

*Addis Ababa University  
School of Graduate Studies*

***TRADE AND INDUSTRIAL POLICIES IN EAST  
ASIA: IN SEARCH OF LESSONS FOR AFRICA***

*By  
Zinabu Samaro*

A Master's Thesis Submitted to the School of Graduate Studies of Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Master of Science in Economics (International Economics)

*July 2006  
Addis Ababa*

*Addis Ababa University  
School of Graduate Studies*

***TRADE AND INDUSTRIAL POLICIES IN EAST ASIA: IN  
SEARCH OF LESSONS FOR AFRICA***

***By  
Zinabu Samaro***

*Department of Economics, Faculty of Business and Economics*

*Approval by Board of Examiners*

Dr. Alemayehu Geda  
Adviser

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Examiner

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Examiner

\_\_\_\_\_  
Signature

## *Acknowledgements*

I am highly indebted to Dr. Alemayehu Geda, my thesis supervisor for his assistance starting from the inception of the research idea to its completion. His diligent, very prompt, incisive and constructive supervision and guidance were indispensable and exemplary.

I am very grateful to Eyob Tekalegn and Leulseged Tadesse for editorial comments and proofreading the manuscripts of each individual chapter of the thesis. Friends and colleagues, who are too many to name here, deserve my heartfelt gratitude for their encouragement, comments and various forms of assistance through out my stay in the Masters Program at AAU.

## *Table of Contents*

	Page
1. Introduction .....	1
1.1. Background and Statement of the Problem.....	1
1.2 The Hypothesis.....	4
1.3. Specific Objectives.....	4
1.4. Data Sources and Methodology.....	5
1.5. Significance of the Study.....	.6
1.6. The Scope and Limitations of the Study.....	7
1.7. Organization and Layout of the Study.....	8
2. Brief review of Theories of International Trade.....	9
2.1. Introduction.....	9
2.2. The Classical and Neoclassical Theories of International trade.....	10
2.3. The New Trade Theories.....	18
2.4. The Critiques of the Standard Theories.....	20
2.4.1. Orthodox Critiques.....	20
2.4.2. Heterodox Critiques.....	24
2.5. The Shaikh Critique and the Theory of Competitive Advantage.....	26
3. Trade Policy and Industrial development: the Infant Industry Theory and the Historical Experience.....	34
3.1. Introduction.....	34
3.2. Revisiting the Infant Industry Theory.....	35
3.2.1. Restatement of the Original Theory.....	35
3.2.2. The Theory of Infant Industry Development and the Mainstream.....	44
3.3. Industrial development and Trade Policies: The Historical Experience.....	50
3.4. Kicking Away the Ladder.....	54
4. Trade and Industrial policies in East Asia.....	60
4.1. Introduction.....	60
4.2. The Japanese Experience.....	61
4.3. The South Korean Case.....	67
4.4. The Case of Taiwan.....	74
5. Manufactured Exports and Terms of Trade in East Asia.....	81
5.1. Theoretical Background.....	81
5.2. Data, Their Time-Series Properties and Estimation Methodology.....	88
5.2.1. Data.....	88
5.2.2. Time-Series Properties of the Data.....	89
A. Unit Root Tests.....	89
B. Panel Cointegration Analysis.....	.91
5.2.3. The Panel Data Estimation Model and the Related VECM.....	94
5.3. Empirical Results and Interpretation.....	97
6. Conclusion and Lessons for Africa.....	102
6.1. Conclusion.....	102
6.2. Implications and Lessons for Africa.....	106
References.....	109
Appendix: Tables.....	125

## *List of Tables*

	<u>Page</u>
Table 1 Unit root Test Results.....	125
Table 2 Cointegration Test Results.....	125
Table 3 Estimation Results for the Regression Equation of NBTT on Share of SITC 6+8 and SITC 7 Manufactured Exports.....	126
Table 4 Estimated Results for Regression of INTT on Share of SITC 6+8 and SITC 7 Manufactured Exports.....	127
Table 5 Result of the NBTT VECM Estimation.....	128
Table 6 Results for the INTT VECM Estimation.....	128

## **Abstract**

*Most African economies have not achieved any significant level of industrialization and export diversification to date; and so, the continent remains the least industrialized in the world. In response, with strong conviction that economic theory has irrefutably proved the superiority of free trade and laissez-faire industrial policies, the governments and international economic institutions of the developed countries have been pressurizing African governments to free their external trade and minimize their involvement in the form of industrial policies. Under such a context, this study analyzes the trade and industrial policy experiences of three East Asian countries. It also analyzes the terms of trade implications of export diversification into manufacturing under the context of "new export pessimism" using data for six East Asian countries. The study finds that the governments of the countries studied deliberately and consistently employed policies that are against the free trade and laissez-faire paradigms and resorted to a strategic approach to industrial development and international trade. The study also finds that export diversification into manufacturing have had a positive impact on the terms of trade of the countries studied. And therefore, it suggests selective, dynamic, predictable and performance based protection and promotion of infant industries contextualized to the current global conditions and where the government has the willingness and the ability to withdraw the protection and promotion.*

**Key Words:** Industrialization, Infant Industry, Terms of Trade, Panel Cointegration



## ***Chapter One: Introduction***

### ***1.1. Background and Statement of the Problem***

African countries have not achieved any substantial level of industrialization to date. The continent remains the least industrialized in the world and the experience of much of the modern industry that has been set up in the continent has not been a happy one: industrial production has stagnated or declined in many countries over the recent past (Lall, 1992:103). The continent has failed to diversify its exports away from primary products:

The structure of African exports remains largely as it was in colonial times-heavily concentrated on few primary products, between 1965 and 1987, the proportion of exports accounted by primary products *rose/emphasis original/* from 92 to 94 percent in low income countries... (Stewart et al, 1992: 29).

A more recent study reaches at the same conclusion for the period 1994-1999 (ECA, 2004a). Another study states that Africa's heavy dependence on primary commodities as source of export earnings has meant that the continent remains vulnerable to market vagaries and weather conditions and concludes that price volatility, arising mainly from supply shocks and the secular decline in commodity prices and the attendant terms of trade losses have exacted heavy costs in terms of incomes, indebtedness, investment, poverty and development (ECA, 2004b: 7). In a similar note, a World Bank study found that, for African countries that are not oil exporters, the cumulative terms of trade losses in 1970-1997 period represented almost 12% of GDP, a massive and persistent drain of purchasing power. It further contends that the losses of that magnitude almost

completely wipe out the benefits from the substantial increase in aid provided to the continent after 1997 (World Bank, 2000: 20-22).

In terms of value, Africa's share of world trade gradually declined from over seven percent after WWII to just over 2% in 2002 (WTO as cited in ECA 2004c: 12). Thus, Africa has not only failed to achieve any significant level of industrialization and export diversification but also has been continually marginalized in terms of its real participation in the ever-growing global trade. In contrast, since 1980, East Asia has more than doubled its share of world manufactured exports, to 18% of the total and most of the increases in developing countries' world market share in manufactured products can be traced to few East Asian countries China, Korean Rep., Malaysia, Singapore and Taiwan being the most prominent ones (UNDP, 2005:116-117). Further, over 1980-2000, manufactured value added in developing countries increased at more than 5% a year but almost the entire increase was recorded in East Asia (Ibid: 118).

In response to the dismal performance of African economies, the Orthodoxy enshrined in the Washington Consensus dictates that secure property rights, fiscal discipline, sectorally neutral tax and expenditure policies, financial liberalization, unified and competitive exchange rates, *openness to trade* and investment, privatization, and deregulation will do the trick (Noland and Pack, 2003:1). Structural Adjustment Policies (SAP), which have involved improving the internal terms of trade for traditional exports, have encouraged further specialization towards *the* traditional products (Stewart et al, op. ci.: 29). The basic recommendation of SAP is that countries should promote free trade to seek their comparative advantages based

on their resource endowments (Meles Menale, 2002:2). Such claims implicitly or explicitly rely on the mantra of comparative advantage theory which implies that, under conditions of macroeconomic stability, “real exchange rate will adjust to make all freely trading nations equally competitive, *regardless of the differences in their levels of development of technology*”(emphasis original) (Antonopoulos and Shaikh, 1998: 2).

Based on its conviction that free trade, more than free movement of capital and labor, is the key to global prosperity, the neoliberal discourse accuses the developing countries for not opening up their agricultural markets (Chang, 2003). Taking for granted that economic theory has irrefutably established the superiority of free trade and that economic history is on the side of free trade, the neoliberal camp has been pushing Africa and the developing world to embrace free and unfettered trade as the way out of their marginalization and economic backwardness. Thus, Africa has mostly failed to industrialize and to diversify away from primary products and has been consistently pressurized to free its trade and focus on its traditional exports by the powers to be. This is despite the fact that the promised benefits of trade and financial sector liberalization and non-interventionist government policies have failed to materialize.

Under such a contest, this study examines the trade and industrial development policies employed by the East Asian countries, whose experience has been a source of intellectual debate and controversy for as long as its existence, with a view to drawing lessons for Africa. The choice of the region is due to the fact that it has achieved industrialization and modernization in quite a short time and in very recent times. It

also analyzes the terms of trade implications of export diversification into manufactures (industrialization) in the case of East Asian countries that have achieved tremendous change in their economies as a whole and their exports in particular.

### ***1.2. The Hypothesis***

The study hypothesizes that the East Asian countries succeeded in industrial development and economic growth *not* through non-interventionist policies and free trade (universal trade liberalization) but through deliberate and consistent interventionist policies and promotion of successively higher valued manufactured exports; and this in turn helped them improve their terms of trade. This hypothesis is formulated based on the following points.

First, the governments in those countries deliberately and consistently employed various trade and industrial policies that increased the share of manufactures in their exports and GDP. Second, contrary to the conclusion of the “new export pessimism” literature, the increases in the share of various categories of manufactures in total exports have had a positive impact on the terms of trade of the countries.

### ***1.3. Specific Objectives***

The specific objectives of the study include,

- Critically reviewing the case for universally free and unfettered international trade between the developed and poor countries;
- Restating and analyzing the so-called infant industry theory;

- Briefly assessing whether countries that have succeeded in industrial development and economic growth followed non-interventions trade policies or they employed various forms of the infant industry approach with particular focus on the trade and industrial policy experiences of successful East Asian countries;
- Conducting an econometric analysis on the long-run impact of the growth the share of manufactures in total exports on the terms of trade of East Asian countries; and
- Looking into the implications and drawing policy lessons from the experience of the successful countries for African countries.

#### ***1. 4. Data Sources and Methodology***

With respect to analyzing the trade and industrial policies used by the countries, qualitative secondary sources are employed. Regarding the section that deals with quantitative analysis a data set was developed mainly using data from *UNCTAD Databases-online*. Though the qualitative analysis focuses on only three of the more prominently successful East Asian countries due to space and time limitations, the econometric analysis involves a panel data for six countries for the years from 1980 onwards.

In terms of the econometric estimation procedure and specifically regarding the terms of trade impacts of growth of share of manufactures in total exports, a dynamic fixed effects model is used. Panel unit root tests and panel cointegration analyses were

carried out to study the time series properties of the data and to make sure that the regressions are not spurious. Two definitions of terms of trade (i.e. Net Barter Terms of Trade or NBTT and Income Terms of trade or INTT) are used for reasons to be discussed later in this report and separate analysis was done on NBTT and INTT. Panel vector error correction equations were also estimated and reported to see the short run adjustment to temporary shocks. A more detailed discussion of the data, their time series properties and estimation methodology is presented in Chapter 5.

### ***1.5. Significance of the Study***

By closely looking at the experience of the newly industrialized and industrializing East Asian countries, the study hopes to contribute to the universal free trade /non intervention debate. The contribution is not in the sense of uncovering evidence for or against the export-led growth/growth led exports but in the sense of assessing whether or not the countries were free traders/non interventionists. It is also hoped to shed light on the type of economic engagement with the developed world that Africa should strive for and highlight general lessons Africa should try to emulate in the current global context. To this end, the findings of the study have great implication since, according to Rodrik (1997:1), the success of East Asian countries with “out ward orientation” has constituted the strongest argument in convincing policy makers else where (including Africa) to adopt more open trade strategies.

The general tendency in the literature on terms of trade issues is to analyze the time trend using one technique or another. In contrast, this study focuses on analyzing the

empirical relationships *between variables* (or the impact of variables other than time on terms of trade) even though issues of the long-run trends are also dealt with.

### ***1. 6. The Scope and Limitations of the Study***

The qualitative analysis attempts at covering trade and industrial policies employed by many and heterogeneous group of countries and this taxes upon analytical depth and detail. On top of this, political economy contexts and initial condition are not analyzed in the study though they are obviously very important. Thus, only general policy guidelines and not specific policy recommendations could be reasonably drawn out of the endeavor. Further more the recommendations must be conditioned upon the specific political economy and initial condition contexts of each and every African country. Due to limitations in availability and completeness of the necessary data, the quantitative analysis will be limited to just six countries (Hong Kong - China, Republic of Korea, Indonesia, Malaysia, Singapore and Thailand). Further more, the time span studied is only from 1980-2003. This is an unfortunate limitation since, in the case of the first tigers in particular, the earlier years would have been more interesting since their structural transformation started with full force quite earlier than 1980.

Even though the growth of the manufacturing sector and manufactured exports have wide ranging implications for domestic as well as the external sectors, only their implications on the terms of trade of the countries will be considered in the study. Further more, the technological factor productivity structures of the manufactured

exports of the countries have definitely has changed over the years ("climbing up the ladder" process), but the analysis is not expected to address these aspects adequately.

### ***1.7. Organization and Lay out of the Study***

The chapter that immediately follows reviews the pure theoretical literature. The first part of the chapter critically looks into the basic features of standard international trade theories. This sub-section mostly focuses on the theory of comparative advantage and its modifications and extensions. The chapter also deals with orthodox and non-orthodox critiques of the basic theories and summarizes an alternative theory proposed and consistently propounded by A. Shaikh ("the Theory of Competitive Advantage). Chapter 3 elaborates the infant industry theory, analyzes the views of its opponents and detractors, presents a cursory review of the actual trade and industrial experience of some developed countries and discusses a topic known as 'kicking away the ladder'. Using the actual policies followed by the 'old' industrial as a backdrop, Chapter 4 deals a bit extensively with the experiences of Japan, Republic of Korea and Taiwan, respectively. Chapter 5 presents the mathematical model, discusses issues of data and econometric techniques, and presents results and interpretation. The last chapter concludes and summarizes the findings and presents the policy lessons for African countries.

## ***CHAPTER TWO***

### ***BRIEF REVIEW OF THEORIES OF INTERNATIONAL TRADE***

#### ***2.1. Introduction***

According to Prasch (1996), support for free trade amongst academic economists in the United States is astonishingly high at 97% (as cited in Deranyagala and Fine, 2000:1). In the words of Paul Krugman (1987:130),

If there were an Economist's creed, it would contain the affirmations 'I understand the Principle of Comparative Advantage' and 'I advocate Free Trade.' For one hundred and seventy years, the appreciation that international trade benefits a country whether it is 'fair' or not has been one of the touchstones of professionalism in economics.... This makes the defense of free trade as close to a sacred tenet as any idea in economics.

The defence is so important since the theoretical case for free trade not only claims that competitive free trade ensures an efficient allocation of resources but will also automatically benefit all nations (Shaikh 2004).

Thus, not at all surprisingly, the proponents of globalization believe that economic theory has irrefutably established the superiority of free trade, even though there are some formal Orthodox models which show free trade not to be the best; and even the builders of those models argue that free trade is still the best policy because interventionist trade policies are almost certain to be politically abused (Chang, 2003: 1). Such is the dominance of the belief in the superiority of free trade among the so-called Washington Consensus followers that one prominent figure in the area puts, as a central question of a history of economic thought, the

explanation of why economists should have revisited the charms of free trade for so long given its virtues in practice and its centrality within the standard theory of comparative advantage (Krueger, 1997, as cited in Deranyagala and Fine, 2000).

Given such a context, the main objective of this chapter is to critically look in to the basic features of the standard trade theories and their critics as well as the major tents of the new trade theories. The aim is not to provide a comprehensive survey, nor to provide a comprehensive critique. Instead, in line with the main hypothesis of this study; it is to provide a summary of who-stands-where with regard to international trade and government intervention in trade and industrial development policy. It also attempts to present a totally different theoretical approach proposed by A. Shaikh as an alternative since he recommends modernization as the most important means of raising productivity and thereby achieve international competitiveness instead of relying on free trade to remedy international inequality (Shaikh, 1996: 76).

## ***2.2. The Classical and Neoclassical Theories of International Trade***

The systematic theoretical analysis of international trade could be said to have started with the classical school of economists. Most notably, the founder of the school, Adam Smith was the first to propose a concrete theory of international trade in *The Wealth of Nations* (Smith 1776, reprinted in 1937). His ideas are said to have their roots in the works of the French per-classical school known as the Physiocrats (Condliffe, 1950: 116-117). According to Smith, international trade occurs due to the presence of

absolute cost differences in production of various products across countries (presence of absolute advantage) and trade is mutually beneficial to all trading partners as it allows the maximal utilization of the benefits of specialization in production (Smith, op. cit.).

Regional specialization, leading to a territorial division of labor between countries, was the basis of Adam Smith's argument for free trade. He argued that, if competition is not interfered with, it will lead to this kind of specialization and will thereby maximize production within each country and, in the whole trading world" (Condillife, 1950: 180).

The argument for free trade based on this theory crumbles if one country has absolute cost (dis)advantage over the other. Consequently, it was left to his successor, David Ricardo, to defend the case for free trade by formulating the theory of comparative advantage/costs (Sen, 2005: 1012-1013, Condillife, 1950: 161).

The defense provided by Ricardo (1821) and his successors was so prominent that, even today, the central edifice in the whole of the theory of international trade and the backbone for the advocacy of trade liberalization is the Ricardian theory or the so-called law of comparative costs (Shafaeddin, 2003). This theory assumes technological differences across countries which implies differences in factor prices across countries (Feenstra, 2004: 2-1). According to this theory, "if traders are left alone to persuade their own profit by buying in the cheapest market and selling in the dearest market", the result in the long run would be such that each country would come to specialize on producing and exporting the commodities in which its comparative advantage was greatest (Ricardo, 1821, as quoted in Condillife, 1950: 179). And trade occurs even if

one country has an absolute disadvantage in the production of all traded goods. In other words, the law of comparative costs states that, under the right conditions, free trade would benefit each participating country, “no matter how backward its technology; absolute costs are of no importance at all; only relative costs matter” (Shaikh, 1980:204).

In presentations of the classical theory, it is common to explicitly assume fixed labor (fixed endowment); constant returns to scale; balanced trade; no transportation costs; perfect competition in all products; internally mobile but internationally immobile factors of production and differing production technologies (difference in production function) across countries (Feenstra, 2004: 1-2, Sen, 2005:1012-13, Condliffe, 1950: 173, 183 ). Based on these assumptions, the central questions that occupied the classical theorists are (Condliffe, 1950: 171): In what condition does trade occur/arise? How are the payments between the national economies cleared? And, how are the gains from trade are divided? The first question is answered by the above-mentioned theory of comparative advantage (Feenstra, 2004:1-5). The second is answered by the so-called price-specie flow mechanism (or more or less, by the classical quantity theory of money) (Condliffe, 1950: 186). And the last question is answered by the theory of reciprocal demand (Mill, 1886: 149). However, in general, modern presentations of the law of comparative costs make no reference to the actual mechanism by which the law actually comes to force and the emphasis is almost entirely on the gains that would be achieved if trade were based on comparative costs; “nonetheless, because these discussions are also intended to be descriptive, the implicit assumptions is that the

adjustment of money wage and price levels or exchange rates required to preserve international monetary equilibrium do actually take place ( Shaikh, 1980:206).

The undisputed heir to the classical trade theory is the Heckscher-Ohlin factor endowment theory, which is generally known as the neoclassical theory of international trade. The basic model originates from the 1919 article of Eli Heckscher and the 1924 dissertation of Bertil Ohlin (Feenstra, op. cit. : 2-1). Based on the works of the two Swedish economists, Paul Samuelson formulated a two countries, two goods and two factors of production (or the 2/2/2) mathematical model (Ibid). This model is the basic neo-classical model, which is usually referred to as the H-O-S model (Ibid). Its goal is to predict the pattern of trade in goods between two countries, based on the differences in their factor endowments (Ibid). The multi-factor version of this model is associated with the work of Vanek (1968) and is often called the H-O-V model. In this version there would not be an attempt to keep track of the trade pattern in individual goods, but instead, “factor content” of trade is computed, i.e. the amounts of labor, capital, etc. embodied in the production of the exports and imports of a country (Ibid).

The basic assumptions of the model include identical technology across countries; constant returns to scale; domestically perfectly mobile but internationally perfectly immobile factors of production; perfect competition in all markets; identical and homothetic tastes across countries, differing factor endowments; free trade in goods but none in factors of production; no possibility of factor-intensity reversals; and balanced trade (i.e. a country can not spend more than it earns) (Feenstra, 2004: 2-2, Shafaeddin,

2003: 6, Sen, 2005: 1015). The basic question it asks is: what would be the pattern of trade in goods between countries? And it answers: Each country will export the good that uses its abundant factor intensively (Feenstra, op. cit. p. 2-2). Thus, in comparison to the classical theory, it dispenses with the notion of technological differences and instead focuses on showing how factor endowments form the basis for trade.<sup>1</sup>

The neoclassical theory implies that, under free trade, comparative costs dictate the goods that a country specializes in and exports while absolute costs dictate the wage rate (Feenstra, 2004: 1-5). Thus, “poor Ricardo dared only to claim that free trade is better; neoclassical theory can boldly claim that international inequality is best” (Shaikh, 1980:205). In other words, Ethiopia for example, which is suitably endowed for the production of coffee, should specialize in the production and export of this commodity and let her poor farmers keep earning very low incomes forever. Furthermore, the theory completely assumes away any possibility of absolute advantage on the part of any one country: wine production in England and wine production in Portugal is assumed to be characterized by exactly the same production function (Ibid: p. 206). Just like its predecessor (and its replacement of sorts), the neoclassical trade theory has also been widely used by economists championing free trade on the grounds of optimization at global level, of productive efficiency, consumption (and therefore welfare), and the automatic utilization of factors of production at full scale (Sen, 2005: 1013). It is interesting to note here how boldly the neoclassical theory played down “the overwhelming role of demand on market prices.

