the first-tier East Asian countries in the 1970s, and the second-tier South-East Asian countries in the 1980s, the ELG paradigm has received special attention, especially if compared to the large malfunction of import substitution policies in many countries of Africa and Latin America. This paper recapitulates some of the trade and growth theories in the history of development economics from the eighteenth century to the close of the twentieth century.

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