---

<sup>1</sup> For formal treatment of the basic model and the theorems related to this class of trade theory, see Feenstra, 2004, Chapters 1 and 2.

This was to bring resource endowments of nations to centre-stage as *the* determining factor for mutually gainful trade” (Ibid.: 1014, emphasis original).

There is a section in this chapter that deals with the criticism aimed at the neo-classical theory in some more detail but let us emphasize from the outset one thing about it: even the mainstream accepts the fact that the neo-classical model performs very poorly empirically (Feenstra, 2004: 2-1). Therefore, at least in terms of the Orthodox international trade theory, we are back to the classical world where comparative advantage theory rules supreme - “*The Ricardian model is as relevant today as it always has been*” (Ibid: 1-1, emphasis added). To see how supreme this theory reigns, it is sufficient just to quote one of the famous introductory textbooks in economics: “Over simplified as it is, the theory of comparative advantage provides a most important glimpse of truth. Economics has few deeper principles” (Samuelson and Nordhaus, 1989: 496). In recognition of this dominance of the theory of comparative advantage, we look in to the pillars of the original theory in more detail below.

The three pillars of the classical trade theory are in fact the answers to the three questions basic to the traditional international trade theory. That is, the issue of the pattern of trade is settled using the comparative advantage/cost theory; the issue of distribution of the gains from trade (if there are any) is answered by Mill’s (1886) theory of intensity of reciprocal demand; and, the question as to how international payments are cleared and imbalances avoided is dealt by the adoption of Hume’s price-specie flow mechanism or the classical quantity theory of money (Condcliffe, 1950). Accordingly, the classical economists depended on and elaborated Hume’s price specie

flow mechanism to explain how payments are balanced between various trading nations; and thus, how the results of comparative advantage theory actually obtain. “This price-specie flow theory was a second major theorem of the classical theory of international trade (the first being that of the law of comparative costs)” (Ibid: 186).

According to the price-specie flow theory, if prices went up in any country, bullion must be used to import goods from abroad (leading to bullion exports and hence decrease in domestic money supply); this leads to (equivalent) monetary price decrease in the bullion exporting country (the reverse happening in the importing country) (Condliffe, 1950: 117-118,186-87). In other words, if surplus of exports over imports caused a demand for inward payments to be greater than outward payments, the exchange rate would favor bullion import (since gold is considered just as another commodity). If such exchange rate movement could not lead to sufficient increases in imports and reduction in exports capable of rectifying the balance, “the rate would eventually reach the point where gold would be imported as the cheapest means of settling the payments for the surplus exports” (Ibid: 190). Regarding the impact of the money imports (or an increase in money supply due to import of bullion), Mill (1886) in particular explicitly employs the classical quantity theory of money. In his own words, “the quantity of money in circulation is equal to the money value of all the goods sold, divided by the number which expresses the rapidity of circulation”; and in the case of increase in money supply, he states that “prices would have risen in a certain ratio, and the value of money would have fallen in the same ratio...This ratio would be precisely that in which the quantity of money had been increased (Ibid: 17-18).

Thus, the theory of comparative advantage, using the quantity theory of money, concludes that trade based on comparative costs benefits all or at least is not harmful to anyone involved (Shaikh, 1980:204). Here it is important to be reminded of the fact that it is not absolutely necessary that we use the classical quantity theory of money to arrive at the basic Ricardian conclusion on international trade; in fact, any modern theory of money which translates the initial trade deficit of the inefficient/ backward country in to falling price levels (falling relative to the price levels in the advanced country) would perfectly suffice (Ibid, 1980: 216)

As was mentioned above, the issue of the distribution of gains would be taken care of by the so-called reciprocal intensity of demand. In fact, the Ricardian analysis did not take account of the role of demand as an explanation for the terms of trade in exchange. It was left for his successor Mill (1886) to introduce the notion of ‘reciprocal demand’ later on. According to Mill (1886), the more the foreign demand for a country’s exports compared to its demand for imports and “the less it can spare to produce for foreign market, compared with what foreigners spare to produce for its markets, the more favorable to it will be the terms of exchange: that is the more it will obtain of foreign commodities in return for a given quantity of its own” (Ibid: 149). And finally, Alfred Marshal further advanced the role of demand in terms of ‘offer curve’ construct (Sen 2005: 1013).

### **2.3. The New Trade Theories**

The 1980s saw the flourishing of a set of trade theories collectively known as New Trade Theories. According to Gondelfo (1994), there is a need to use the plural phrase unlike the orthodox theory because there is not *one* new theory but *several*, with differences in assumptions and results. What they have in common is that they all drop the assumption of perfect competition and/or of product homogeneity (Ibid: 273). Major contributors in the area include among others Either (1982), Krugman (1984, 1986, 1992, etc. ), Brander and Spencer (1985), Eaton and Grossman (1986), Grossman and Horn (1988), and Grossman and Helpman (1991). The overall thrust of this new family of trade theories is to extend the analysis of the standard theory by incorporating market imperfections, increasing returns, strategic behavior, new industrial economics and the new growth theory (Deraniyagala and Fine, 2000:4).

Overall, the new models of international trade attempt to address the shortcomings of standard trade theory by dealing with some of the realities of trade in a more complex and sophisticated manner by incorporating a fuller range of factors (Deraniyagala and Fine 2000: 4). However, at the theoretical level, they provide few unambiguous conclusions (Ibid). Thus, where as the 'old' theories had a set of precise results on the preferability of trade to autarky and, if second best situations on the preferability of free trade to restricted trade are excluded, the new trade theories conversely give rise to contradictory results due to their competing assumptions (Gondelfo, 1994: 174). Nevertheless, they incorporate four innovations within neoclassical economics

(Deraniyagala and Fine, 2000: 4): market imperfections; strategic behavior and the new industrial economics, new growth theory and political economy arguments.

Many of the models based on market imperfections and strategic behavior justify interventionist trade policy (Deraniyagala and Fine 2000: 5). In particular, as Lancaster's neo-Hotelling modeling of taste diversity forcefully underlines, the combination of increasing returns and taste diversity can lead to outcomes where the market leads to a sub-optimal result: one where the exploitation of economies of scale in a limited range of product diversity must be set against loss of product diversity, and the market outcome may therefore be improved upon (Bhagwati, 1988: 22). New trade theories also draw upon the new industrial economics with models incorporating the strategic behavior of all agents (firms as well as governments); involving game theory, inter-temporal optimization, and issues of time-consistency especially for government policy (Deraniyagala and Fine 2000: 5).

Regarding the trade policy positions taken by the new trade theorists, it is sufficient to cite the summary provided by Bhagwati (1994: 237-238): either the theorists have followed the 'Chicago School' approach of saying that the market imperfections do not amount to a hill of beans and should therefore be ignored by policy makers; or else, they have followed the more conservative 'Public Choice School' approach which essentially argues that the visible hand will strangulate; intervention will produce worse outcomes than the imperfect markets that are targeted for fixing. Thus, ironically, even though the new trade theories take into account some of the complexities of international trade and although the analytical thrust of many models justify

intervention, such policy conclusions are rejected even by those at the forefront of these theories on the grounds of political economy arguments which do not stand up to careful scrutiny (Deraniyagala and Fine, 2000: 1). Thus, the theoretical innovations that started under the auspices of the neoclassical economic thinking, finally and not surprisingly, ended up backing off into free trade. And in fact, the advocates of free trade are still able to confidently declare that, “the case for free trade (even after the innovations of the new trade theories) as brought up to date from 1817 (the year of publication of Ricardo’s *Principles*) is therefore alive and well” (Bhagwati 1988: 26).

## ***2. 4. The Critiques of the Standard Theories<sup>2</sup>***

### ***2.4.1. Orthodox Critiques<sup>3</sup>***

As is the case in most economic theorizing, the first starting point for criticism of the standard theories is its assumptions. Besides its simplifying assumptions like zero or inconsequential transportation costs, the constant returns to scale assumption was one of the earliest weak spots to be targeted by critics. In this line, Graham (1923, reprinted in 1960), who showed that Mill’s (1886) assumption of constant returns to scale is not in itself sufficient to justify his conclusions; and that, the validity of the conclusion will in fact depend on the relative size of the economies and the two traded commodities, could be considered the earliest critic.

---

<sup>2</sup> Our definition of Standard Theories here includes not only the classical and neoclassical theories but also the new trade theories since they have “remained fully ‘consonant’ with the ‘traditional theory’” (Sen, 2005: 1019).

<sup>3</sup> Shaikh (1980) among others employs similar classification to refer to the mainstream of international economics literature but he does not include the new trade theories obviously because they were not “born” or were just “infants”.

As far as criticizing a body of theory by targeting and relaxing the original assumptions goes, one could justifiably conclude that the so-called new trade theories are nothing but extensions and exploration of the impact of relaxing one or more of the assumptions of the standard theory on its conclusions. Thus, the new theories which explore the implications of taste diversity, increasing returns, externalities, market imperfections and so on could be viewed simply as extensions and modifications of the “old” theory and not as such a “new theory”. As is highlighted above in a separate section, they, of course, complicate and sophisticate things and generally arrive at conflicting results. However, in the sense that they basically accept the underlying framework of the traditional theory and just tweak one or more of its assumptions, they could very justifiably be deemed as Orthodox modifications and critiques at best. This is not the only kind of kinship they have with the old theory; after all, as is pointed out earlier, their recommendations are generally ‘orthodox’ no matter what their formal analyses suggest. As the Amharic saying goes, “Lej abatun yemeslal” (The son resembles his father). And in general, it would not be far from the truth if we say that the implicit premise of the formulators of the new theories is that comparative advantage law holds if not for the “imperfections”. And therefore, according to one author, limitations remain in the new theory *because of* its excessive fidelity to the old theory (Sen, 2005: 1019).

Going back to the ‘old’ theory, we find that modern presentations of it replace the labor theory of value with the concept of opportunity cost of a product, i.e. the amount of other commodities the nation has to forgo at the margin (next best alternative) in order to produce one more unit of the commodity in question (Shaikh, 1979/80: 290-291).

Such a delicate balance requires the assumption of full employment in the whole economy because, unless the country is at full employment equilibrium, it can produce more of a commodity without needing to forgo any amount of other commodities (Ibid). Obviously, such a strict assumption is so untenable in reality. Therefore, at best, the conclusions of the theory should be taken with a grain of salt in recognition of this fact. Not at all surprisingly, this weak spot of the standard theory was the key and arguably the only major criticism thrown at the theory by the Keynesians; explicitly speaking, they argue that unemployment and inflation combined under certain conditions result in an outcome contradictory to the law (Bhagwati, 1994: 233, Shaikh, 1980: 207). In addition, “unless the prices of commodities within a country are at least roughly proportional to their real (social) costs, the doctrine of comparative costs is insufficient to establish a presumption of free trade and, in fact may provide a presumption in favor of interference with trade in order to bring it into conformity with comparative real costs” (Viner, 1937: 493, as quoted in Condliffe, 1950: 183). Thus, in the orthodox theorist’s admission, discrepancies in prices of products from their social costs, which are not exceptions but rather the rules, “theoretically” justify interventions.

The obvious and most forcefully stated recommendation of the Orthodox theory is for everyone to produce (specialize) based on his or her comparative advantage (be it technology based or resource based). This means that a country like Ethiopia, gifted by nature for the production of, say, coffee should primarily focus in the development of that sector, remove all the barriers to free trade, abstain from supporting any other sector for which it does not already possess comparative cost advantage and pray for the benefits of free trade to arrive and redeem it from abject poverty and economic

underdevelopment. In this light, the theory advocates the continuation of the status quo and hence is static; and *a la* Prebisch-Singer (Prebisch, 1950, 1959, Singer, 1950), we now know that specialization is harmful to the country that ends up specializing in primary products.

With regard to the neoclassical trade theory, the most potent criticism is the so-called “Leontief’s paradox”. Leontief (1953) confronted the theory with the U.S. input-output data set that allowed him to compute the amounts of labor and capital used in each industry for 1948. In addition he used the country’s trade data for the same year to compute the amounts of labor and capital used in the production of the imports and the exports (Ibid). His finding implies that the capital/labor ratio of the imports were *higher* than the capital/labor ratio found for the U.S. exports; thus contradicting the basic theorem of the theory. “Leontief rationalized this result by hypothesizing that American labor is three times as productive as foreign labor... [T]hat is, he resorted to the argument that the US pattern of trade could be explained by its absolute advantage over its trading partners” (Shaikh, 1980: 206). In the neoclassical theory, where it is assumed that there are no differences at all in the production functions of the trading nations, the possibility of absolute advantage for any one country is literally excluded. “That is precisely why the finding by Leontief’s study was considered as a paradox: because it implied that the American production was superior in efficiency compared to that of its trading partner” (Ibid)<sup>4</sup>. In general, the orthodoxy itself openly admits “the bottom line is that the HOV model performs quite poorly empirically unless we are willing to dispense with the assumption of identical technologies across countries. This

---

<sup>4</sup> Nevertheless, Leontief (1956) reversed (retracted?) his earlier conclusion.

brings us back to the earlier tradition of the Ricardian model of allowing for technological differences...” (Feenstra 2004: 2-1).

Coming to the world of empirics, we find a truly bulky amount of literature related to the issue of trade openness and economic growth and performance. In general, this body of literature also proudly announces that more open and outward oriented economies out perform their restrictive counterparts.<sup>5</sup> However, surveying the cross-country econometric literature related to openness and growth, Edwards (1993) concludes that the results are in many cases unconvincing and fragile. Focusing on the large and hugely prominent literature that was produced subsequent to the publication of that work, Rodriguez and Rodrik (1999) forcefully argue that the strong results in this literature arise either from obvious mis-specification or from the use of measures of openness that are proxies for other policy or institutional variables that have independent detrimental effect on growth.

#### ***2.4.2. Heterodox<sup>6</sup> Critiques***

When dealing with the heterodox critics against the standard theory, the natural place to start from is with the most famous of them all: Marx (Condliffe, 1950: 267). The only problem is that he did not fully develop his ideas regarding international trade in to a theory as such (Shaikh, 1980). Nevertheless, we should not overlook his complete rejection of the monetary theory on which the working of the comparative advantage

---

<sup>5</sup> Witness the title of an article by Dollar (1992)- “Outward-oriented Developing Countries Really Do Grow More Rapidly”

<sup>6</sup> Here, we use the term to mean “contrary to or different from the acknowledged standard or the mainstream views”.

relies so much after all (as quoted in Shaikh, 1980: 224). According to Amin (1974), Marx did not study the question of international trade because for him international trade is no different from interregional trade for example. Amin (1974) is of the opinion that “Marxist theory of exchange between the center and the periphery was not worked out well by Marx, the special circumstances of the Industrial Revolution of the nineteenth century having led him into erroneous conception of how the colonial phenomena would develop (Ibid. 134). In any case, as quoted in Condliffe (1950: 269), Marx elaborated the free trade theory arguments with heavy sarcasm and concluded a speech by favoring free trade and against protection not for the orthodox reasons but solely because it would prove a step toward social revolution.

The structuralist literature of the 1950s and in particular the works of Prebisch (1950) and Singer (1950) could be said somewhat radical and very influential in trade policy debates. They emphasized on the terms of trade deterioration for less developed countries. The cited authors claim that the differences in the impacts of the increases in productivity in Northern and Southern products are the root causes for the deterioration (Alemayehu, 2002a: 56). As important as their ideas were for trade policy and industrial development in developing countries, the structuralists do not come close to attacking the standard theory directly. A recent literature that is closely related with the terms of trade deterioration is what is known as ‘unequal exchange’. As modeled in Ocampo (1986), a worsening of the factorial terms of trade is a sign that the relative per-worker national income deteriorates. “Indeed, aside from the very debatable concept of ‘transfer of value’, associated with the work of Emmanuel and his critics, it is to this variable that the notion of ‘unequal exchange’ has been attached” (Ibid. 131).

According to Bacha (1978), the Heterodox theory of unequal exchange could be summarized in the neoclassical language as follows: unequal exchange arises from the fact that real wages are higher in the developed North than in the developing South; and trade under these conditions is unequal to the South, in the normative sense that its terms of trade and (income levels) are lower than they would be under a Pareto-efficient trade arrangement allowing for perfect international labor mobility” (Ibid: 320). In general, we can say that critics under this category are all against free trade and radical but have not provided an alternative theory that is capable completely uprooting the standard theory.

### ***2.5. The Shaikh Critique and the Theory of Competitive Advantage***

We have not attempted to see in detail how the mechanism that transforms absolute disadvantage into a relative one in the Ricardian theory actually works its magic because the core of what we have termed as “the Shaikh critique” focuses on this component of the classical theory. In a nutshell, the main point of this critique is that the automatic mechanism by which real exchange rate adjusts to ensure that trade even among efficiency (cost) wise unequal trading partners would be balanced and mutually beneficial is fictitious. In other words, argument it claims that there is no automatic mechanism that would transform the disadvantage in production that emanates from inferior production technology and hence higher real production costs into a comparative disadvantage so that the benefits of spatial (territorial) specialization could be taken advantage. These views were basically expounded, among others, in Shaikh (1979, 1979-80, 1980(‘84), 1991).

In a sharp contrast to the Orthodox theories of money, in Shaikh's Marxist monetary theory, excess money supply<sup>7</sup> over and above the economy's requirement leads to idle bank reserves above the legal reserve requirements and this in turn motivates the banks to lower interest rates in their attempts to convert this idle but potentially profit making capital into functioning capital (Shaikh, 1979/80: 32). The converse also holds true. Thus, rather than raising the price level, the immediate effect of an excess money supply is to lower the interest rate; the converse being true for the case of decrease in money supply (as the result of, say, export of gold bullions to cover trade imbalances) (Ibid). The author further argues that an increase in the supply of money can indeed lead to an increase in effective demand, either because it is re-spent by its original holders, or indirectly because it expands bank reserves and hence the supply of loanable money-capital, which tends to drive down interest rates, and may in turn increase borrowing for investment purposes, thus further expanding production (Ibid: 32-33).

The implication of this line of argument is that outflow of money leads to decrease in the availability of loanable money-capital. Since the producers in the country are simultaneously losing out to their foreign competitors and hence domestic production is dwindling in both sectors, the domestic demand for loanable money will also decrease (Shaikh, 1980:226). Nonetheless, when the domestic production of the products in question has shrunk to its minimum possible size, "the continued drain of gold will tend to raise the rate of interest; in so far as this curtails investment, production of other

---

<sup>7</sup> The increase or the "excess" in money supply we are talking about here is the result of trade surplus on the part of the country that has absolute advantage in all traded goods compared with its trading partner under free trade; the surplus leading to import of gold money in the classical case and increase in liquidity when exporters convert their foreign exchange earnings into domestic currency in modern terms. The reverse holds true in the disadvantaged country. (See Shaikh, 1979/80, 1980 for details.)

commodities will decline...The drain of bullion will lead to lower bank reserves, curtailed production, and a higher rate of interest” (Ibid.). Conversely, in the other country, part of the new influx of money will be absorbed by the expanded circulation requirements of expanding production; part of it will be absorbed in expanded bank reserves leading to a downward pressure on the rate of interest and generally motivating further expansion in production in the whole economy. In brief, absolute advantage (disadvantage) will be manifested in a chronic trade surplus (deficit) balanced by persistent accumulation (depletion) of gold (Ibid.).

Since such a situation can not go on indefinitely (If it continued, it would mean the loss of the credibility of the currency of the deficit country and its eventual demise.) a need arises to introduce capital mobility between the two countries (meaning that we are introducing an assumption which was not part of Ricardo’s original theory) (Shaikh, 1980: 226). The above analysis necessarily implies that there would arise a steadily growing interest rate differential between the two countries. Relaxation of the capital immobility assumption would lead to flow of short term financial capital from the loanable capital rich (where interest rates are low) to the loanable capital starving country (where interest rates are higher). This capital flow will stop when the interest differential evaporates as a result- chronic trade deficit is balanced by transfer of financial capital (Ibid). This movement of capital means that the country with chronic deficit will end up also with international debt of the amount equal to the original borrowing plus the interest; the disadvantaged country ends up being in both chronic trade deficit as well as chronic debt. If we relax the assumption of only two tradable goods, the backward country may continue to produce and export certain commodities

but these commodities would be those in which it has absolute advantage (probably owing to special climatic and other endowments) (Shaikh, 1979/80: 40). Thus, according to this theory, *international trade will accentuate and perpetuate the inequality between the technologically backward and advanced nations* (Ibid). This is because it is absolute advantage, not comparative advantage, which dictates international trade-the country with absolute advantage in all the traded products will export all the traded products. Accordingly, we are back at the point where Smith's (1776) analysis ended: international competition, just like domestic competition, rewards those who can produce and sell at lower prices<sup>8</sup>. In Shaikh's words, "Free trade will ensure that the underdeveloped capitalist regions will either have to confine their import needs to the low levels that are supportable by their exports, or else they will be chronically in deficit and perpetually in debt" (Shaikh, 1979: 301).

It is essential here to remind ourselves that such a radical and far reaching conclusion is arrived at not through uncovering of some hitherto overlooked mathematical glitch in the Orthodox derivation of the law of comparative advantage; it is simply the result of the of the out right rejection of the monetary pillar of the original theory and replacement of that theory with another theory. As was mentioned earlier, the classical economists explicitly advocated the quantity theory of money and the price-specie flow mechanism. As far back as Keynes, many authors reject the monetarist foundation of the standard trade theory (Emmanuel, 1972: viii). Therefore, Shaikh's rejection of the quantity theory of money is not a new idea as such; his major contribution lies in his

---

<sup>8</sup> That is, free trade ensures that specialization occurs based on differences in absolute costs- "natural" or "acquired" (Shaikh, 1996: 67, Smith, 1776(1937)).

persistent and forceful exposition of the vulnerability of the whole comparative advantage theory apparatus to any weaknesses of the monetarist foundation *and* the application of a competing monetary theory to reach at his radical results. As far as the attempt to topple the theory by pointing out the weakness of the quantity theory is concerned, Emmanuel (1972) points out that the essence of that point was formulated as long ago as the 1940s in England during the discussions about the Bank Act between the Currency School and the Banking School (Ibid). However, Emmanuel (1972) rejects such criticism of the classical theory because, according to him, “the theory of comparative advantage could be true without the quantity theory of money with a different regulator- for instance, price movements caused not by the ebbs and flows of money but by those of incomes” (ibid: viii-ix).

What Emmanuel (1972) means by incomes is not real incomes but money incomes. In this path, the classical results are arrived at by associating trade deficit with increased unemployment; i.e. money wages will fall as the result of higher unemployment (so, less effective demand); and with them money prices (Shaikh, 1980: 217, Amin, 1974: 47). This result is said to hold even under the assumption of relatively downward sticky wages because all that is required is a movement in one of the two price levels so as to arrive at those relative prices which would ensure the comparative advantage theory’s results (Shaikh, 1979/80: 35). But Shaikh (1979/80, 1980) denies this direct connection of effective demand and permanent price levels and further argues that money wages cannot permanently influence the price level (Ibid). Shaikh (1996) formalizes the idea that international trade operates under the law of absolute advantage and presents the structural analysis of international competition. Shaikh (1991) deals with the real

exchange rate implications of the comparative cost theory and provides a formal model of an alternative approach.

In the interest of conciseness, here, we just present the informal and skeletal version what we call the Theory of Competitive Advantage which follows from and is related with the relentless efforts of Prof. Shaikh. According to him, “international competition behaves in the same way as national competition, in that producers with lower unit costs will be able to cut prices and expand their market share at the expense of their less fortunate rivals” (Shaikh, 1996: 70). In other words, just as free competition in the domestic market, free international competition rewards the strong and efficient and punishes and drives out of the market the inefficient and the weak companies or producers - the competition is driven by the law of absolute advantage, meaning, firms with lower unit costs of production enjoy an absolute competitive advantage. The two sets of companies can be considered as coming from two regions within a country or, as in the case of international competition, coming from two countries with different levels of economic development (Shaikh, 1996). As the result of its rejection of the mechanism that translates the absolute disadvantage into a relative one, the theory of competitive advantage fails to see any difference between domestic and international competition; whether local, regional or inter-country, the effect of free competition is exactly the same: it rewards those producers that could produce at the lowest real cost as the result of their advantage in terms of real wages, the level of technological development, availability of natural resources, and so on (Shaikh, 2004). In other words, in free competition, be it domestic or international, the strong always wins and takes all.

After rejecting the theory of free trade, Shaikh concludes that, “Modernization is the only remaining alternative, both in theory and in practice. *It is only by raising both the level and the growth rate of productivity that a country can, in the long run, prosper in international trade*” (Shaikh,1996: 76, emphasis added). In any case, we need not believe his radical theory because, in our opinion, the simple knowledge that the assumptions of the theory are unrealistic should have provided us the signal not to advocate free trade as the best policy for all situations at all times<sup>9</sup>. Especially, for countries that are in the unfortunate situation of economic backwardness, the most important question therefore is how to overcome its absolute disadvantage and improve its competitiveness. To put the matter in another way, the question as to *how* a country or region could reverse its ill fortune by raising its productivity and technological capabilities is crucial. This question is important not only under the presumption that the Orthodox theory is flawed and based on untenable assumptions but even under the opposite presumption because the traditional theory itself admits that wage levels (factor earnings) are determined by the absolute advantage and increasing real factor earnings, which in fact determine the living standard of the people in a county, are *the* targets of national economic policies. Any attempt at reversing the fortunes of a backward nation or region also needs to look closely at the historical experience of those countries that “did it”- those countries that caught up with their superior trade competitors - for policy guidance. More specifically, looking into the actual experiences of the successful countries could provide a credible guidance for current

---

<sup>9</sup> See Shafaeddin (2003) for a case against ‘universal’ and ‘uniform’ trade liberalization based on the unrealistic nature of the assumptions of the standard trade theories.

(African) economic policy makers and could be used as a yard stick to make judgments about (basically two) competing theories described in the chapter. Hence, these questions are main subjects of enquiry in the next chapter.

## ***CHAPTER THREE***

# ***TRADE POLICY AND INDUSTRIAL DEVELOPMENT: THE INFANT INDUSTRY ARGUMENT AND THE HISTORICAL EXPIRIENCE***

### ***3.1. Introduction***

The preceding chapter showed how dominant the free trade doctrine is in the economics profession and policy discourses for as long as the profession's existence and analyzed the theoretical bases of this doctrines. Towards the end of that chapter, it was remarked that, even under the presumption that the free trade theory is fundamentally right in its analysis, the most important policy question in a nation's context is not the fairness and unfairness of the market mechanism but how a backward country could improve its productivity and change the structure of is economy. This is essential to raise its level on the ladder of comparative advantage in the long term- *since what determines how much its factors of production earn in the global market even in the Orthodox framework of analysis is the absolute advantage* (see Feenstra, 2004:1-5).

This chapter presents the so-called infant industry argument not as the theoretical curiosity to which it has been pushed in to, but as a relevant and useful policy guide for long term industrial development in the context of trade relations between countries with wide economic development gaps. The infant industry argument will be strengthened by a brief review of the policy experiences of the 'old' industrialized

countries. The chapter will be concluded with the discussion of what is known as “kicking away the ladder” on the part of those ahead in industrial development.

## **3.2. Revisiting the Infant Industry Argument**

### **3.2.1. Re-statement of the Original Argument**

#### ***Hamilton***

The classic presentation of the argument is to be found in Alexander Hamilton’s *Report on the Subject of Manufactures*, presented to the House of Representatives in December, 1791 (Condliffe, 1950: 240). Hamilton strongly argued for encouraging the inflow of especially skilled labor and foreign capital, introduction of banking and the use of the funded debt (ibid: 246). To him, free trade means the destruction of new domestic manufacturing industries due to competition from their advanced country rivals; and if a backward country followed free trade, it would suffer from “unequal exchange” because competition with established manufactures of other nations on equal terms is impracticable (McKee, 1934 as cited in Shafaeddin, 1998: 12).

According to Hamilton, “natural course of things” (the free operation of the market) does not guarantee a speedy industrial development in a country because “inertia and a tendency to imitate are reflected in fears about failing in new ventures, obstacles inseparable from first experiments in competing with nations which have already perfected a particular branch of industry” (Hamilton, 1934 as cited in Gonzalez 2001:103).

Hamilton (1791) argued for selective protection, exemption of imported inputs from duties, government control and monitoring of quality of goods produced, facilitation of transportation by the government, and government intervention in encouragement of inventions and promotion of institutions necessary for industrialization (as cited in Shafaeddin, 1998: 12-13). Further more, he saw the role of government as complementary to the private sector and as significant at early stages of industrialization. Theoretically also, he strongly rejected the static analysis of immediate advantage emphasized by the classical economists in favor of a dynamic analysis of long term development of industry in an economy (ibid). Hamilton's ideas were picked up and widely propagated by Mathew Carey (1760-1839) and later by his son Henry Carey but not much substance was added to them until their further elaboration by Fredrich List (Condliffe, 1950).

### ***List***<sup>10</sup>

List (1774 (1841)) sees protection as a necessary cost that should be born in the interest of long-term development and catching up with the advanced countries (ibid: 223). In other words, his idea of protection is as buffer against the destructive consequences of competition between superior foreign producers and domestic beginners. Further, he considers cheap imports as “equivalent to the gift which the Sultan makes to his Pashas when he sends them a silken cord with which to hang themselves” and asks, “Who would console himself for the loss of an arm, by the fact that he could purchase his shirt

---

<sup>10</sup> List (1789-1846), lived in the United States from 1825-1832 and was an ardent admirer of Alexander Hamilton like Carey but his ideas were already formed when he arrived in America (Condliffe, 1950: 276). Even though he had been writing and propagating his ideas long before its publication, *National System of Political Economy* which was first published in 1841 could be said as his most important work regarding the infant industry argument.

forty per cent cheaper?” (ibid: 225). This clearly indicates that List was emphasizing the importance of long-term economic development at the cost of short term consumer benefits and the fact that cheap imports are not sustainable in any case because the consumers will not have the income to buy the ‘cheap’ imports if foreign competition wipes out the domestic production.

Accordingly, List (1974) argues that a country that aspires to industrialize and catch up with the advanced countries should sacrifice the present consumer benefit in the interest of future gains in ‘productive power (dynamic comparative advantage) and higher future purchasing power for its consumers. Otherwise, yes, the country’s consumers will gain temporarily from cheaper imports *but*, after the domestic producers are forced out of the market by foreign competition, will not have the purchasing power to enjoy ‘cheap’ imports because they could be consumed *only if* there is income from somewhere and income comes only from some productive activity *or else*, the country would be not only in a persistent deficit but also become a constant borrower and/or international ‘beggar’.<sup>11</sup> Therefore, protecting the inefficient domestic producers at least will save the country from losing in the long-term what it already has and provide the opportunity to promote the growth/ graduation of the infant industries in preparation for future international competition. Above all, List (1974), in concurrence with Hamilton (1934), forcefully argues that:

It would be in vain to rely up on the *natural course of things*, where free trade competition prevailed and workmen and artists were to be trained; where machinery is to be constructed and routes of transportation are to be perfected;

---

<sup>11</sup> This point is our interpretation of the overall argument of List (1974).

where, far from sending a considerable quantity of goods to foreign countries, the manufacturer has not even the possession of his own market; where he thinks himself fortunate to find credit to the extent of the merest necessities;...thus checking for years the progress of manufacturing industry (List, 1974:379; emphasis added).

The sense in which ‘natural course of things’ is used implies that what List in fact means is that, left to itself, under free international competition, the market mechanism fails to initiate and promote the rapid industrialization of the backward nation.

Thus, in the infant industry argument sense, protection is not aimed at protecting inefficient industries per se but to protect and nurture them from *until* they become efficient and competitive - until they are able to produce at costs as low as those of their foreign competitors; while appropriate level of domestic competition, learning by doing and economies of scale make sure that product prices keep falling towards international levels (List, 1974: 252). Shafaeddin (1998), rightly argues that List’s emphasis on “industrial training or the education of the country as a whole” and attaining of experience as one of the main justifications for regulation of import duties is in fact reference to development of human capital through learning by doing and achieving dynamic external economies of learning in the modern technical jargon (*ibid*: 9). According to List (1974), good protection and incentives should target at addressing risks and externalities inherent in new industries; thus (*ibid*: 81). The protection accorded to infant industry is not only aimed at motivating domestic economic agents but also enticing foreign technology, skilled labor and capital: (*ibid*). With regard to appropriateness and duration of ‘special treatment’ and protection, List, (1974)

emphasizes that only those industries that have the potential to become international competitors but that are subject to injury from free competition with foreign producers (which have achieved superiority through prior trade restrictions and other forms of commercial policy) should be protected and promoted until they mature (ibid: 266). Competition with foreign rivals should be promoted after the industry in question has matured (ibid: 276).

The infant industry argument sees government intervention in the functioning of the economy not as an inappropriate meddling where the market forces could do better and as an impediment to the beneficial functioning of the market but as creating, facilitating and supplementing and not replacing the market or private initiative (List, 1974: 248). In modern theoretical terminology, such interventions by the government are necessary because of imperfect and incomplete markets coupled with incomplete information which are particularly wide spread in developing countries and strongly undermine and make the market mechanism inadequate (Stiglitz, 1996: 156). The theory also regards the protective system and other measures related to foreign trade policy as just one but not at all the only tools of industrial development. In fact List (1974) takes the development and expansion of “education especially schools of science and art, public expositions, premiums, the improvement of routes of transport, patents; and finally all the laws and all the institutions designed to favor industry, and facilitate and control internal and external commerce” as given and as the prerequisites (ibid: 384). In other words, infant industry theory regards commercial policy just as one element in the scheme for achievement of industrial development.

In fact, List's (1974) emphasis on other essential policies indicates that, his theory was a general theory of developmental state and not just a theory of commercial policy. In this sense, the disproportionate focus put on the learning by doing and/or protection (e.g. Krueger and Tuncer, 1882, Harrison, 1994, Naito, 2000) as the essential features of the infant industry theory by modern writers misses, for example, the role and importance of educated labor force for industrial development and international competitiveness. After all, the quality of labor not only determines the kinds of industries that a country could successfully promote but also provides an edge in international markets. We should emphasize here that the quality of labor force available in the economy in general determines not only the short term productivity of the firms and hence their cost structure but is also crucial for the adoption of new technologies and production techniques. Therefore, the provision of high quality education to the highest number of the population should not only be seen as a means of increasing the productivity and earning capacity (on top of the notion of universal education as human right) but also a form of 'subsidy' to domestic firms. This is simply because the general quality of work force in an economy is external to the firm but essential to its competitiveness. Here we are considering investments in education and training as one form of "factor creation" in the sense used by Porter (1998) who sees factor creation and continued upgrading as essential means of creating and maintaining competitive advantage. According to Stiglitz (1996), the policies that aim at expansion of education are also important for promotion of greater income equality which in turn is not only desirable in itself but also crucial for ensuring political stability (Ibid: 168).

Contrary to what many modern authors' claim (e.g. Corden, 1997), infant industry theory does not advocate across the board protection of industries at a given point in time and the protection is not meant to be equal for all the sectors chosen for protection (List, 1974: 266-267). The choice of the sectors to receive special treatment and protection should also take in to account the potential of other sectors that benefit from their development. It also advocates the guiding of industrial development in a way that maximizes linkages in the economy (Ibid: 317.) In addition, protection should not be as high as to completely and suddenly shut out foreign competition (Ibid: 266) possibly not to miss out the benefits of technological transfer through importing and motivation for cost cutting and improved quality entailed by superior foreign competitors.

Raw materials and machinery are excluded from the list of candidates for import duties (at early stages of industrialization). Where they are subjected to duties, in another work, he recommends a system of drawbacks (Shafaeddin, 2000: 11). And luxury goods are considered the first candidates for imposition of duties; in their case it is not for the sake of protecting domestic producers but for revenue purpose. Target for promotion and protection should also take into account sectors for which "the country is especially adapted"- meaning for which the country has greater potential for success (List, 1974; 384). The level of protection and special treatment should depend on "the particular condition of the nation and its industry" (ibid: 386); protection need not be constant over time and across industries. According to Stiglitz (1996: 154), such adaptive policy flexibility is necessary because the most important thing for success is not a particular policy but the ability to respond to changes in the economic environment and to learn from past mistakes. This point implies that there could also be

learning-by-doing in policy making and implementation. General consumer goods are deemed to deserve the greatest attention since they already have a wide domestic demand and protection is easier to enforce (List, 1974: 389)). Removal of protection and incentives should be gradual, announced in advance and predictable (ibid: 388). In general, the importance of policy consistency is emphasized. Finally, infant industry theory proper also advocates measures aimed at technological transfer and inflow of foreign capital and skilled man power (ibid).

Before we close the discussion regarding infant industry theory, let us briefly consider a sort of extension to it in line with the modern context. Shafaeddin (2003), underlines the fact that List did not consider infant industry protection to be a means of import substitution *per se*; and that, his view was that the protection ultimately aims at *massive exports of manufactured goods*. He also extends the original argument by stating that it does not apply only to the production stage; nor is it confined to production for the home market (ibid: 117). This is because *production for export also has to go through an infancy period*, which is, in fact, longer than the infancy period for production for domestic market since manufactures for export involve a chain of infancy in product marketing and distribution, development of brand names and reputation, technology adaptation and development, etc.” (ibid).

Finally, let us close the discussion with some observations regarding the ideas propounded by a pioneer Ethiopian development economist Gebre Hiwot Baykedagn. Since Alemayehu (2002b) has already done an admirable job of elucidating many of

Gebre Hiwot's ideas <sup>12</sup>, here we only quote some passages from *Mengistna ye Hizb Astedader* (Government and Public Administration) (1924<sup>13</sup>) to demonstrate the striking similarity between the ideas of Gebre Hiwot (1924), List (1974) and Hamilton (1791). Discussing about the unfairness of free trade between primary commodity exporters and those that produce and export manufactured products or products with higher value added, he states,

The Ethiopian people export unprocessed hides yearly. The price of one *feresulla* (a unit of measurement) of hides is up to 13 *birr* in our country. Since Ethiopian people are not technologically advanced, these 13 *birr* are returned to the advanced countries to purchase their goods than being used for example between the Ethiopian people. The imported leather which is processed in the country of the *ferenji* ('the white man') and comes back fetches up to 150 *birr* (per *feresulla*) (Gebrehiwot, 1995 (translation): 152).

In presenting the case for infant industry protection and promotion, Gebre Hiwot (1995) puts a strong emphasis on the importance of a good tax system that discriminates against finished products (that the country aspires to produce domestically) while being soft on the import of machinery for example:

We hope that the government strives towards the goal of domestic production of whatever is necessary to the livelihood of the people and increase value added on those which are exported. While the government strives towards these goals, its principal support is a well-established tax system. A well established tax system

---

<sup>12</sup> See also Tenker Bonger's 'Introduction' to his translation of the main work of Gebre Hiwot, *Mengistna ye Hezb Astedader*.

<sup>13</sup> Translated into English by Tenkir Bonger in 1995

allows the import of machinery and instruments which can not be produced at home but are necessary for training, the benefits of which are distributed to the people free of charge. It imposes heavy tax on goods similar to those made (domestically) from duty-free machines and instruments (Ibid: 138-139).

The aim of heavy tax on import of products that can be domestically produced is, accordingly, so that “the imported goods would become dearer, stimulating production domestically. The production techniques to produce such goods would become widely disseminated. Even if the price of the goods would be higher initially, it would be subsequently come down *as people get used to making them*” (Ibid: 124) (emphasis added).<sup>14</sup>

### ***3.2.3. The Theory of Infantry Industry Development and the Mainstream***

List (1974) proposed his theory as the ‘correct’ alternative to the ‘faulty’ classical trade theory and as a general framework for developmental state as well as for commercial policy as related to the economic relations between an advanced country (or group of countries) and a relatively backward country that aspires to industrialize. However, from the beginning, the mainstream considered the theory as an exception to the general theory of free trade –an exception granted as “a concession to the unorthodox views of Hamilton in the US and later of List of Germany” (Johnson, 1972: 264-65). In

---

<sup>14</sup> Even though one can not make a conclusive statement as to how much Gebre Hiwot was influenced by the works of List, Hamilton and Mathew Carey, the similarity of the ideas and the fact that he studied (medicine) in Germany before coming back to his home land with a German medical mission that came around the turn of the century to attend to the then ailing Emperor Menlik II (Bahiru, 2002), hints at his familiarity with the said works. *Mengistna ye Hizb Astedader* does not contain any bibliography probably due to the fact that it was not completed before the premature death of the author and the book was published by his friend Paulos Menameno. The only reference made in the book is about an American writer by the name Carey (spelling approximated) who very likely might be Mathew Carey or his son Henry Carey. If this in fact is the case, the likelihood that Gebre Hiwot was familiar with the said works is very high.

his famous (or infamous) recognition of the case for infant industry protection, Mill (1886) argues that the only case in which protection can be defensible is when it is provided on a temporary basis in hopes of naturalizing a “foreign industry” that is perfectly suitable to the that country. One might wonder as to what actually makes a country perfectly suitable for the development of a particular industry; in other words, it is debatable whether a country *is* or *becomes* perfectly suitable for the development and maturation of an industry. In any case, the point of interest here is that, from the beginning, the mainstream accepted the theory of infant industry development in a narrow context; and considered it as an exception to the rule (Gonzales, 2001).

Haberler (1937: 281 as cited in Corden, 1997: 139) writes, “Since Mill gave it his approval, the infant-industry argument has been accepted *in principle* by many Free Trade economists” (emphasis added). According to Gonzalez (2001: 105), Mill’s idea of the infant industry argument was based on the more pragmatic and limited version of Hamilton rather than that of List. Haberler (1937) rejects some grounds for infant-industry protection, accepts another, then relegates the entire concept to the realm of *inapplicable theory* (ibid, cited in Brittingham et al, 2003: 11). The main source of the skepticism even for the limited validity appears to come from doubting that any actual protectionist system was ever established on rational theoretical grounds (ibid: 12). Thus, the acceptance is not *only in a limited context* but also *only in principle*. All in all, “modern theory leaves little, if any, of this (infant industry) argument still standing” (Johnson, 1972).

Domestic production under protection and state incentives means creation and/or preservation of employment and income for domestic residents which in turn creates domestic demand for the domestic output (Stiglitz, 1996: 153) and higher domestic saving, setting off a sort of 'virtuous circle'. This point seems to have been overlooked by both the critics and the 'interpreters' of the theory where the issues of externalities and 'learning by doing' get most of the attention (Melitz, 2005, Bardhn, 1971).<sup>15</sup> In general, neoclassical economics accepts usually the validity of infant industry argument but considers that such policies are not the best alternative, but rather second- or third-best options; and maintains that, rather than applying active industrial policies, it would be more efficient to improve the information available to entrepreneurs for taking their decisions or to try to improve the capital markets, leaving it to the market, free of all outside interference, to allocate resources (Gonzalez, 2001: 106-107).

The fact that the infant industry theory is a general theory of development and the developmental state where interventionist commercial policy is one pillar is lost on many critics. For example, Condliffe (1950) misrepresents the theory claiming that List emphasized the importance of "props and fences of state support for industrial development" whereas "it was scientific education and rather than protection or cartel organization that enabled Germany to develop so rapidly and pioneer the application of science to industry" (ibid: 279). This is an obvious misunderstanding as List (1974) specifically emphasized the role of scientific education since the competitive gap between the advanced and backward country is partly explained by the level of knowledge, skill and workmanship which could be redressed only through the

---

<sup>15</sup> See Brittingham et al, 2003 for some earlier examples of such tendency.

expansion of science, research, training and education of the work force. In a similar line, regarding dynamic external economies resulting from creation and diffusion of knowledge and new ideas an oft-quoted article on the subject (Baldwin, 1969) argues that subsidy to the knowledge creation activities such as research, or subsidizing training for researchers, will be preferable to a subsidy related to the production of the final product and even more, to tariff. This is a correct argument but does not amount to a criticism of the original theory because such interventions that target at the root of externality problem were implicitly emphasized<sup>16</sup> and protection of the producers of final products is meant to shield them against foreign competition while the root causes of the externalities are dealt with; and that process inevitably takes time.

In his oft-cited book on trade policy, Corden (1997: 141, first published in 1974), in his analysis of the infant industry argument emanating from the existence of dynamic economies, claims that the argument “rests on the assumption that private enterprise simply does not look so far ahead, and that the state, in the form of its civil servants or planners, has a longer view and sees a more favorable learning curve than the firm’s owners or managers do”. He underlines demand prospects and not prospective fall in costs as the cause for the different views of the two decision makers (ibid: 142). Furthermore, he claims that the argument rests on the assumption that, “private enterprises, owing to lack of imagination or information, or excessive caution, may not expect growth of demand”(ibid). However, in view of the above idea of the virtuous circle, this view appears to be mistaken because the issue comes down not to differences in imagination and information but to the issue of *initiating the processes of domestic*

---

<sup>16</sup> However, ‘externality’ was not specifically mentioned because the term was not in use back then.

*demand creation and guaranteeing (through protection)*. The implication of this discussion is that, the criticism of the infant industry argument by claiming that the government is not better informed to make investment decisions that are superior to those of the private decision makers may not hold water if the issue is not in its totality asymmetric information. It is important to remind ourselves that resorting to capital markets for finance by 'small' and 'infant' firms is not feasible simply because the markets for long term investments in particular are grossly imperfect or shallow and generally infant. Corden (1997) himself admits that, "one has to face the fact that capital markets are imperfect, especially in developing countries, and it is often easier or cheaper to impose tariffs than to create an effective capital market" (ibid :144).

In general, skeptics have questioned the infant industry argument mainly in two grounds (Krueger and Tuncer, 1982: 1142): (1) they have questioned whether protection through the trade regime would achieve the goals of infant industry protection (see Baldwin (1969) for the discussion of the reasons)); and (2) they pinpointed the combination of "dynamic factors" and "externalities" that would have to arise to justify infant industry intervention and questioned the empirical likelihood of such circumstances. The above cited work states that one implication of the infant industry argument is that protection would be justified when it does not pay an individual entrepreneur to enter an infant industry at free trade prices if future cost declines in such a way that individuals initially starting the activity will not reap the full rewards; but otherwise, there is no case for protection (*ibid*: p. 1143). There in fact could be a case for protection and subsidy under the realistic assumption that the entrepreneur lacks initial capital and if there are no good markets to provide such

capital - where capital markets themselves are infants. They also argue that different levels of protection to different activities would be warranted only if the sector containing the more protected activity is expected to experience greater cost reductions than the less-protected sector. However, there would still be a case for greater protection for an industry if that industry is capable of generating greater externalities accruing to other sectors (ibid, foot note 5) as well as in cases where that industry has greater linkages with other sectors, i.e. if it is potentially capable of spurring the development industries that are below or above that industry in the chain of linkages.

Another point that we can stress in relation to the role of government in industrial development is the prevalent market imperfection and inadequacies. Bhagwati (1989: 7) contends that free trade leads to the efficient outcome only if the price mechanism worked well. "Prices had to reflect true social costs (and benefits)". However, the price mechanism is slow to create markets and develop the 'non price' factors (institutions, infrastructure, information and back-up services) necessary for the operation of the market; and more over, "the market does not have the capacity to make inefficient industries efficient and competitive, particularly through shock therapy (sudden and drastic trade liberalization)" (Shafaeddin, 2005: 1150). Therefore, "some government intervention is required to compensate for market inadequacy - to build up production capacity (whether or not for export), to create markets, to provide complementary non-price factors, and to correct market failures. The market is a servant (means) not the master (end)" (ibid). In any case, resorting to government failure to advocate non interventionism and free trade while theoretically accepting the validity of the infant industry argument misses the role and nature of government involvement in the

economy; that the role of government is to create, complement and govern the markets and not to replace them.

Thus, we are justified to claim that the infant industry theory is valid and the criticisms targeted at it are generally not well founded. The upshot of the above analysis is that there is no sound theoretical basis for our right discarding of government intervention in industrial development and international trade. To put the matter differently, the analysis in this and the previous chapter implies that free trade and non interventionist industrial policies are not theoretically justified as is fashionable to claim these days. In particular, this conclusion has very serious implications for African countries since they face strong pressure to follow a hands-off approach in trade and industrial policy issues (as was noted earlier).

### ***3.3. Industrial Development and Trade Policies: The Historical Experience***

We have so far presented the theoretical arguments and the policy recommendations of those who advocate free international trade and laissez-faire approach and those who are against such theoretical arguments and free trade between an advanced and a backward country on the grounds that such an arrangement would deter the backward country from developing and catching up with the advanced countries and therefore advocate industrialization through managing the market mechanism and temporarily restraining free international trade. Though the main aim of this study is to look into the

experience of the successful East Asian countries regarding the direction they took to succeed, it is worth our while to briefly review the *actual* policy experience of the now developed countries (or the ‘old’ industrial countries) while they were trying to catch up with an advanced country or to industrialize. This is important because it would provide us with an opportunity to contrast their experience with that of the newly industrializing countries and to observe whether or not they actually practiced what they preach today to poor countries. It will help us to check if there exists any clear and continuous trend in industrial and trade policies or the East Asian experience is an aberration to the normal trend.

In the case of Britain, a country generally considered as the birth place of the Industrial Revolution, “the policies introduced after 1721 were deliberately aimed at promotion of manufacturing industries(Chang, 2002: 21). “Introducing the new law Walpole (the first British prime minister) stated through the king’s address to the parliament: ‘It is evident that nothing so much contributes to promote the public well-being as the exportation of manufactured goods and the importation of foreign raw materials’” (ibid). The said law includes among others the following measures: lowering and in some cases dropping of import duties on raw materials used for manufactures; increasing duty draw backs on imported raw materials for exported manufactures; abolishment of export duties on most manufactures, extending of export subsidies to formerly imported manufactured products and increasing those already in place; significantly raising duties on imported manufactured products; and introduction of a regulation to control the quality of manufactured products (ibid). Brisco (1907, as quoted in Chang, 2002: 22) sums up the principle behind the law as, “(manufacturers)

had to be protected at home from competition with foreign finished products; free exportation of finished articles had to be secured; and where possible, encouragement had to be given by bounties and allowance”.

Besides the policy measures and domestic industrial strategies, Britain used its military supremacy to stifle the development of industries in other countries and to expand markets for its manufactures. For example,

In the nominally independent States of Latin America and East Asia, Western pressure had imposed on most of them treaties (mainly with Britain) in the first half of the nineteenth century which entailed the elimination of customs and duties. Generally, it was the 5 per cent rule applied, that is, a tariff regulation under which no duty could rise above 5 per cent of the import value of the goods (Bairoch and Kozul-Wright, 1996:8).<sup>17</sup>

In summary, British industrial development policy was characterized by selective infant industry protection and promotion; it was only after the industrial revolution was well established and Britain had consolidated its industrial base that it started to follow, around 1850, a free trade policy after *some gradual tariff reduction*; prior protection of the domestic market was a vehicle for cost reduction necessary for international competition; and hence, it was the domestic market that allowed the realization of increasing returns and export expansion (Shafaeddin: 1998:4-5). Therefore, while not underestimating the role played by complementary measures and developments (like

---

<sup>17</sup> For details of how Britain forced European countries in to such ‘unequal treaties’, see List, 1841.

capital market development and development of the agricultural sector), and noting the changes in the nature of the government intervention over time, one can hardly disagree with List's conclusion:

The proposition that England has not reached her actual commercial grandeur by virtue of, but in spite of her commercial policy, is in our belief one of the greatest fallacies of our time. If the English had abandoned business to its own channels, if they refrained from all regulation (*laissez-faire*), as required by the reigning school [classical school of economic thought],..., England would still be the sheep-pasture of the [Hansiatic] League, as Portugal, by virtue of the stratagem of diplomatic cunning, became and continues to be the vineyard of England (List, 1974: 101).

Even though we are not going to deal with the experiences of all the 'old' industrialized countries here since that would require lot of space, it is sufficient to note here that all the major European countries that industrialized after Britain followed similar path with differences due to differences in time and country specific conditions.<sup>18</sup> However, let us look at "the mother country and bastion of modern protectionism": USA (Bairoch, 1993: 30 as quoted in Chang, 2002: 5). "The protection lobby was so strong in the United States in the nineteenth century that a Pennsylvania legislator referred to 'man' as 'an animal that makes tariff speeches'" (*ibid* quoted in Shafaeddin, 1998: 11-12). The intellectual father of the American protectionism and infant industry promotion is, as was discussed earlier, Alexander Hamilton, the very influential first Secretary of the Treasury. Even though one can not make a convincing case for a consistent and deliberate effort on the side of the US Federal Government to fully implement

---

<sup>18</sup> See Chang, (2002) for detailed historical analysis for the other European countries.

Hamilton's proposals, "...the importance of infant industry protection in US development can not be overestimated" (Chang, 2002: 25). Further more, "throughout the nineteenth century and up to the 1920s, the US was the fastest growing economy in the world, despite being the most protectionist during *all* of this period... It is hard to believe that this association between the degree of protectionism and the overall growth is purely coincidental (*ibid*: 30).

Before we close this section, let us note the fact that, List, whose work was extensively reviewed in this chapter, was the intellectual father of the German Customs Union (*Zollverein*) and a key architect of the industrial and trade policies that propelled the economy of the Wilhelmine Germany into a global gainhood in the nineteenth century (Condliffe, 1950: 277). Further,

During a visit to Germany in the 1870s, Okubo Toshimichi, one of the leaders of the Meiji Restoration, became acquainted with the Hamilton tradition. Returning to Japan, Okubo founded the Ministry of Home Affairs (*Naimusho*) to promote Japanese industry, and in 1874 issued an equivalent of Hamilton's 1794 *Report on Manufactures*, in the form of his influential *Proposal for Industrial Promotion* which called for the government to 'induce and monitor the weak entrepreneurs to produce industries' (Lind, 2002: 2).

### **3.4. Kicking Away the Ladder**

The above analysis clearly indicates that, even though the theoreticians of international trade unflinchingly support very minimal government intervention in industrial

development and foreign trade but the history of economic policies and industrial development in the ‘old’ industrial countries clearly shows that no country achieved industrialization without infant industry promotion *at least*<sup>19</sup> when they were developing countries themselves (Chang, 2002, 2003, Shafaeddin, 2000). This phenomena of ‘double standards’ is nothing new since, even during the heyday of the classical economics and during the climax of the British industrial supremacy, the norm was to deny that industry promotion and infant industry protection were important for successful industrialization and to recommend and even force laissez-faire industrial and trade policies on the late comers. In List’s words, “these (classical) cosmopolitan doctrines were only brought forward when the subject of discussion was exportation of English manufactures to the continent of Europe or that of America, but when the free importation of grain, or even competition with foreign manufactures in the English market was in question, quite another theory was often put forward” (List, 1974: 145-46) - implying that the theories were, like the manufactures, not for home consumption but for exportation. We can sum up this trend of ‘double standards’ as “Do as we say, not as we did” (Lind, 2002). And this amounts to kicking away the ladder by which the developed countries climbed up so that late comers can not follow:

It is a vulgar rule of prudence for him who has reached the pinnacle of power to cast down the ladder by which he mounted, that others may not follow...A nation which by protective duties and maritime restrictions has built up a manufacturing industry and a merchant marine to such a point of strength and power as not to fear

---

<sup>19</sup> We use the term because there is no sufficient evidence to prove that there are no subsidy and protectionist elements in those countries even today.

the competition of any other, can pursue no safer policy than to thrust aside the means of elevation, to preach to the other nations the advantages of free trade, and to utter loud expressions of repentance for having walked hitherto in the ways of error, and for having come so lately to the knowledge of truth (List,1974: 440).

An interesting question here is not whether or not the process of kicking away the ladder still exists today but whether or not that process is in the 'rational' self interest of those who are at the top of the ladder. List (1974), Chang (2002, 2003) and others who oppose the dictates of liberalization and laissez-faire seem to answer that question in the affirmative. But is this really the case? Is it really in the long-term interest of the advanced countries to hinder the industrial development of the poor countries? Or is it not more rational and in the long-term interest of the advanced countries to keep adding more steps to the ladder and keep on climbing up (pushing up the frontiers of their technological and comparative advantages) instead of focusing on stopping others who are attempting to climb up?

The author of this study is of the opinion that Japan which imports huge amounts of American products and exports equally huge amounts of (high tech) manufactured products (and capital as well) is by far the much better economic partner to the US than an economically poor and stagnant Ethiopia that neither supplies to the US market with primary products of much value nor acts as a significant market for its export products - *as long as the US economy remains dynamic and innovative*. In other words, as long as the frontier countries keep on moving ahead, the growth and advancement of the backward countries is beneficial for both: the leader could focus its resources to the

more lucrative frontier and near frontier technology products and the follower would find sufficient market in its own economy as well as the leader's for its products and obtain not-so-top-drawer technology and know how from the leader(s). We can argue that opening up of the developed countries' market for developing countries' exports is also a boon for the developed countries themselves because that would mean increased developed countries' exports due to the increased import capacity of developing countries reinforced by the high elasticity of demand for developed countries' exports- *a la* Pribisch (1950) and Singer (1950). Thus, the two sides, constantly alert not to lose the position they already have in the never-ending comparative advantage ladder, will happily co-exist in harmony and symbiosis ever after!

The question that immediately pops up in our mind when we face the reality check is: If it is in the interest of the advanced nations themselves to let the laggards develop and export relatively low-tech products while they themselves focus on the frontier technology products and industries, why are they so bent on the ladder-kicking activity under the banner of across the board trade liberalization and universal free trade? This phenomenon appears particularly cynical when we observe the fact that they are simultaneously being so protectionist themselves. To answer this very important question adequately, it is useful to look at what actually this entails in the domestic economy of the advanced countries.

If the United States completely frees its textile market to competition from the Chinese cheaper products for example, this would naturally lead to the ruination of that sector in the country and/or the reallocation of the production to other low cost countries. Unless

dissolving a business in the industry concerned is costless to those involved (zero cost of structural unemployment, retraining, etc.) or the state is ready to provide adequate compensation and facilitate the seamless re-integration of those displaced in the process into other sectors out of the resultant efficiency gains, the affected parties have real interest in doing whatever they see fit to stop the introduction of free international competition. Further more, if such a sector has been receiving subsidies and other benefits (of course at the expense of the rest of the economy since we are assuming that the industry is not an 'infant' but rather 'elderly'- shall we say?), the logic of rational self-interest dictates that the concerned groups and economic units would do their best to keep the benefits coming. Thus, ironically and unfortunately, this brings the political economy and rent seeking arguments which have been so skillfully and successfully employed by the advocates of across the board liberalization and lasses-faire industrial policies for developing countries and against the infant industry promotion in developing countries as one of the real explanations for the ladder-kicking activity.

To conclude, the discussion so far implies that the main theoretical arguments forwarded against government intervention in industrial development and for free trade are not well founded. Malicious or otherwise, the zeal with which such arguments are advocated and forced upon aspiring African and other developing countries amounts to 'kicking away the ladder' so that they can not follow; in particular, in view of the actual experience of those countries that do the 'kicking'. Or, have the times changed so much that the experiences of the 'old' industrial countries have become irrelevant and the infant industry theory impractical and out dated? To find a definite answer to this question, it is instructive to look closely into the approaches to international trade and

industrial development policies employed by the East Asian newly industrialized countries since their experiences are very recent. And that is what the next chapter is meant for.

## CHAPTER FOUR

### *TRADE AND INDUSTRIAL POLICIES IN EAST ASIA*

#### *4.1. Introduction*

The notion in the free trade-laissez-faire perspective is that resources should be allocated according to comparative advantage and *long-run* growth is seen to be the result of effectively allocating resources in the *short-run* (Grabowski: 1994: 416). In contrast, the previous two chapters underlined the need and importance of not letting “natural course of things” to determine the long-run growth since such an abstinence would condemn backward countries to remain where they are. Further more, the presentation of the infant industry theory implied that deliberate government interventions in industrial development and strategic (and non-free trade) policies are required to climb up the ladder of comparative advantage (since “[c]omparative advantage does not evolve naturally, instead comparative advantage is made” (Ibid: 414).). This would lead to “inefficient” allocation in the short-run in order to achieve long run growth and structural transformation of the economy.

In contrast, more or less reflecting the free trade- laissez-faire paradigm, the World Bank for example has suggested that the state should play a relatively limited role (of ‘getting prices right’) and developing countries should open up their trade regimes and seek a close integration with the world economy as the best way to achieve fast economic growth and industrial development (Singh, 1994: 1811). However, in this chapter, we argue and present evidence that successful East Asian countries’

governments deliberately and consistently intervened in the operation of their economies in order to change the structure of their economies from production and export of low value-added to higher value-added products- to alter their comparative advantage by way of industrialization and modernization. Further more, the chapter argues that, on top of going beyond the achievement of the right “fundamentals”<sup>20</sup>, the states resorted to policies that are against free trade and a strategic engagement with the world economy combining import restriction and substitution together with export promotion. The chapter begins with the experience of Japan to show the underlying continuity of the application of the infant industry approach to trade and industrial policy from the time of 'old' industrial countries' development. Then, the experiences of Korea and Taiwan will be analyzed since they were more or less imitations and innovations over the Japanese experience and their time-wise proximity makes them relevant for Africa.

#### ***4.2. The Japanese Experience***

The derive to modernize and activist role of government is said to have began after the so-called Meiji restoration in 1886 in Japan (Chang, 2002: 46). From the beginning, economic development was an integral part of nation building where strong government was the main deriving force for industrialization and modernization (Kwon, 1994: 641) However, until 1911, Japan was not able to use trade protection because of the series of “unequal treaties” that it was forced to sign in 1858 which barred it from having tariff rates over 5%; and therefore, it had to use other means such

---

<sup>20</sup> The list of ‘fundamentals’ includes *inter alia* macro-economic stability, human resource development, and so on (Chang, 1999:19).

as establishment of model factories (which were soon sold to private owners at discounted prices), infrastructural development and facilitation of transfer of advanced foreign technologies (Chang,2002: 46-47). Following the recovery of its tariff autonomy, the state started introducing a range of tariff reforms intended to protect infant industries, to make imported raw materials more affordable and to control luxury consumer goods (Ibid: 48). A notable feature of this protectionism was that the overall tariff regime remained moderately protective while it was strongly protective of some 'key' industries rather than blanket protection (Ibid). The general approach of the policy makers was to use a shortcut for industrialization through targeting selected, rather than all industries, and to develop them using subsidies, training technicians and protection, into first rate competitors (Kwon, 1994:642).

In the post WWII period, the Japanese government was not just interventionist but also its interventions were "generally coordinated and viewed as a coherent whole, and the government has a strategic view of the country's industrial development in relation to the world economy" (Singh, 1994: 1814). Accordingly, the government *decided* to establish industries which required intensive employment of capital and technology because it predicted that such industries are precisely the industries where income elasticity of demand is high, technological progress is rapid and labor productivity increments are fast (Ibid). According to one interpretation, the purpose of the industrial policy was to guide the market and to deliberately create comparative advantage in areas where world demand was likely to rise rapidly and in which it would be, therefore, in Japan's long-term interest to specialize (Ibid). The overall approach was to

devise and employ a range of policy tools to ensure that indigenous business is both nurtured and managed in line with the long-term 'national interest' (Beeson, 2003).

With respect to the institutional arrangement, in particular, the Ministry of Industry and Trade (MITI) was given the power to influence the country's industrial development and its instruments of (selective) intervention span in to individual industries or even companies (Kokko, 2002: 3). "Until 1955, industry was essentially operating under MITI orders, during the 1955-1960 period, control was managed through credit allocations, and from 1961 onwards, firms were allowed to prepare their own investment programs with 'guidance' from MITI officials" (Ibid: 5). Thus, one can say that the methods of intervention were changing over time. However, MITI's "administrative guidance" continued to be law and its power to influence industries and companies remained demonstrably big (Ibid: 6). On the issue of provision of capital for the 'strategic' industries, the Ministry of Finance was responsible and it channeled finance to the large city banks , encouraging them to provide low cost capital to the industries so that the firms could adopt the most efficient mass-production technologies and so reap the benefits of a declining long-term average costs (Matthews and Ravenhill, 1994: 42).

In order to get a better feel of the interventions, let us look at some of the more 'favored' industries. One such industry is steel. According to Matthews and Ravenhill (1994), promotion of the steel industry lay at the heart of Japan's post war program of heavy and chemical industrialization. More specifically, the government ensured that ample capital was made available to this industry at favorable rates, the industry

adopted the latest technologies and the domestic producers had the optimal size to exploit the economies of scale (Ibid: 43). Further, it provided market stability by permitting formation of recession cartels and by protecting the domestic market from imports (Ibid: 44). The protection also served as export promotion since the protected and rapidly growing home market enabled the industry to achieve impressive scale economies and to be well positioned to capture export markets when capacity began to outstrip domestic demand (Ibid: 45). The strategy of nurturing and assisting such an advanced industry helped Japan to exploit dynamic scale economies to close the gap with the then leading countries, to widen the range of Japan's competitive exports; to enjoy falling domestic prices for a crucial intermediate input and; to achieve a rise in national income relative to its trading partners since steel's share in export demand is large (Ibid: 45-46).

Another Japanese example where not only infant industry promotion succeeded but also where the initial protection turned out to be a long-term export promotion strategy is the automobile industry. The industry was designated as a strategic industry in 1951 and was extended the following support and promotion (Matthews and Ravenhill, 1994: 46): low interest rate loans through government affiliated financial institutions, subsidies for technological development, substantial depreciation allowances for 'important' machinery, exemption of necessary machinery and equipment from import tariff, approval of import of foreign technology and sheltering of the industry from foreign competition. As a result,

By the time passenger car imports were liberalized in 1964, the Japanese automobile industry was internationally competitive in terms of costs and quality.

And by the time foreign investment restrictions were lifted in the 1970s, foreign producers found that high capacity domestic firms had pre-empted the market (Ibid: 47).

It is possible to present similar evidence related to other targeted industries<sup>21</sup>, however, due to space limitations, let us move on to some of the discernable features of the Japanese trade and industrial policies. The first such feature is the kind of integration with the world economy sought and achieved via the interventions. According to Singh (1994), the Japanese economy operated under rigorous import controls in the 1950s and 1960s; and as late as 1978, the total imports of manufactured goods into Japan was only 2.4% of GDP<sup>22</sup> (Ibid: 1816). The level of protection remained significant even after the quantitative import restrictions and exchange allocations were abolished in 1963, the average tariff for manufacturing was 32 %, with higher rates of 37 % for machinery industries and 62 % for transportation equipment (Kokko, 2002: 6). Mean while, exports of Japanese manufacturing industries have consistently been promoted and “there is no doubt that export promotion played an important role for expanding Japanese market shares and encouraging efficient production” (Ibid: 9). Therefore, the Japanese integration with the world economy is far from being ‘open’ and could more appropriately be called ‘strategic’.

Another issue worth mentioning regarding Japan’s strategic rather than laissez-faire approach to integration with the rest of the world is the way it intervened in

---

<sup>21</sup> For the case of color television and semiconductors and computer industries for example, see Matthews and Ravenhill (1994: 48-58)

<sup>22</sup> Comparable figure for UK for example were 14% or 15% (Ibid).

technological transfer and foreign direct investment (FDI). In connection with FDI, foreign producers were forced to settle for licensing agreements and government approved joint-ventures and even when joint ventures were permitted as a means of obtaining advanced technology from abroad, the government still insisted that within five years, 90% of the incoming technology parts be produced in Japan (Matthews and Ravenhill, 1994: 47). The government controlled *all* licensing agreements and guaranteed remittance of royalties for licenses *but continued remittances would be guaranteed only if 90 % of the licensed parts were produced in Japan within five years* (Singh, 1994: 1817). MITI often intervened in negotiations in order to reduce royalties or to alter other conditions in favor of Japanese firms (Kokko, 2002: 7). Further more, in many cases, the government coordinated and financed R&D (Matthews and Ravenhill, 1994).

In general, the Japanese government provided support and protection to sectors and industries on conditional basis. For example, “the provision of infant industry protection, subsidized credit, beneficial tax treatment, and other measures to support emerging industries have often been conditional on satisfactory export performance” (Kokko, 2002: 4). All in all, subsidies tended to be dispensed according to the principle of reciprocity, in exchange for concrete performance standards with respect to output, exports, and eventually, R&D (Amsden, 1991: 1991). The supports were not only conditional on performance but also were temporary and time-bound: “Unlike normal infant industry protection, ... the protection of the Japanese automobile industry was deliberately time-bound...MITI made it clear that protection was temporary measure, designed to give local industry just enough time to prepare for liberalization”

(Matthews and Ravenhill, 1994: 47). In relation to domestic competition, the government provided crucial coordinating role and orchestrated the dynamic combination of collusion and competition among oligopolistic firms, in some cases blatantly restricting competition to avoid ruinous competition (Singh, 1994: 1819).<sup>23</sup> “In general, whether competition was promoted or restricted depended on the industry and its life-cycle: in young industries, during the developmental phase, the government discouraged competition; when these industries became technologically mature, competition was allowed to flourish” (Ibid). ‘Old’ or declining industries were granted “cartels for structurally-depressed industries” *in return for their efforts to phase out obsolete capacities and upgrade their technologies* (Chang, 1999: 13). The government’s policy of encouragement of structural change by assisting the orderly replacement of old industries by the new ones includes among others their transfer to less-developed countries in the region (Singh, 1994: 1818)<sup>24</sup>.

### ***4.3. The South Korean Case***

According to Chang (2000), up to mid-1980s, (Republic of) Korea practiced the most comprehensive and systemic industrial policies in the world (Ibid: 779). The intensive state involvement in achieving economic development could be said to have began in the early 1960s with the institution of detailed Five-Year Plans- the first one covering the period 1962-1966- that defined the current development objectives (Kokko,

---

<sup>23</sup> Stiglitz (1996), in this connection reports that, the fact that MITI opposed the entry of Honda and Mitsubishi into the automobile industry is often presented as an evidence of the failure of government’s interventions. However, Wade (1990) strongly argues that the “mistake” never occurred because MITI backed off in the face of the firms’ resistance and the effect of the move by the Ministry was to force the companies to redouble their efforts to prove it wrong and themselves right because they knew that if they failed MITI would come at them again with a stronger case (Ibid: 330-331).

<sup>24</sup> For a discussion of the government and private sector derives to relocate such industries and their impact on the industrialization of South East Asian economies, see Jomo (2001).

2002:10).<sup>25</sup> Economic decision making power was centralized in a super ministry known as Economic Planning Board with the responsibilities normally given to ministries of planning, industry and finance (Ibid).

Since the early 1960s, the Korean government pursued two proximate objectives: encouraging exports from industries where Korea has an established or readily attainable comparative advantage *and* promoting infant industries (Matthews and Ravenhill, 1994: 59). While the first objective has utilized measures without any discernible trade or industry bias, the second has relied on protection and other selective measures to promote industry (Ibid: 59). Interestingly, the two objectives were interlinked because, by forcing the infant industries to export, the government used import substitution as a means of export promotion (Ibid). That is, the infant industries were rushed into maturation through “infant industry export [promotion]” - promotion of exports, including from the infant industries that were being promoted while the domestic market was protected (Lee, 1997: 1278).

The intervention to change the structure of the economy started with light industry; however, from the beginning that objective was pursued not only through protection but also in many other ways as well (Lall, 1996). The government protected and directed domestic (often subsidized) credit to promote entry into complex technologies, raised local content, restricted FDI, created giant private conglomerates, directed and promoted R&D, selectively intervened in skill formation, and set up a comprehensive

---

<sup>25</sup> A military coup in 1961 brought General Park Chung Hee and the actions of the military regime in the next few years reshaped the political economy of the country in permanent manner (Kokko, 2002: 10).

science and technology infrastructure geared to the needs of the selected industries (Ibid: 117). Just like the Japanese post-war government interventions,

all these measures formed a *coherent package*, aimed at the composite strategic objective of entering difficult industries, with significant local integration, primarily under national ownership, and with a steady upgrading of local innovative capabilities (Ibid).

The chronology of the shifting priorities in selective promotion and protection shows that, in the early 1960s priorities included cement, fertilizers, synthetic fibers and oil refineries; in the late 1960s, these were followed by steel and petrochemicals; in the 1970s, non-ferrous metals, ship building, heavy machinery, transport equipment, motor vehicles, consumer durables and electronics; and import restriction was being used to protect high-tech products such as computers and integrated circuits (Matthews and Ravehill, 1994: 61).

The Korean government's employment of an aggressive export promotion strategy was a compelling means of forcing firms into exporting:

Export targets were set at the industry, product and firm level by firms and industry associations in concert with the government. There were monthly meetings between top government officials (chaired by the President) and leading exporters. Targets were also enforced by denying access to subsidized credit and import licenses to poor performers, and subjecting them to severe tax audits. Successful exporters were given continued access to credit and licenses, and rewarded with perfunctory audits, publicity and prizes....The selectivity of these promotion measures mirrored those used to promote infant industries. (Lall, 2000: 25)

The extent of export orientation should not be seen in isolation from the other industrial development policies because the export activities themselves were “the creatures of industrial policy”; and "export orientation provided the discipline and incentives that allowed *other* interventions to succeed and mere export orientation by itself would not have allowed many of these activities to be set up" (Lall, 1996: 121, emphasis original).

As was noted above, Korea employed export promotion *and* import protection in its efforts to industrialize and modernize its economy. Thus,

When Korea moved to an export-oriented industrialization strategy in the mid-1960s, *it did not dismantle* protection of the existing infant industries. Infant industries were *vigorously promoted* alongside the export drive, the main thrust coming in the mid-1970s under the name of ‘heavy and chemical industrialization’ policy. (Lee, 1997: 1272, emphasis added)

The protection was not limited to just those industries that are targeted for development and future export but was also employed to control luxury consumption (as in most East Asian countries); the reasons for the control include maximization of investible surplus by repressing luxury consumption out of profit; and, where consumer demand for variety is important (like in the car industry), to enable the domestic producers to attain the maximum possible scale in production by limiting the available variety (Chang, 1999: 10-11).

In Korea, the industries that were designated as infants to be promoted and protected were those that have higher income elasticity of demand and a larger potential for productivity growth in the long run (Lee, 1997: 1278). According to Chang (1999), the

criteria used to select industries for promotion did not just reflect the fact that they are infant, high value-added or higher capital intensity but a whole set of considerations such as international market conditions, the availability of relevant domestic technological capabilities, and the net foreign exchange implication of promoting the industry concerned (Ibid: 16-17). For example, Korean textile industry received a lot of promotional supports even after the launch of the Heavy and Chemical Industrialization program in 1973 to the extent that it even had a special promotional law made for it in 1979; however, the industry was promoted not because it was 'infant' but because of its critical role as the main supplier of foreign exchange which were necessary for the country to import capital equipments and buy technology licenses that were needed for the 'infant' industries (Ibid: 17). That is, a mature industry is promoted to export so that the foreign exchange earned by the country would be used to subsidize and protect other infant industries.

One of the distinguishing features of industrial policy in Korea is that being just in one of the favored industries did not guarantee the Korean firms continued support and protection because "continued government supports were *contingent* on their performance and were *not guaranteed* by just being in the 'right' industries" (Chang, 2000: 779). The protection granted to the selected industries was temporary and predictable because the government employed a "preannouncement system" about the elimination of quantitative control and tariff cutting (Lee, 1997: 1278). In general, the government was not only strict in enforcing productive and allocative efficiency and upholding hard budget constraints but also,

it was clear to most actors that import protection, subsidies, and other rents are temporary supports, that all firms are eventually expected to manage in international competition, and that the government is *able and willing* to withdraw support from firms and industries that fail to reach their performance targets. (Kokko, 2002: 14, emphasis added).

Another feature of the promotion and protection by the Korean government is its continued support for designated industries for lengthy period *until they ultimately became internationally competitive* (Amsden and Singh, 1994: 949).<sup>26</sup> Notably, even those industries that were targeted by the Heavy and Chemical Industrialization program, which has been referred in the neoclassical literature as a classic illustration of the folly of trying to promote infant industries, have matured or tended to mature (Lee, 1997: 1274, 1275). Amsden (1994) puts more assertively that heavy industry succeeded in becoming Korea's leading export sector by early 1980s, very shortly after being targeted, thereby rescuing the economy from one of its deepest recessions; the automobile exports were the hottest selling economy car in the United States for two consecutive years in the 1980s; and Korea's state owned integrated iron and steel company became one of the most efficient and profitable firm in the world (Ibid: 631).

---

<sup>26</sup> For instance, "in the Korean automobile industry, for 30 years no foreign cars were to be seen on Korean roads and no Korean cars were to be seen on foreign roads. All the same, the industry's leader, 90% locally owned Hyundai Motor Company, became the first late-industrializing automobile maker to export to Europe and the United States" (Amsden and Singh, 1994: 949).

Yet another area which is interesting about the Korean experience is the competition policy. In similar vein with the Japanese case, the central objective of competition policy was dynamic efficiency rather than static efficiency; instead of maximum competition the government opted for *deliberately restricted competition* so as to increase their investment rate and to accelerate their technological development and fostered intense oligopolistic rivalry in individual industries among competing conglomerates (Amsden and Singh, 1994: 949). It also encourages relocation of 'old' industries to less-costly countries (Jomo, 2001), routinely intervened to encourage (and sometimes force) mergers and take-overs of inefficient firms (Chang, 2000: 779). According to Storm and Naastepad (2005), every major shift in industrial diversification in Korea in the 1970 and 1980s was instigated by the state (Ibid:1080)-implying that the restructuring activities were a result of industrial policy.

Before we conclude the section on Korea, let us highlight some of the government policies related to FDI, R&D and technology acquisition. The country heavily relied on capital goods imports, licensing and other technology transfer agreements to acquire technology; FDI was permitted only when it is found to be the only way of obtaining technology or gaining access to world market; even then, the government encouraged majority Korean-owned or equal joint ventures; in some cases foreign investors were even forced to sell out after the technology had been absorbed locally (Lall, 2000: 12). "The government also often intervened in technology imports to lower prices and strengthen the position of local buyers... The regime encouraged reverse engineering and R&D by technology importing firms ..." (Ibid). Technology financing was

provided in the form of grants and loans- often directed and subsidized and there is high level of selectivity in technological and research activities (Lall, 1996: 79, 82).

#### ***4.4. The Case of Taiwan (Republic of China)***

According to Wade (1990), given the country's lack of raw materials and a population growing then at over 3 % a year, raising living standards in Taiwan required labor-intensive manufacturing; As a result, during the 1950s the basis for production of plastics, artificial fibers, cement, fertilizer, plywood, and above all, textiles was laid (Ibid: 77). In the 1940s through the 1950s, trade and exchange rate policies were used to control external competition and extensive quantitative restrictions on imports and fairly high tariffs were in force (Ibid).The primary import substitution process was more or less completed in 1957 (Ibid: 78). At this early stage of Taiwanese industrialization the government was heavily involved: it used tariffs and quantitative restrictions on imports, entry restrictions to prevent 'excessive competition' and controlled access to raw materials to quickly establish the textile industry; the plastics industry was established under the tutelage of the government while the synthetic fiber industry was initiated by the government itself; and many other industries were granted more indirect promotional attention through the 1950s (Ibid: 79-80). Trends in income elasticity of demand in Western markets, engineering feasibility, foreign exchange considerations and the experience of Japan were some of the criteria to identify promising industries and then export performance was used as an information feedback mechanism to modify or improve the choices (Ibid: 288, 289).

After the adoption of an export-oriented industrialization strategy in 1958-1962 as well, the government consciously took initiatives to steer resources into selected industries and to shape the investment and production pattern in the economy with the aim of promoting skill- and capital-intensive industries (Matthews and Ravenhill, 1994: 66). The measures employed to such end include trade and FDI controls, fiscal incentives, selective credit allocation, state-sponsored R&D organizations, and extensive use of public corporations to create new capacities in upstream activities where entry barriers were high (e.g. steel, ship building, petrochemicals and heavy machinery) (Ibid: 67). The role of the public corporations was not to replace the private sector but rather to exploit economies of scale in the production of inputs for the private sector; however there was little privatization of the state enterprises (Kokko, 2002: 21). According to Wade (1990), the influence of these state enterprises goes further than the above considerations; being upstream, they give the government leverage over down stream private investments; avoid the dominance of the sectors by multinational corporations (as one would expect in such sectors) and gives stronger assurance to the private sector of the governments commitment to the sector (Ibid: 180).

With regard to the kind of trade engagement with the rest of the world, as early as the 1950s, imports of raw materials and intermediate inputs for export production were liberalized; several export promotion schemes were introduced or strengthened to give positive discrimination in favor of exports; and all in all, the government's focus and concern was shifted from a preoccupation with import substitution towards a preoccupation with *both* import substitution and exports (Wade, 1990: 118-119). In line with this, the tariff regime was highly differentiated by product; non-tariff barriers

including extensive quantitative restrictions as well as limitations on the source of procurement or on the qualifications of the import applicant, approval from rival domestic producers, domestic content requirements and export restraints were extensively employed.

Wade (1993) shows how hesitant the Taiwanese government was to lower tariffs even when the country's exports were booming and even after the 1984 wave of proclaimed liberalization (Ibid: 150). Besides, the rules of the tariff rebates or exemptions show a very clear link of the trade policy to a wider industrial policy and how the government takes a strategic view of international trade. For example, raw materials and intermediate inputs pay little or no duties while the rules for imports of machinery and equipment depend on such considerations as whether or not they are produced domestically, are used in "sophisticated" industries which are targeted for promotion and so on (Ibid: 151). In other words, the incentive structure related to imports is part and parcel of a wider incentive structure within the industrial policy. Over all, the protection and subsidies accorded to industries were not uniform across industries but varied according to the industrial policy priorities (Ibid: 155). Even more important than the strategic protection through tariffs, Taiwan made an extensive use of quantitative restrictions and other non-tariff barriers (Matthews and Ravenhill, 1994: 67). Classifying imports into "permissible" and "controlled" and decreasing the "controlled" items from 41% in 1960 to just 2% in 1974, the import regime gave a misleading impression of trade liberalization; however, the fact that many of the so-called permissible items which account for a large share of imports by value have not

been freely importable in practice implies otherwise (Wade, 1993: 151). The reason is that,

A given item might be 'freely imported' but not from specified places or only by specified agents. The origin restrictions have been used to exclude the most competitive sources of competing products, and in particular to reduce the large bilateral trade deficit with Japan (Ibid).

Further more, the quantity restrictions have been administered through highly discretionary procedures (Ibid: 153).

The Taiwanese government used world market prices as a guide to determine what the prices of domestic products should be, using the threat of imports as a means to make sure that its guidance were followed and it relied more on this threat than on forcing infant industries to export as a preferred means of overcoming inefficiency-inducing effects of protection (Matthews and Ravenhill, 1994: 68). However, this does not mean that export performance was not used as conditionality for government support. In fact export targets in exchange for exporters being allowed access to cheap credit (or scarce foreign exchange) have been and still are a common practice (Storm and Naastepad, 2005: 1087). Further more, the degree of protection is administered and calibrated in a way that does not remove international competitive pressures (Wade, 1993: 153). New producers in strategic or capital-intensive industries commonly will be assured that, *provided* prices move towards international levels, they will receive quantitative protection against importers for a period of up to five years *after which the protection will be scaled back or removed* (Ibid). According to Amsden (1991), during the an industry's import substitution phase, the state has typically been the disciplinarian

while during its early export phase, that role has fallen to the market and during an industry's "neo-import substitution phase" when subsidizing R&D and shifting in to a higher-quality market segment came on the agenda, the state's dominant role resumes (Ibid: 285).

With respect to FDI the Taiwanese government was more liberal than its Japanese and Korean counterparts. At its peak, FDI accounted for 11% of gross capital formation in 1971 (Kokko, 2002: 22). However, the target seems to be not so much inflow of capital per se but transfer and dissemination of knowledge and skills both in production technology and areas like marketing and distribution (Ibid). Another important feature of the FDI policy is that the areas in which it was sought reflected the domestic economic and the dynamic industrial policy targets (Lall, 1996: 71). Thus, the FDI policy became more and more discriminatory as the industrial sector developed and technologies deepened over time. Accordingly, in the 1950s FDI was sought in a liberal regime without discrimination; in the 1960s in labor-intensive industries like textiles; in the 1970s, with rising wages and a need to upgrade industry, the target was on high-technology, capital intensive FDI; and the targeting was strengthened in the 1980s (Ibid). Further more, in the 1960s there was no tendency to discriminate since most of the FDI was for export production and so there was no need for concern regarding direct competition with domestic producers for domestic market (Wade, 1990: 150-151). Nevertheless, beginning from the 1970s, FDI proposals have been evaluated in terms of how much they open new markets, build new exports, transfer technology, intensify input-output links and so on (Ibid: 150).

In its continuous effort to upgrade the technological structure of the economy towards higher technology industries, the Taiwanese government has been highly involved in financing R&D (Lall, 1996). Thus, around half of R&D in Taiwan was being financed by the government (Ibid: 64). Regarding skill formation required in establishing and upgrading technology intensive industries (especially in the 1980), higher education institutions were provided additional resources to strengthen programs focusing on science, mathematics, engineering, and compute science, and programs to encourage the inflow of qualified overseas Chinese to Taiwan were introduced (Kokko, 2002:23). The involvement of the government in structural change does not stop at new and higher technology industries; mature industries, which faced market failures in expensive restructuring, are also supported including by encouragement to relocate their facilities abroad (Lall, 1996: 83-84).

According to Storm and Naastepad (2005), East Asian countries including Taiwan sought co-operation from the private business sector on selective basis; and if necessary, they could use alternative resources of the state (including military and police force) to discipline business and force co-ordination on private actors and impose condition on (state created) profits (Ibid: 1086). In addition, control of entry to certain industries has been used to prevent overexpansion or entry of financially or otherwise poorly equipped firms and to ensure that too much industrial control does not become concentrated in the 'won hands' (Wade, 1990: 185).

Even though we do not extensively look in to the specifics due to space constraints, the evidence we have presented in this chapter indicates that the governments of the three

East Asian countries considered have not followed the *laissez-faire* industrial policies nor were they practitioners of the free trade policies. In brief, they intervened consistently and deliberately to alter the structure of their industrial sector and to move the economy towards higher value-added products and to improve the dynamic comparative advantage of their economies. In the field of trade policy, too, they led their economies towards a strategic integration with the rest of the world and did not formulate and implement ‘open’ trade policies. And in general, we can say that their trade policies formed an integral part of their industrial development strategies.

Specific lessons that could be gleaned from the analysis and detailed implications are reserved for the last chapter because we are still left with one more issue: analysis of impact of industrialization on terms of trade. In other words, we would like to check whether or not our conclusion from Chapter 2 that modernization/ industrialization helps to alleviate the problem of ‘unequal exchange’ is empirically justified. We use percentage shares of different categories of manufactures in total exports as a proxy for structural transformation of not just the export sector but also the whole economy of the countries concerned. We make do with broad categories of manufactures at the risk of glossing over some sharper facts that might be uncovered with a finer categorization.

## *Chapter 5*

### *Manufactured Exports and Terms of Trade In East Asia*

#### *5.1. Theoretical Background*

According to Athukorala (1993:1607), one of the most influential views in the post-WWII development policy debate has been the Prebisch-Singer (P-S) hypothesis concerning a structural tendency for the net barter terms of trade (NBTT) of developing countries *vis-à-vis* the developed countries to deteriorate. The original articles launched the hypothesis (Prebisch, 1950, Singer, 1950), however, in the form of deterioration in NBTT between primary products and manufactures because the export structure of developing countries was dominated by primary products while their imports were dominated by manufactures (Athukorala 1993, Sarkar and Singer, 1991: 333, Sapsford and Balasubramanian, 1994: 1737). That is, primary commodities were used as a proxy for developing countries' and manufactures were used as proxy for developed countries' exports. The logical derivation from the hypothesis was the recommendation of diversification away from primary commodities and towards manufactured exports "as an escape route from the 'observed' deterioration in the terms of trade" (Sarkar and Singer, 1991: 333). In the words of Parra (Unpublished: 1), "the terms of trade debate has always been one about the need or not for developing countries to industrialize".

According to Ocampo and Parra (2005), the original theoretical formulation of the P-S hypothesis combined two different but clearly complementary variants whose theoretical developments proceeded along parallel lines in the subsequent economic

literature (ibid: 2). The first drew on the negative impact of low income-elasticity of demand for raw materials on terms of trade of developing countries while the second was based on the joint effect of different mechanisms of price formation for primary commodities vs. manufactures and the asymmetric functioning of labor markets in the center and the periphery of the world economy (ibid). The theoretical model in this chapter is formulated on the lines of the first variant and is an adaptation of Ocampo's (1986) formulation, which he dubs as the most traditional theorem on the matter (Ibid: 130). The theorem is derived as a condition for trade balance in the long run.

In Ocampo's (1986) derivation, it is assumed that there are only two regions, North (N) and South (S) (the region of interest to us), both completely specialized in the production of a single commodity. The gross product of each region ( $Y_i$ ) is given by

$$Y_i = q_i L_i, \quad i = N, S \quad (1)$$

where  $q_i$  stands for the average productivity of labor  $L_i$  for employment. If  $p$  is the relative price of the Northern in terms of Southern commodity, the import demand functions for the two regions can be expressed as

$$M_N = M(Y_N, 1/p), \quad (2a)$$

$$M_S = M(Y_S, p). \quad (2b)$$

Let  $e_s$  and  $n_s$  be the income and price elasticity of demand for the Southern commodity in the North (i.e. the elasticities of the  $M_N$  function), and  $e_n$  and  $n_n$  be the elasticities for the Northern commodity in the South. Trade balance equilibrium implies

$$M_N = pM_S. \quad (3)$$

From equations (2) and (3), the following condition is driven

$$p^\circ = \frac{e_n g_s - e_s g_n}{n_n + n_s - 1}, \quad (4)$$

where  $p^\circ$  stands for the rate of change of the Northern terms of trade and  $g_i$  stands for the rate of growth of gross product in region  $i$ . If the Marshall-Lerner condition holds, the denominator of equation (4) is positive. Thus, the terms of trade of the South would deteriorate if

$$g_s/g_n > e_s/e_n. \quad (5)$$

According to equation (5), the terms of trade depend on the interrelation between the growth rates and the income elasticity of demand for imports. If  $e_n > e_s$ , i.e., if the South produces relatively income-inelastic commodities, it must face either slow growth or deterioration of its terms of trade in the long run. The implication of this condition is that, the long run escape route from terms of trade deterioration without compromising growth rates is to move away from production and export of income inelastic products

or shifting away from primary products and toward manufactures. Or, more formally, the terms of trade of the Southern country is a positive function of the share of manufactures in total exports (or products with higher income elasticity of demand).<sup>27</sup> The above model could be modified to take into account the fact that developing countries' (South) capital goods (which are price inelastic) are largely imported in which case the low price elasticity reinforces the negative impact of the low income elasticity of exports of developing countries on their terms of trade (Ocampo and Parra, 2005:7).

The proposition that diversification into manufacturing exports helps reverse the secular decline in terms of trade of developing countries has come under attack in recent years. Under the context of an increasing share of manufactures in the export of developing countries, Sarkar (1986) for example expressed a skeptical view on the matter. Subsequently, Sarkar and Singer (1991) claimed to provide an empirical support for the hypothesis that terms of trade deterioration extended to the field of trade in manufactured products between developing and developed countries as well. In other words, increased share of manufactures in exports is not an escape route from NBTT deterioration as was originally supposed. Thus, testing the relationship between the share of manufactures in total exports of the East Asian countries and their NBTT becomes an important empirical issue in order to be able to draw lessons for African countries.

---

<sup>27</sup> Sarkar (1997) presents more elaborate North-South models in Keynes-Kaleki-Kaldorian lines. In particular, Model 1 in Sarkar (1997) appears to be a more elaborate form of the above model; however, since the results of that model are exactly the same with the ones shown above, we have chosen to use the simpler model found in Ocampo (1986).

Essentially, the original Prebisch-Singer hypothesis was theoretically supported by the much lower income-elasticity of demand for primary products (the higher the elasticity, the better for NBTT) (Maizels, Palaskas and Crowe, 1998: 75, Gemmil, 1962: 198)<sup>28</sup>. Further more, the original argument relates NBTT trends to the fact that technological progress takes place in primary production sector at a lower pace than in the manufacturing sector (Sarkar and Singer, 1991). In this line, Maizels, Palaskas and Crowe (1998) find that the technological and skill-intensity differences within the manufactured products also matters for a country's NBTT. In other words, the higher the proportion of skill- and technology intensive manufactured products in total exports, the better the NBTT of the country. More formally, the above discussion implies that NBTT is a positive function of not only the share of manufactures in total exports but also is a positive function of the share of technology- and skill-intensive products in *total manufactured exports*. That is, the escape route from NBTT deterioration is not just diversifying away from primary products but a continuous upgrading of the production and export structure ('ladder effect'). Therefore, we do not include share of manufactures in total exports as a single explanatory variable in a terms of trade equation but attempt to distinguish the impact of two categories of manufactures based on their technological and skill-intensity (low-tech (LTEX), mid- and high-tech (MHTEX)).

Another issue related to NBTT comes from a strand of literature that questions the validity of manufactured exports as escape route for the developing countries as a

---

<sup>28</sup> Note the fact that the inequality in (5) contains only income elasticity terms but does not contain price elasticity terms.

group: the fallacy of composition argument or the 'adding up problem'. The gist of the argument is that, expanding exports by a small developing country might be viable but if all, in particular large, developing countries try to increase their manufactured (especially labor-intensive) exports, terms of trade would decline to such an extent that the benefits of any increase in the volume of exports is more than offset by losses due to lower export prices (Mayer, 2002: 875). Mayer (2002) identifies three distinct versions of this argument: the first originating from Cline (1982) based on potential protectionist tendencies in developed countries; the second based on the contention that the elasticity of demand for a group of countries is smaller in absolute value than the corresponding elasticity for an individual developing country; the third highlights the general equilibrium nature of the fallacy of composition (*Ibid*: 876). In a single country context, the implication of this argument is that an increase in the share of developing countries' manufactured exports in the global market negatively affects its NBTT. Therefore, if our empirical analysis finds that the terms of trade improved despite the evident increase in the share of developing countries in the global manufactured exports, it would imply that 'adding up' has not been a problem to the countries in the sample or else they must have escaped it some how. In other words, the sign on the coefficients of the two categories of manufactured exports would be an indirect test of the 'fallacy of composition' hypothesis.

Another (policy) factor that affects the NBTT of a country is the real exchange rate. Countries often deliberately attempt to depreciate their real exchange rates (and hence their NBTT) in order to raise export earnings (via encouraging increases in the volume of exports) (Bleaney, 1993, Athokorala, 2000). Another reason why NBTT deteriorates

but volume movements may compensate for the adverse effect is an increase in productivity in the export sector (Athokorala, 2000:9). To take into account these two considerations, we use income terms of trade (INTT) as a complementary indicator.<sup>29</sup> A more important justification for analyzing the effect of an increase in the shares of the two categories of manufactured exports on the INTT of the countries is that, since an important portion of capital inputs are imported in the case of developing countries, the import purchasing capacity (in other words, INTT) of exports is the more important issue for the growth prospects of developing countries.

To summarize the above discussion in an equation format,

$$NBTT = f(LTEX, MHTEX); \quad (6)$$

$$INTT = f(LTEX, MHTEX); \quad (7)$$

where LTEX is basically the share of SITC 6 and 8 category manufactures (which consists mostly of low-tech manufactured products) in a country's exports; and MHTEX is the share of SITC 7 category exports which consist of the technology- and skill-intensive manufactures<sup>30</sup> such as machinery and transport equipment in total exports.

Assuming, for simplicity, an exponential functional formulation, taking natural logarithms for ease of handling, letting lower case letters denote natural logarithms of

---

<sup>29</sup> INTT = NBTT \* Q<sub>x</sub> where Q<sub>x</sub> is an index of export volume.

<sup>30</sup> The categories are chosen more or less following Parra (unpublished).

the variables and introducing a constant and an i.i.d error term, the equation in a log-linear form becomes;

$$nbtt = \alpha + \beta_1(ltex) + \beta_2(mhtex) + \varepsilon \text{ and}; \quad (8)$$

$$intt = \alpha + \beta_1(ltex) + \beta_2(mhtex) + \varepsilon \quad (9)$$

Note on the signs of the coefficients:  $\beta_1$  is expected to be negative *a la* Sarkar and Singer (1991, 1993) but positive *a la* Athokorala (1993, 2000), Prebisch (1950) and Singer (1950) for example.  $\beta_2$  is expected to be positive.

## ***5. 2. Data, Their Time Series Properties and Estimation Methodology***

### ***5.2.1. Data***

The econometric estimation in this chapter covers Republic of Korea (KR), Hong Kong (HK) and Singapore (SN) from the group of four ‘East Asian Tigers’ and Malaysia (ML), Thailand (TL) and Indonesia (TL) from the newly industrializing east Asian countries. Japan is not included in the sample because the time series data for the relevant variables is available in an adequate manner only for the years beginning from 1980 and Japan had already joined the ‘North’ by that time which makes its inclusion in the sample inappropriate. Taiwan could not be included in the sample because of too many missing observations for most variables even for the years beginning from 1980. Thus, the sample consists of two (some what distinct) groups of East Asian countries that have exhibited great increases in the share of manufactures in their exports.

Data on the variables was obtained (and transformed into the desired format) from *UNCTAD Databases On-Line*. It is very unfortunate that the data base extends back only to 1980 as it would have been more informative if it extended to the 1970s and 1960s especially for Singapore, Korea and Hong Kong whose export structures underwent substantial transformation in those decades. In short, we have data for 6 countries (N=6) for the period 1980-2003 (T=24). The fact that we have at most 24 observations for each country might be considered as sufficient to carry out separate time series analyses but we do not consider it comfortably large enough. Besides, since our prime interests are long-run relationships that hold across countries that have achieved or are in the process of achieving very significant export diversification in to manufactures, we opted for some form of panel data analysis.

## **5.2.2. Time Series Properties of the Data**

### **A. Unit Root Tests**

Many economic time series appear to be integrated of order one,  $I(1)$ , needing to be differenced once to make them stationary; and so, they are said to exhibit a unit root (Smith, 2000: 2). Basically, stationarity implies that a stochastic time series or its distribution remains on the same level even if a shift occurs in time by some value  $k$  (Tongur, 2005). The finding that the unit root phenomena is prevalent in economic time series has made testing for unit roots in time series analysis a common practice among applied researchers. However, testing for unit roots in panels is recent (Baltagi and Kao, 2000: 2). One of the primary reasons behind the application of panel unit root

tests is to gain statistical power and to improve on the poor power of their pure time series counterparts (Breitung and Pesaran, 2005:1). Though testing for unit roots in panels is a recent development, many alternative tests employing varying assumptions have been proposed in the econometric literature (See for e.g. Levin and Lin (1992), Im, Pesaran, Shin (1997, 2003), Maddala and Wu (1999), Hadri (1999) and Choi (1999)).

Consider the following model (Baltagi and Kao, 2000):

$$y_{it} = \rho_i y_{it-1} + z'_{it} \gamma + u_{it} \quad , \quad I = 1, \dots, N; \quad t = 1, \dots, T, \quad (10)$$

where  $z_{it}$  is the deterministic component and  $u_{it}$  is a stationary process. The deterministic component could be zero, one, the fixed effects or fixed effects as well as a time trend. Im, Pesaran and Shin (1997) (IPS) allow for a heterogeneous coefficient of the lag term and propose a procedure based on averaging individual unit root test statistics. They suggest an average of the augmented Dickey-Fuller (ADF) tests when the error term is serially correlated with different correlation properties across cross-

sectional units (i.e.  $u_{it} = \sum_{j=1}^{p_i} \omega_{ij} u_{it-j} + \varepsilon_{it}$ ). Accordingly, substituting this error term into

(10)

gives us

$$y_{it} = \rho y_{it-1} + \sum_{j=1}^{p_i} \rho_{ij} \Delta y_{it-j} + z'_{it} \gamma + \varepsilon_{it}. \quad (11)$$

The null hypothesis is

$H_0 : \rho = 1$  for all  $i$  and the alternative hypothesis is

$H_1 : \rho < 1$  for at least one  $i$ .

Maddala and Wu (1999) and Choi (1999) propose a Fisher-type test where

$$P = -2 \sum_{i=1}^N \ln \rho_i$$

(12)

which combines the p-values from unit root tests for each cross-section to test for unit root in panel data. Both the IPS and the Fisher tests (Fisher ADF and Fisher PP) combine information based on individual unit root tests but the Fisher tests have the advantage over the IPS test in that they do not require a balanced panel (Baltagi and Kao, 2000). The same authors report research results that find the Fisher tests as superior to the IPS test (ibid: 8). They also report that the empirical size of the IPS and the Fisher tests are reasonably close to their nominal size 0.05 when N is small but overall, IPS test results have the most stable size (ibid). Tongur (2005) performs a Monte Carlo simulation to test the power and size properties of several panel unit root tests and concludes that IPS test has the most power closely followed by the Fisher tests. Therefore, we apply these two tests in our analysis.

### ***B. Panel Cointegration Analysis***

As was noted above, many economic time-series appear to be integrated of order one, I(1), or are unit root processes. However, it may be the case that equilibrium conditions imply that certain linear combinations of the integrated variables are stationary, I(0). If this is the case, the variables are said to be cointegrated- meaning

that they have a long-term equilibrium relationship (Smith, 2000). Formally, consider the  $n_i$  time-series variables  $z_{it} = (z_{i1t}, z_{i2t}, \dots, z_{int})'$  observed on the  $i^{th}$  cross-section unit over the period  $t = 1, \dots, T$ , and suppose that for each cross-section  $z_{ijt} \sim I(1)$ ,  $j = 1, \dots, n_i$ . Then  $z_{it}$  is said to form one or more cointegrating relations if there are linear combinations of  $z_{ijt}$ 's for  $j = 1, 2, \dots, n_i$  that are  $I(0)$ . (Breitung and Pesaran, 2005: 25).

According to Smith (2000), where it is hypothesized that there is a single cointegrating vector, one can estimate by least squares either a heterogeneous individual levels equation or a homogeneous pooled levels equation and then apply panel unit root tests, (with either heterogeneous or homogeneous autoregressive parameters), to the residuals from these regressions with appropriate adjustments to the critical values. In a multivariate context where one can not rule out the existence of multiple cointegrating vectors, it would be more appropriate to employ Johansen-type tests. Such a test has been proposed by Larsson et al (1998, 2001) and Larsson and Lyhagen (1999). Since this approach has not been criticized so far as we know, we employ it in our analysis. Consequently, a brief description of the methodology is in order and is given below (Larsson et al (2001: 110-112):

Consider a panel data set that consists of a sample of  $N$  cross-sections observed over  $T$  time periods. Let  $i = 1, \dots, N$  index the groups,  $t = 1, \dots, T$  the sample time period and  $j = 1, \dots, p$  the variables in each group. Then  $y_{ijt}$  denotes the  $i$ th group the  $j$ th variable at time  $t$ . The observed  $p$ -vector for group  $i$  at time period  $t$  is given by

$Y_{it} = (y_{1it}, y_{2it}, \dots, y_{ipt})'$ . Suppose that the data generating process for each of the groups can be characterized by the following heterogeneous VAR(ki) model:

$$Y_{it} = \sum_{k=1}^{ki} \prod ik Y_{i,t-k} + \varepsilon_{it}, \quad i = 1, \dots, N \quad (13)$$

where for each group  $i$  the values  $Y_{i,-ki+1}, \dots, Y_{i,0}$  are considered fixed and the errors  $\varepsilon_{it}$  are independent identically distributed  $\varepsilon_{it} \sim N_p(0, \Omega_i)$ .

Suppressing the group index  $i$  for notational simplicity, the cointegration rank hypothesis is specified as

$$H(r) : \text{rank}(\prod) \leq r,$$

against the alternative

$$H(p) : \text{rank}(\prod) = p$$

The likelihood ratio test which is called the trace statistic is

$$-2 \ln Q_T \{H(r) | H(p)\} = -T \sum_{i=r+1}^p \ln(1 - \hat{\lambda}_i) \quad (14)$$

where  $\hat{\lambda}_i$  is the  $i$ th eigenvalue to a certain eigenvalue problem.

In the panel setting, we are interested in testing the hypothesis that all of the matrices  $\prod i, i = 1, \dots, N$ , have rank  $r \leq 1$ . Accordingly, the following rank hypothesis is considered:

$$H_0 : \text{rank}(\prod i) = r_i \leq r \quad \text{for all } i = 1, \dots, N, \text{ against the alternative}$$

$$H_1 : \text{rank}(\prod_i i) = p \text{ for all } i = 1, \dots, N.$$

Denote the trace statistic for group  $i$  as

$$LR_{iT} \{H(r)|H(p)\} = -2 \ln Q_{iT} \{H(r)|H(p)\}.$$

(15)

Define the LR-bar statistic as the average of the  $N$  individual trace statistics

$$LR_{NT} \{H(r)|H(p)\} = \frac{1}{N} \sum_{i=1}^N LR_{iT} \{H(r)|H(p)\}.$$

(16)

Then the standardized LR-bar statistic<sup>31</sup> for the panel cointegration rank test is defined by

$$\gamma_{\overline{LR}} \{H(r)|H(p)\} = \frac{\sqrt{N} (\overline{LR}_{NT} \{H(r)|H(p)\} - E(Z_k))}{\sqrt{\text{Var}(Z_k)}}$$

(17)

where  $E(z_k)$  is the mean and  $\text{Var}(Z_k)$  is the variance of the asymptotic trace statistic tabulated based on a simulation study in LLL (2001: 114). The procedure for testing is a sequential one where first  $r = 0$  is tested. If this hypothesis is rejected,  $r = 1$  is tested. This sequential procedure is continued until the null is not rejected or the hypothesis  $r = p-1$  is rejected. This procedure gives the rank estimate  $r$ .

### ***5.2.3. The Panel Data Estimation Model and the Related VECM***

---

<sup>31</sup> LLL (2001: 113) make some relevant assumptions and prove that the statistic is normally distributed with  $N(0,1)$

In cases where the number of cross-sections ( $N$ ) is small ( $<10$ ) and  $T$  is relatively large, Brietung and Pesaran (2005) contend that standard time series techniques applied to systems of equations such as the Seemingly Unrelated Regression Equation (SURE) can be used and the panel aspect of the data should pose no difficulties. More specifically, the Dynamic Seemingly Unrelated Cointegration Regression technique proposed in Mark, Ogaki and Sul (2005) appears to be attractive for the task at hand. However, since the method involves inclusion of the leads and lags of not only the own variables in a cross-section regression equation but also the inclusion of the leads and lags of all the variables of the other cross-sections in the equation system, it requires that the time dimension ( $T$ ) be very large. The fact that  $T$  is not sufficiently large in our case made this technique infeasible.

Instead, we use a dynamic fixed effects (DFE) model where we include individual fixed effects and individual deterministic time trend but impose common slope effects and identical error variances. According to Pesaran, Shin and Smith (1998), the assumption of homoscedastic error variances across cross-sections might result in substantially reduced standard errors. Therefore we use standard errors that are adjusted for heteroscedasticity. In their applied example, the same authors find that the imposition of long-run homogeneity reduces the standard errors of the long-run coefficients but does not change the estimates much (Ibid: 13). They also state that it is common to use pooled estimators (including DFE) without testing for the implied restrictions (of error variance homogeneity/ or short or long-run coefficients); and that, in cross-country studies the Likelihood Ratio tests usually reject equality (the restriction) at conventional significance levels (ibid: 11). Therefore, we skip testing the restrictions;

and so, our estimation results should not be viewed as ascertaining the validity of the restriction of equality of coefficient across the sample countries.

Basically, the fixed effects model estimated is the following:

$$y_{it} = \alpha_i + \delta_i t + \beta_1 x_{1it} + \beta_2 x_{2it} + \varepsilon_{it} \quad , i= 1, \dots, N; t = 1, \dots, T; \quad (18)$$

where  $y_{it}$  is the dependent variable;  $\alpha_i$  are the fixed effects;  $\delta_i$  are the deterministic cross-section specific trend coefficients;  $x_{jit}$  are observations on the independent variables and  $\beta_1$  and  $\beta_2$  are the common slope coefficients. The lagged values of the dependent variable will be included to take care of the highly likely problem of autocorrelation. This might result in the problem of correlation between the lag term and the error terms which generates a (downward) bias in the estimate of the coefficient of the lag (Osbat, 2004: 9). However, since we are not interested in the precise estimation of this coefficient as such, this will not pose a serious problem. Furthermore, there is evidence that the bias is reduced by the inclusion of exogenous regressors provided that their coefficients are different from zero (Ibid: 12).

Subsequently, the vector error correction models or equations (VECM) becomes

$$\Delta y_{it} = \Phi \hat{\varepsilon}_{t-1} + \theta_1 \Delta x_{1it-1} + \theta_2 \Delta x_{2it-1} + \varepsilon_{it} ,$$

(19)

where the first term on the RHS is the one period lagged residuals series generated from the estimation of fixed effects model above so that that its coefficient would be interpreted as the speed of adjustment.

### 5.3. Empirical Results and Interpretation<sup>32</sup>

When conducting the panel unit root tests, the inclusion of fixed individual effects (constants) was found appropriate on the grounds that none of the series show variation around a zero mean. The decision to include or not to include a deterministic trend was made based on a visual (graphical) inspection of the individual series, i.e. whenever the majority of the individual series seem to follow linear trends, a trend was included in the panel unit root test and left out otherwise. The Schwartz Information criteria were used to select the lag order. As can be seen from Table 1, the test results indicate that all the four variables exhibit a unit root in their levels at all conventional levels of significance. Or more precisely, we fail to reject the null of a unit root at all conventional levels of significance. However, the test results strongly reject the null of a unit root in the first differences in all cases and at all conventional significance levels. Therefore, we conclude that the variables are integrated of order one,  $I(1)$ .

After the determination of the order of integration of the variables, we run two cointegrating regressions for each country: one regression for NBTT on the share of SITC 6 plus 8 and SITC 7 in exports and the other for INTT on the same variables. The results are reported in Table 2. As can be seen from the table, the results of the individual Johansen cointegration (trace) tests for the NBTT regression indicate that the null of at most zero cointegrating equations (vectors) is rejected for all the six

---

<sup>32</sup> EViews 5.1 was used for all the tests and estimation except for panel cointegration results which were manually calculated from results of individual (cross-section) specific Johansen trace tests.

countries. The tests indicate two cointegrating equations for Indonesia, Korea, Malaysia and Thailand; and one for Hong Kong and Singapore at 0.05 level of significance. The panel cointegration test results for NBTT show that the null of at most 2 cointegration vectors ( $r = p-1$ ) is rejected. Therefore, we conclude that there are two cointegrating vectors or equations. In the case of INTT, the cointegration rank (trace) test indicates one cointegrating equation for Hong Kong, Indonesia and Malaysia; two equations for Korea and Thailand but none for Singapore at 0.05 level of significance. The panel cointegration test result for INTT here as well rejects the null of at most 2 cointegration vectors ( $r = p-1$ ); and so, we conclude that there are two cointegrating vectors. Over all, we can deduce from the results that, even though the relevant variables are non-stationary or are integrated of order one, the condition for non-spurious regression still holds since the tests indicate that they are suitably cointegrated.<sup>33</sup> Therefore, we are warranted to proceed and estimate the hypothesized long-run relationships.

Table 3 reports the results for the DFE regression of NBTT on the two variables that represent shares of different categories of manufactured goods in total exports. The results indicate that the coefficients of both variables are positively signed (or have positive elasticities since the variables are in logarithms). More specifically, they show that a one percent increase in the share of low-tech and medium and high-tech manufactures would lead to about 0.65 and 5.65 percent improvement in NBTT, respectively, holding other things constant. The coefficient for the share of SITC 7 is statistically highly significant while that of the other variable is highly insignificant. In

---

<sup>33</sup> An alternative panel cointegration test that employs unit root tests on the residuals from the basic panel regressions was also performed on both the INTT and NBTT equations and the results confirm that the relevant variables are indeed cointegrated. The weakness of this method is that it can not tell the number of the cointegrating vectors.

all the case, the time trend is negative even though the size of its coefficient is substantially less than in particular that of the share of SITC 7 variable. In four out of the six cases, it is statistically insignificant at 0.01 level and in two cases it is insignificant at 0.05 level. The F-test indicates that the coefficients are collectively statistically highly significant. The Durbin- Watson statistic indicates that the inclusion of one period lag of the dependent variable has taken care of the problem of serial correlation, which was substantial in the regression (not reported) without it.<sup>34</sup>

Likewise, Table 4 reports the results for the regression of INTT on the same variables. In this case, the signs of the two coefficients are not only both positive but also show a substantial size increment over those of the NBTT regression. Specifically, a percentage change in share of the two categories of manufactured exports in total exports results in around 5 and 15 per cent improvement in INTT, respectively, holding other things constant. In this case, not only the coefficient of the mid- and high-tech manufactures is statistically highly significant but also that of the other variable becomes marginally significant at 0.10 level. Another interesting feature of the results of the INTT regression is that, in all the cases but one, the trend coefficients are positive; and all but two cases they are statistically significant at conventional levels. In this regression as well, the diagnostic tests indicate that the model is well specified.

---

<sup>34</sup> Jarque-Bera test for normality performed on cross-sectional basis confirms that the residuals are normally distributed but normality is strongly rejected for the pooled NBTT residuals series providing a *post mortem* justification (vindication) for the use of cross-sectional heterogeneity adjusted estimates. In the case of the INTT regression, both cross-sectional and pooled tests indicate that the residuals are normally distributed.

Regarding the marked difference in terms of sign and size between the coefficients of the two regressions, it could be argued that, as was mentioned above, volume movements might have been over compensating for any downward tendencies in the per unit prices of exports. The negative sign on the trend coefficients in the NBTT regression might be due to the highly likely possibility that countries expand import or relax restrictions on imports of pricier final products and/or capital inputs when foreign exchange scarcity is no more a problem as a result of higher foreign exchange earnings due to expanded export volumes. In other words, countries might import more of more expensive imports that had been previously constrained by foreign exchange scarcities. This explanation brings to mind a possible testable hypothesis regarding the NBTT trend observed in the sample countries: disaggregating the analysis into import/export relations of these countries with countries that are technologically superior to them and with those that are technologically inferior to them might show results that are more interesting. Specifically, the sample countries might have been experiencing a positive and significant NBTT trend in their trade relations with those countries that are below them in the technology ladder but still experiencing a negative NBTT trend with those still above them. Testing such a hypothesis could be a possible area for future research.

Finally, the results of the VECM estimation results are reported in Tables 5 and 6. As was expected, the error correction or the speeds of adjustment coefficients for both equations have negative signs. This indicates that any short run deviations from the long-run equilibrium relationship are adjusted over time. More specifically, about 23 and 19 per cent of one period's shocks are adjusted in the next period for NBTT and INTT

relationships, respectively. Further more, a look at the p-values of the error correction coefficients indicates that they are statistically significant at conventional levels.

## *Chapter 6*

### *Conclusion and Lessons for Africa*

#### *6.1. Conclusion*

This study began by noting the dismal performance of most African economies in terms of industrialization and modernization and the zeal with which African governments are being pressurized to free their external trade and minimize their role in the economic sphere. And under such a context, it set out to examine the trade and industrial policy experiences of successful countries with a special focus on the Newly Industrialized East Asian Countries. In addition, the study set out to analyze the terms of trade implications of export diversification into manufacturing which was generally thought to alleviate the problem of secular deterioration in terms of trade but has come under attack in recent years. The over-arching purpose is to shed light on the issue of which path should African governments follow in their attempts to pull out their economies from the unenviable situation they are in.

Accordingly, Chapter 2 underlined the fact that the academic mainstream views the defence of free trade as close to a sacred tenet and that the proponents of globalization believe that economic theory has irrefutably established the superiority of free trade. Then the chapter went on to briefly but critically review the theoretical foundation of such belief. It found that, at the end of the day, the mainstream case for universally free trade (especially between a backward and an advanced country) critically relies on the

Recardian Comparative Advantage Theory. Further more, on top of briefly highlighting the criticisms directed at this theory by both the mainstream and the Heterodoxy, it was noted that the implications of the theory are far from being attractive to aspiring developing countries since they confine such countries to the production and export of commodities for which they have a static comparative advantage. This is despite the fact that such commodities are known to keep the exporting countries at the mercy of market price fluctuations; weather conditions, et cetera and their markets are generally buyer's markets (where the seller is a price taker). Therefore, the balance of the argument tilted towards the Theory of Competitive Advantage which sees international competition just as domestic competition where the more efficient and the more advanced wins under free market mechanism since it recommends modernization through raising of both the level and the growth rate of productivity as the only long-run alternative to escape from underdevelopment.

In Chapter 3, the infant industry theory which rejects the mainstream view that it is possible for a backward country to achieve modernization through "the natural course of things" or through *laissez-faire* domestic and external economic policies and suggests a strategic approach to industrial and trade policies was presented. This was followed by a cursory analysis of the experiences of the now developed countries which showed that those countries did not follow the path indicated by the free trade theory; nor did they let "natural course of things" to dictate the path of their industrial development. With such a back drop, the chapter that followed took on the task of analyzing the more recent trade and industrial policy experiences of three East Asian countries. The focus was on checking if the governments in those countries took a

limited role of 'getting prices right, focused on achieving the right 'fundamentals' and engaged in free external trade. The analysis found that the governments instead deliberately and consistently implemented policies that are against free trade and laissez-faire and resorted and resorted to a strategic engagement with the rest of the world economy. That is, they vigorously employed a combination of import protection and substitution together with export promotion. The evidence strongly suggests that the strategic interventionist approach suggested by the infant industry theory and employed by the 'old' industrialized countries has in fact been applied by the East Asian countries more vigorously, more purposefully, more meticulously and with great success.

The quantitative analysis part of the study solely focused on the relationship between the observed structural transformation of the exports of six newly industrialized and industrializing countries in East Asia and their terms of trade with the rest of the world. The focus on terms of trade is due to the fact that the terms of trade debate has always been about the need or not for developing countries to industrialize. The underlying objective of the quantitative analysis was to assess whether the diversification away from primary products and into manufactured products had served the countries under study as a escape route from the 'observed' secular terms of trade deterioration as was implied by the original Prebisch - Singer hypothesis or has failed to do so as predicted by the 'new terms of trade pessimism'. The implication of the analysis in the preceding chapters was not about a simple shift away from primary to manufactured products. Instead, it was about modernization and industrialization in the sense of climbing up the ladder of comparative advantage. Consequently, the quantitative analysis attempted to

differentiate the impact of increases in the share of different categories of manufactures in total exports. More over, the analysis was done not just on the more customary terms of trade definition of NBTT but also on INTT since it is of greater interest to import compressed economies of most developing countries.

The over all conclusion from the econometric analysis is that, indeed, turning away from primary exports and towards manufactured exports has resulted in improvements in the terms of trade of the group of countries studied. The statistical significance of the impact has been found more pronounced in the case of mid- and high-technology manufactured exports category. The results are substantially stronger with regard to INTT or the import purchasing power of exports. This particular result is particularly important for those developing countries whose growth potentials are constrained by foreign exchange scarcities.

Regarding the NBTT results, we can say that, as long as a country continues to imports more technology- and skill-intensive products than it exports, the per unit price of its exports in terms of imports (or NBTT) will remain below that of the countries from which it imports such products –more or less by definition. Therefore, the most important issue is not whether a country produces and exports primary or manufactured products but how much skill- and technology-intensive its exports/imports are. In other words, what matters most with regard to escaping long-run terms of trade deterioration and “unequal exchange” is not a once and for all shift away from primary products in to manufacturing but a constant derive up the ladder of comparative advantage. We hypothesize that this would be more strongly borne out by analyses of the same

relationships but with a finer categorization of manufactured exports. In any case, the point we are trying to make is more or less to remind the fact that “the catching up of the Newly Industrializing East Asian Countries to the income levels of developed countries ... has been closely linked to a continuous upgrading in their product and export structure beyond primary commodities, basic apparel and low-grade assembly” (Mayer, 2002: 2). Over all, Expansion of primary and low-end manufacturing might provide a temporary escape route from foreign exchange constraints but the long-run terms of trade of a country is determined by its position on the technology and skill intensity ladder.

## ***6.2. Implications and Lessons for Africa***

Given country specific political economy contexts and initial conditions, the general implication for African countries is to be conscious of the risks of “fallacy of composition” but attempt diversification away from primary production (even if that means into low-end products) with a strategic objective of continuously upgrading their technological and skill capabilities. Naturally, such a recommendation invites the question: How? a short answer to this question is by putting aside the mantra of *lasssez-faire* industrial policies and universal and across-the-board trade liberalization, following a contextualized form of the infant industry approach and form a strategic engagement with the rest of the world - since no country in history has ever succeeded except through some form of this approach. Here, an important reminder is that the role

of government is *not to replace the market mechanism and private initiative but to create, complement and govern them.*

More specific lessons to be gleaned from the experiences of the East Asian countries studied include the following:

- All the trade and industrial policy elements should form a coherent package and should be viewed as means towards the achievement of industrialization and modernization. There should be a clear and strategic link between trade policy and the broader industrial development strategy.
- The stick and carrot approach to develop an infant industry should not be limited to production for domestic market alone since production for export goes through even more elaborate stages of infancy.
- There is no contradiction or mutual exclusivity between import protection/substitution and export promotion: the 'right' combination of *both* fares better than any one of the two and the former could be a spring board for the later.
- The support provided to an industry should be not only temporary and predictable but also *contingent* up on some well-specified and monitorable performance criteria such as export performance.
- The success of an infant industry development strategy depends on the willingness and ability of the government to withdraw the various forms of support extended to a 'favored' firms and/or industries.
- There should be no across-the-board protection and promotion highly differentiated protective and promotion regime where the level and the structure of the

differentiation are determined by the over-arching industrial development strategy (which includes among other policies for education and human resource development, external tariff, domestic competition, science and technology development, FDI, et cetera).

- The role of the government has to change in the course of the development of even a single industry and its priorities should shift over time; and its focus should constantly be not only on consolidating the place of its economy on the ladder of comparative advantage but also on constantly moving up the ladder.

Finally, it is important to answer the question of the feasibility of such bold and heady recommendations for Africa at a time when ‘kicking away the ladder’ is thought to be especially intense under the current global trading regime. The first point to be underlined in this regard is that the historical evidence strongly suggests such an approach as *the only* fast and sure track towards modernization. Therefore, it is not a matter of choice but the only option if Africa is going to modernize. The second point to note here is that the ‘ladder kicking activity’ is not actually as intense as it appears: “The bark is worse than the bite!” (Amsden and Hikino, 2000, title); though pursuing this point further is beyond the scope of this study. Thirdly, we would like to hypothesize that the pressure would be more intense on African countries only when they become individually ‘important’ to the global economy through their increased share in the global trade and increased size of their domestic market. If this indeed is the case, it is better for them to be worried and bothered about such pressures when they actually become ‘important’ in the global economy.

## ***References***

Alemayehu Geda (2002a). *Finance and Trade in Africa: Macroeconomic Response in Global Economy Context*. London: Pallgrave-McMillan.

Alemayehu Geda (2002b), "The Gebre-Hiwot Model: A Pioneer African (Ethiopian Development Macroeconomist)", *Ethiopian Journal of Development Research*, Vol. 24, No. 1, pp. 1-28.

Amin, Samir (1974). *Accumulation on the World Scale* (Vol. 1 &2 combined). Translated from the French by Brian Pearce, New York and London: Monthly Review Press.

Amsden, Alice, (1991), "Diffusion of Development: The Late-Industrializing Model and Greater East Asia", *American Economic Review*, Vol. 81, No. 2, pp. 282-286, Papers and Proceedings of the Hundred and Third Annual Meeting of the American Economic Association.

\_\_\_\_\_ (1994), "Why Isn't the Whole World Experimenting with the East Asian Model to Develop?: Review of The East Asian Miracle", *World Development*, Vol. 22, No. 4, pp. 627-633.

\_\_\_\_\_ and Ajit Singh (1994), "The optimal Degree of Competition and Dynamic Efficiency in Japan and Korea", *European Economic Review*, Vol. 38, pp. 941-951.

\_\_\_\_\_ and Takshi Hikino (2000), "The Bark is Worse than the Bite: New WTO Law and Late Industrialization", *Annals of the American Academy of Political and Social Science*, Vol. 570, Dimensions of Globalization, July, pp. 104-114.

Athokorala, Prema-chandra (1993), "Manufactured Exports form Developing Countries and Their Terms of Trade: A Re-examination of the Sarkar-Singer Results", *World Development*, Vol. 21, No. 10, pp. 1607-1613.

Athokorala, Prema-chandra (2000), "Manufactured Exports and Terms of Trade of Developing Countries: Evidence from Sri Lanka", *Journal of Development Studies*, Vol. 36, No. 5, pp.1-21.

Bacha, Edmar L. (1978), "An Interpretation of Unequal Exchange from Prebisch-Singer to Emmanuel", *Journal of Development Economics*, Vol. 5, pp. 319-330.

Bahru Zewde (2002). *Pioneer of Change in Ethiopia: The Reformist Intellectuals of the Early Twentieth Century*. Oxford: James Currey.

Bairoch, Paul, (1993). *Economics and World History - Myths and Paradoxes*. Brighton: Wheatsheaf.

Bairoch, Paul and Richard Kozul-Wright (1996), "Globalization Myths: Some Historical Reflections on Integration, Industrialization and Growth in the World Economy", *UNCTAD Discussion Papers*, No.113.

Baldwin, Robert E. (1969), "The Case against Infant-Industry Tariff Protection", *Journal of Political Economy*, Vol. 77, May/June, pp. 295-305.

Baltagi, B.H. and C. Kao (2000), "Non-Stationary Panels, Cointegration in Panels and Dynamic Panels: A Survey", *Working Paper Series*, No. 16, Center for Policy Studies, Syracuse University, NY.

Beeson, Mark (2003), "The Rise and Fall (?) of the developmental State: The Vicissitudes and Implications of East Asian Interventionism", University of Queensland (Unpublished), Available at [www.eprint.uq.edu.au](http://www.eprint.uq.edu.au)

Bhagwati, Jagdish (1989), "Is free trade passé after all?", *Weltwirtschaftliches Archiv*, vol. 125, no. 1, pp.17-44; reprinted as Chapter 1 in J. Bhagwati, *Political Economy and International Economics*, Douglas Erwin( ed.), Cambridge, MA: MIT Press.

Bhagwati, Jagdish, (1994), "Free Trade: Old and New Challenges", *Economic Journal*, Vol. 104, No. 423, pp. 231-246.

Bleany, Michael F. (1993), "Manufactured Exports of Developing Countries and Their Terms of Trade Since 1965: A Comment", *World Development*, Vol. 21, No. 10, pp. 1615-1616.

Brander, J. and B. Spencer (1985),"Export Subsidies and Market Share Rivalry", *Journal Of International Economics*, Vol.18, No.1/2.pp. 83-100

Briertung, Jorg and M. H. Pesaran (2005), "Unit Roots and Cointegration in Panels", *Discussion Paper Series 1: Economic Studies*, No. 42, Deutsche Bundesbank, Germany.

Brisco, N. (1907). *The Economic Policy of Robert Walpole*. New York: Columbia University Press.

Brittingham, R. L., S. Pitts and R. H. Kamery (2003), "The Infant-Industry Argument: The debate Subsidies (1920-1942)", *Proceedings of the Academy For Studies in International Business*, Vol. 3, No. 2, pp. 9-14.

Chang, Ha-Joon (1999), "Industrial Policy and East Asia- The Miracle, the Crisis, and the Future", A paper presented at the World Bank workshop on "Rethinking East Asian Miracle", USA, 16-17 February 1999.

\_\_\_\_\_ (2000), "The Hazard of Moral Hazard: Untangling the Asian Crisis", *World Development*, Vol. 28, No. 4, pp. 775-788.

\_\_\_\_\_ (2002). *Kicking Away the Ladder: Development Strategy in Historical Perspective*. London: Anthem Press (Reprinted in 2004).

\_\_\_\_\_ (2003), "Kicking Away the Ladder: The 'Real' History of Free Trade", *Foreign Policy in Focus* Special Report, [www.fpif.org](http://www.fpif.org) (First presented at a conference entitled "Globalization and the Myth of Free Trade" on April 18, 2003)

Choi, I.(1999), "Unit Root Tests for Panel Data", Manuscript, Kookim University, Republic of Korea.

Cline, William R. (1982), "Can the East Asian Model of Development Be Generalized?", *World Development*, Vol. 10, No. 2, pp. 81-90.

Condliffe, J.B., (1950), *The Commerce of Nations*, New York: Norton & Co.

Corden, W. Max. 1997, *Trade Policy and Economic Welfare*, Second Edition (first edition published in 1974), Clarendon Press, London

Deranyagala, S. and B. Fine (2000), "New Trade Theories versus Old Trade Policy: a Continuing Enigma", *SOAS Working Papers Series*, No. 102, London: University of London.

Dollar, David (1992) "Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDC, 1976-85", *Economic Development and Cultural Change*, Vol. 40, No. 3, pp. 523-544.

Eaton, J. and G. Grossman (1986), "Optimal Trade and Industrial Policy Under Oligopoly", *Quarterly Journal of Economics*, vol.10, no. 2, pp.383-406

Economic Commission for Africa, (2004a). *Assessing Regional Integration in Africa*. ECA Policy Research Report, Addis Ababa: ECA.

\_\_\_\_\_, (2004b), "Unlocking Africa's Trade Potential in the Global Economy", ECA Policy Paper, Addis Ababa: ECA.

\_\_\_\_\_, (2004c). *Economic Report on Unlocking Africa's Trade Potential*. Addis Ababa: ECA.

Edwards, S. (1993), "Openness, Trade Liberalization, and Growth in Developing Countries", *Journal of Economic Literature*, Vol. 31, No. 3, pp. 1358-1393.

Either, W. (1981), "Decreasing Costs in International Trade and Frank Graham's Argument for Protection", *Economica*, Vol. 50, pp. 1243-68.

Either, W. (1991), "National and International Returns to Scale in the Modern Theory of International Trade", *American Economic Review*, Vol.72, No.3, pp389-405.

Emmanuel, Arghiri, (1972), *Unequal Exchange: A Study of the Imperialism of Trade*. Translated from the French by Brian Pearce, London: Monthly Review Press.

Feenstra, Robert (2004). *Advanced International Trade: Theory and Evidence*. Princeton: Princeton University Press (electronic copy).

Gebre-Hiwot Baykedagn (1924). *Mengistna ye Hizb Astedader* (Government and Public Administration). Addis Ababa: Teferi Mekonnen Printing Press.

Gebre-Hiwot, Baykedagne (1995). *The State and Economy in Early 20th Century Ethiopia by Gebre-Hiwot Baykadgn*. Translated by Tenkir Bongor, London: Karnak House .

Gimmel, Robert F. (1962), "Prebisch on Commercial Policy for Less-Developed Countries", *Review of Economics and Statistics*, Vol. 44, No. 2, PP. 198-201.

Gondelfo, Giancarlo (1994). *International Economics I: The Pure Theory of International Trade*. Second and Revised Edition, Berlin Heidelberg: Springer-Verlag.

Graham, F. D. (1923), "Some Aspects of Protection Further Considered", *Quarterl Journal of Economics*, Vol.37, No. 2, pp. 199-227.

Grossman, G. and E. Helpman (1991). *Innovation and Growth in the Global Economy*. Cambridge: MIT Press.

Gonzalez, Norberto (2001), "The motive Ideas behind Three Industrialization Processes", *CEPAL Review*, No. 75, pp. 103-108 (Original Spanish).

Grabowski, Richard, (1994), "The Successful Developmental State: Where Does It Come From?", *World Development*, Vol. 22, No. 3, pp. 414-422.

Grossman, G. and H. Horn (1988), "Infant Industry Protection Reconsidered: The Case of International Barriers to Entry", *Quarterly Journal of Economics*, vol. 80, no. 4, pp.767-787.

Haberler, G., (1937?). *The Theory of International Trade with Its Application to Commercial Policy*, London: William Hodge and Company.

Hadri, K. (1999), "Testing for the Null of Stationarity against the Alternative of a Unit Root in Panel Data with Serially Correlated Errors", Manuscript, Department of Economics and Accounting, University of Liverpool, UK.

Hamilton, Alexander, (1934), "Secretary of the Treasury. Report On Manufactures. Communicated to the House of Representatives, December 5, 1791", in S. McKee, Jr.

(ed). *Papers on Public Credit, Commerce and Finance*. New York: Columbia University Press.

Harrison, Anne (1994), "An Empirical Test of the Infant Industry Argument: Comment", *American Economic Review*, Vol. 84, No. 4, pp. 1090-1095.

Hume, David, (1776 and 1971), "On Automatic Adjustment", (1776), in Richard Cooper (ed.), *International Finance*, Harmondsworth: Penguin.

Im, K. S., M. H. Pesaran and Y. Shin (1997), "Testing for Unit Roots in Heterogeneous Panels", Manuscript, Department of Applied Economics, Cambridge University, UK.

Im, K. S., M. H. Pesaran and Y. Shin (2003), "Testing for Unit Roots in Heterogeneous Panels", *Journal of Econometrics*, Vol. 115, No.1, pp. 53-74.

Johnson, Harry G., (1972), "Commercial Policy and Industrialization", *Economica*, New Series, Vol. 39, no. 155, pp 264-275

Jomo, K. S. (2001), "Rethinking the Role of Government Policy in Southeast Asia", in Stiglitz, J. E. and Shahid Yusuf (eds.), (2001). *Rethinking the East Asian Miracle*. New York: Oxford University Press, pp. 461-508.

Kokko, Ari (2002), "Export-led Growth in East Asia: Lessons for Europe's Transition Economies", *European Institute of Japanese Studies Working Papers*, No.142, Stockholm: Stockholm School of Economics.

Krueger, Anne O. and Baran Tuncer, 1982, "An Empirical Test of the Infant Industry Argument", *American Economic Review*, Vol. 72, No. 5, pp. 1142-1152.

Krugman, P. (1984), "Import Protection as Export Promotion; International Competition in the Presence of Oligopoly and Economies of Scale", in Kierkowsiki (ed) (1984). *Monopolistic Competition in International Trade*. Oxford University Press.

\_\_\_\_\_ (1986), *Strategic Trade Policy and the New International Economics*. Cambridge: MIT Press.

\_\_\_\_\_ (1987), "Is free trade passé?", *Journal of Economic Perspectives*, Vol. 1, No. 2, pp.131-144.

\_\_\_\_\_ (1992), "Does the New Trade Theory Require a New Trade Policy?", *World Economy*, Vol. 15, July, pp. 423-442.

Kwon, Jene, 1994, "The East Asian Challenge to Neoclassical Orthodoxy", *World Development*, Vol. 22, No. 4, pp. 635-644.

Lall, S. (1992), "Structural Problems of African Industry", in F. Stewart et al (eds.) (1992). *Alternative Development Strategies in Sub-Saharan Africa*. London: Macmillan.

Lall, Sanjaya, (1996). *Learning from the Asian Tigers: Studies in Technology and Industrial Policy*. London: MacMillan.

Lall, Sanjaya (2000), "Selective Industrial and Trade Policies in Developing Countries", *QEH Working Paper Series*, No. 48.

Larsson, Rolf and Johan Lyhagen (1999), "Likelihood-based Inference in Multivariate Panel Cointegration Models", *Working Papers in Economics and Finance*, No. 331, Stockholm School of Economics, Sweden.

.

Larsson, Rolf, J. Lyhagen and M. Lothgren (1998), "Likelihood-based Cointegration Tests in Panels", *Working Papers in Economics and Finance*, No. 250, Stockholm School of Economics, Sweden.

Larsson, Rolf, J. Lyhagen and M. Lothgren (2001), "Likelihood-based Cointegration Tests in Panels", *Econometrics Journal*, Vol. 4, No. 1, pp. 109-142.

Mayer, Jorg (2002), "The Fallacy of Composition: A Review of the Literature", *The World Economy*, Vol. 6, pp. 875-894.

Lee, Jaymin (1997), "The Maturation of Infant Industries: The Case of Korea", *World Development*, Vol. 25, No. 8, pp. 1271-1281.

Leontief, Wassily (1953), "Domestic Production and Foreign Trade: The American Capital Position Re-examined", *Proceedings of the American Philosophical Society* 97, pp. 331-349.

Leontief, Wassily, (1956), "Factor Proportions and the Structure of American Trade: Further Theoretical and Empirical Analysis", *The Review of Economics and Statistics*, Vol. 38, Issue 4, pp. 386-404

Levin, A., and C.F. Lin (1992), "Unit Root Tests in Panel Data: Assymptotic and Small Sample Properties", *Discussion Papers*, No. 92-93, University of California, San Diego.

Lind, Michael (2002), "Do as we say, not as we did", *JPRI Critique*, Vol. IX, No. 6, pp. 1-3

List, Fredrich (1974). *National System of Political Economy*, (first published in 1841), New York and London: Garland Publishing Inc.

Maddala, G. S. and S. Wu (1999), "A Comparative Study of Unit Root Tests with Panel Data and a New Simple Test", *Oxford Bulletin of Economics and Statistics*, Vol. 61, pp. 631-652.

Maizels, A., T. B. Palaskas and T. Crowe (1998), "The Prebisch-Singer Hypothesis Revisited", in D. Sapsford and J. Chen (eds.), *Development Economics and Policy*, Basingstock and London: Macmillan.

Mark, N. C., M. Ogaki and D. Sul (2005), "Dynamic Seemingly Unrelated Cointegrating Regressions", *Review of Economic Studies*, Vol. 72, pp. 797-820.

Matthews, Trevor and John Ravenhill (1994), "Strategic Trade Policy: North East Asian Experience" in A. Macintyre (ed.), *Business and Government in Industrializing Asia*, St. Leonards (NSW): Allen & Unwin, pp. 29-90.

Mayer, Jorg (2002), "The Fallacy of Composition: A Review of the Literature", *World Economy*, Vol.25, No. 6, pp. 1-21.

McKee, S., Jr. (ed), *Papers on Public Credit, Commerce and Finance*, New York: Columbia University Press.

Melesse Minale, (2002),"Competitiveness and Real Exchange Rate: Lessons for Ethiopia", Paper Submitted to the Ethiopian Economic Association for Presentation at the 12th Annual Conference.

Melitz, Mark J. (2005), "When and How should Infant Industries be Protected?", *Journal of International Economics*, Vol. 66, May, pp. 177-196.

Mill, John Stuart (1886). *Principles of Political Economy with some their Applications to Social Philosophy*. Vol. II, Ninth Edition, London: Longmans, Green & Co.

Naito, Takumi (2000), "A Rational for Infant-Industry Protection and Gradual Trade Liberalization", *Review of Development Economics*, Vol. 4, No. 2, pp. 164-174.

Noland, M. and H. Pack (2003), "The Asian Industrial Experience: Implications for Latin America", *LAEBA Working Papers*, No. 13, Washington, DC.

Nordhus, W. and Paul Samuelson (1989). *Economics*. 13th Edition, Mcgraw Hill.

Ocampo, Jose Antonio (1986), "New Developments in Trade Theory and LDCs", *Journal of Development Economics*, Vol. 22, pp. 129-170.

Ocampo, Jose Antonio and M. A. Parra (2005), "Half a Century of Terms of Trade Controversies", Paper Presented at the Eastern Economic Association 31st Annual Conferencen, NY: March 4-6.

Osbat, Chiara (2004), "Panel Unit Root and Panel Cointegration Methods", European Cental Bank (Unpublished).

Parra, Maria Angela (2005), "Climbing up the Technology Ladder: Options for Developing Economies' Exports against the 'New Terms of Trade Pessimism", Economic and Social Division, UN, NY (Unpublished).

Pesaran, M. Hashem, Y. Shin and R. P. Smith (1999), "Pooled Mean Group Estimation of Dynamic Heterogeneous Panels", *Journal of the American Statistical Association*, Vol. 94, pp. 621-634.

Porter, Michael E. (1998). *The Competitive Advantage of Nations with a New Introduction*. London: MacMillan Press.

Prasch, R. (1997), "Re-assessing the Theory of Comparative Advantage", *Review of Political Economy*, Vol. 8, No. 1, pp. 37-55

Prebisch, Raul, (1950), "The Economic Development of Latin America and Its Principal Problems", Lake Success, NY: United Nations Department of Economic Affairs, reproduced in Economic Bulletin for Latin America, 1962.

Prebisch, Raul, 1959, "Commercial Policy in the Underdeveloped Countries", *American Economic Review*, Vol. 49, No. 2, pp. 251-273

Prebisch, Raul, 1984, "Five Stages in My Thinking On Development" in Meier, Gerald M. and Dudley Seers (eds.), (1984), *Pioneers in Development*, Published by Oxford University Press for the World Bank, New York, pp. 175-196

Ricardo, David (1817). *The Principles of Political Economy and Taxation, The works and correspondence of David Ricardo (1951)*. Edited by Piero Sraffa, Vol.1, Cambridge: Cambridge University Press.

Rodriguez, F. and D. Rodrik, (April 1999), "Trade Policy and Economic Growth: A Skeptic's Guide to the Cross-national Evidence", NBER Working Paper No.7081, Cambridge, MA.

Rodrik Dani (1997), "Trade Strategy, Investment and Exports: Another Look at East Asia", *Pacific Economic Review*, Vol. 2, No. 1, pp.1-24

Sapsford, David and V. N. Balasubramanayam (1994), "The Long-run Behavior of Relative Price of Primary commodities: Statistical Evidence and Policy Implications", *World Development*, Vol. 22, No. 11, pp. 1737-1745.

Sarkar, Prabirjt (1986), "The Singer-Prebisch Hypothesis: A Statistical Evaluation", *Cambridge Journal of Economics*, Vol. 10, pp. 335-371.

Sarkar, Prabirjt (1997), "Growth and Terms of Trade: A North-South Macroeconomic Framework", *Journal of Macroeconomics*, Vol. 1, pp. 117-133.

Sarkar, Prabirjt and H. Singer (1993), "Manufactured-Manufactured Terms of Trade Deterioration: A Reply", *World Development*, Vol21, pp.1617-1620.

Sarkar, Prabirjt and H. Singer (1991), "Manufactured Exports of Developing Countries and Their Terms of Trade since 1965", *World Development*, Vol. 19, No. 4, pp. 333-340.

Sen, Sunenda, (2005), "International Trade Theory and Policy: What is Left of the Free Trade Paradigm?", *Development and Change*, Vol.36, No.6, pp. 1011-1029.

Shafaeddin, Mehdi, (1998), "How Did Developed Countries Industrialize? The History of Free Trade and Industrialization", *UNCTAD Discussion Paper*, No. 139, Geneva: UNCTAD.

\_\_\_\_\_, (2000), "What did Frederick List Actually Say? – Some Clarifications on the Infant Industry Argument", Discussion Paper, No. 149, Geneva: UNCTAD.

\_\_\_\_\_ (2003), "Free Trade or Fair Trade? Fallacies in Theories and Contradictions in Rules", A paper presented at Development Studies Association's Annual Conference on "Globalization and Development", University of Strathclyde, Glasgow, 10-12 September 3003.

\_\_\_\_\_ (2005), "Towards an Alternative Perspective on Trade and Industrial Policies", *Development and Change*, 36(6): 1143-1162, Institute of Social Studies, Oxford.

Shaikh, A. (1979), "Foreign Trade and the Law of value Part I", *Science and Society*, Fall Issue, pp. 281-302.

\_\_\_\_\_ (1979/80), "Foreign trade and the Law of Value Part II", *Science and Society*, Winter 1979/80, pp. 27-57.

\_\_\_\_\_ (1980), "The Laws of International Exchange", in E.S. Nell (ed.), *Growth, Profits and Property*, Cambridge: Cambridge University Press.

\_\_\_\_\_ (1996), "Free Trade, Unemployment, and Economic Policy", in *Global Unemployment: Loss of Jobs in the '90s*, J. Eatwell (ed), New York: Sharpe, Armonk.

\_\_\_\_\_ (1999), "Explaining the US Trade Deficit", Testimony before the Trade Deficit Review Commission, Washington, D.C.

\_\_\_\_\_, (2004), "The Economic Mythology of Neoliberalism", forthcoming in Alfredo Saad-Filho (ed.), *Neoliberalism: A Critical Reader*. London: Pluto Press.

\_\_\_\_\_ and R. Anthonopoulos (1998), "Explaining Long Term Exchange Rate Behavior in the United States and Japan", Working Paper No. 250, The Jerome Levy Economics Institute of Bard College.

Singh, Ajit (1994), "Openness and the Market Friendly Approach to Development: Learning the Right Lessons from Development Experience", *World Development*, Vol. 22, No. 12, pp. 1811-1823.

Singer, H.W., (1950), "The Distribution of Gains between Investing and Borrowing Countries", *American Economic Review*, Vol.40, No. 2, pp. 473-485.

Singer, H. W., (1984), "The Terms of Trade Controversy and the Evolution of Soft Financing: Early Years in the U.N.", in Meier, Gerald M. and Dudley Seers (eds.),

(1984) *Pioneers in Development*, Published by Oxford University Press for the World Bank, New York.

Singer, H. W. (1986) "Raul Prebisch and His Advocacy of Import Substitution", *Development and South-South Cooperation*, in Meier, Gerald M. and Dudley Seers (eds.), (1984), *Pioneers in Development*, Published by Oxford University Press for the World Bank, New York, pp. 275-303.

Smith, Adam (1776), *The Nature and Causes of the Wealth of Nations*. Edited by Edwin Cannan, New York: The Modern Library (1937).

Smith, Ron P. (2000), "Estimation and Inference in Non-Stationary Panel Time-Series Data", Paper prepared for the RC 33 Conference, Cologne.

Stewart, S. Lall and S. Wangwe (eds.), (1992). *Alternative Development Strategies in Sub-Saharan Africa*, London: Macmillan.

Stiglitz, J. E. (1996), "Some Lessons from the East Asian Miracle", *World Bank Research Observer*, Vol. 11, No. 2, pp. 151-77.

Stiglitz, J. E. (1998), "Towards a New Paradigm for Development: Strategies, Policies, and Processes", 1998 Lecture at UNCTAD, Geneva, October 19, 1998.

Stiglitz, J. E. and Shahid Yusuf (eds.), 2001, *Rethinking the East Asian Miracle*, New York: Oxford University Press.

Storm, Servaas and C. W. M. Naasstepad, 2005, "Strategic Factors in Economic Development: East Asian Industrialization 1950-2003", *Development and Change*, Vol. 36, No. 6, pp. 1059-1094.

Tongur, Lan (2005), "A Study of Power and Size Properties of Some Panel Unit Root Tests", Unpublished Manuscript, Uppsala University, Department of Information Sciences, Statistics Division, Sweden.

UNDP (United Nations Development Program) (2005). *Human Development Report 2005*. New York

Vanek, J. (1968) "The factor proportions theory: The N-factor case", *Kyklos*, Vol. 21, No. 4, pp. 749-756.

Viner, J. (1937). *International Economic Cooperation in the United States in the Postwar World*. Ann Arbor

Wade, Robert (1990). *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization*. Princeton: Princeton University Press.

Wade, Robert (1993), "Managing Trade: Taiwan and Korea as Challenge to Economics and Political Science", *Comparative Politics*, Vol. 25, No. 2, pp. 147-167

World Bank, (2000). *Can Africa Claim the 21st Century?*, Washington D.C.

## Appendix: Tables

**Table 1 Unit root Test Results**

<i>Variable</i>	Method	Statistic	Prob.**
INTT (Levels)	Im, Pesaran and Shin W-stat	1.67897	0.9534
	ADF - Fisher Chi-square	5.43815	0.9417
INTT (first differences)	Im, Pesaran and Shin W-stat	-6.33946	0.0000
	ADF - Fisher Chi-square	58.5887	0.0000
NBTT (Levels)	Im, Pesaran and Shin W-stat	1.15146	0.8752
	ADF - Fisher Chi-square	13.8499	0.3104
(first differences)	Im, Pesaran and Shin W-stat	-6.39921	0.0000
	ADF - Fisher Chi-square	60.3939	0.0000
Share of SITC 6+8 (Levels)	Im, Pesaran and Shin W-stat	0.02252	0.5090
	ADF - Fisher Chi-square	13.0395	0.5090
(first differences)	Im, Pesaran and Shin W-stat	-2.99742	0.0014
	ADF - Fisher Chi-square	34.6036	0.0005
Share of SITC 7 (Levels)	Im, Pesaran and Shin W-stat	1.10883	0.8662
	ADF - Fisher Chi-square	20.5175	0.0579
(First Differences)	Im, Pesaran and Shin W-stat	-4.90444	0.0000
	ADF - Fisher Chi-square	47.8415	0.0000

**Table 2. Cointegration Test Results**

<b>NBTT Cointegrating regression</b>					
Country	Lag(ki)	r = 0	r =1	r =2	rank (ri)
Hong Kong	1	48.15594	21.39991	9.319464	1
Indonesia	1	60.90747	30.01404	9.153467	2
Korea	2	65.15422	29.72219	6.939153	2
Malaysia	1	64.26874	25.97570	7.442090	2
Singapore	1	46.18130	14.15617	4.454653	1
Thailand	1	52.16919	26.66726	7.391522	2
E(Z <sub>k</sub> )		14.955	6.086	1.137	
Var(Z <sub>k</sub> )		24.733	10.535	2.212	
LR <sub>NR bar</sub>		56.139477	24.655878	7.4700582	
<b>γ<sub>LRbar</sub></b>		<b>20.2848</b>	<b>14.2457664</b>	<b>10.397355</b>	
<b>INTT Cointegrating Regression</b>					
Hong Kong	2	68.36296	17.61310	7.857575	1
Indonesia	1	42.40026	14.63397	3.409049	1
Korea	1	52.43425	15.93632	0.208824	2
Malaysia	1	43.54815	14.90459	5.528297	1
Singapore	1	24.737886	13.72315	6.251429	0
Thailand	1	47.61912	20.54592	3.820783	2
E(Z <sub>k</sub> )		14.955	6.086	1.137	
Var(Z <sub>k</sub> )		24.733	10.535	2.212	
LR <sub>NR bar</sub>		46.5171	16.226175	4.5426595	
<b>γ<sub>LRbar</sub></b>		<b>15.545443</b>	<b>7.6525082</b>	<b>5.5595765</b>	

**Table 3. Estimation Results for the Regression Equation of NBTT on Share of SITC 6+8 and SITC 7 Manufactured Exports**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.57584	4.110004	3.303122	0.0013
SSITC6+8	0.006463	0.019603	0.329715	0.7422
SSITC7	0.056554	0.021596	2.618692	0.0100
NBTT_1	0.771335	0.066379	11.62017	0.0000
Trend-Hong Kong	-0.001543	0.000877	-1.759366	0.0811
Trend-Indonesia	-0.012667	0.006063	-2.089112	0.0388
Trend-Korea	-0.007220	0.002411	-2.994050	0.0033
Trend-Malaysia	-0.001489	0.002331	-0.638677	0.5243
Trend-Singapore	-0.006587	0.001797	-3.665707	0.0004
Trend-Thailand	-0.009318	0.004055	-2.297822	0.0233
Fixed Effects (Cross)				
Hong Kong	-9.665538			
Indonesia	12.61459			
Korea	1.657597			
Malaysia	-9.780875			
Singapore	0.372829			
Thailand	5.859373			
R-squared	0.931025	Mean dependent var		8.199051
Adjusted R-squared	0.922978	S.D. dependent var		5.178668
S.E. of regression	0.060813	Sum squared resid		0.443782
F-statistic	115.6977	Durbin-Watson stat		1.936414
Prob(F-statistic)	0.000000			

**Notes:**

Method: Pooled EGLS (Cross-section weights)

Linear estimation after one-step weighting matrix

White cross-section standard errors & covariance

**Table 4. Estimated Results for Regression of INTT on Share of SITC 6+8 and SITC7  
Manufactured Exports**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-15.05287	9.876743	-1.524073	0.1301
SSITC 6+8	0.052290	0.030845	1.695236	0.0926
SSITC 7	0.149569	0.033821	4.422384	0.0000
INTT_1	0.787179	0.047877	16.44163	0.0000
Trend-Hong Kong	0.016416	0.005636	2.912618	0.0043
Trend-Indonesia	-0.019174	0.006445	-2.974978	0.0035
Trend-Korea	0.018210	0.005059	3.599911	0.0005
Trend-Malaysia	0.011080	0.006639	1.668854	0.0978
Trend-Singapore	0.013680	0.004945	2.766269	0.0066
TrendThailand	0.004382	0.005890	0.743948	0.4584
Fixed Effects (Cross)				
Hong Kong	-17.47399			
Indonesia	53.80706			
Korea	-21.10179			
Malaysia	-6.846603			
Singapore	-12.04035			
Thailand	6.566075			
	R-squared	0.990503	Mean dependent var	3.884722
Adjusted R-squared	0.989395	S.D. dependent var	0.891305	
S.E. of regression	0.074535	Sum squared resid	0.666660	
F-statistic	893.9545	Durbin-Watson stat	1.800202	
Prob(F-statistic)	0.000000	Probability	0.659095	

**Table 5 Result of The NBTT VECM Estimation**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Lagged 1 <sup>st</sup> Diff. SITC7	0.094340	0.027792	3.394537	0.0009
Lagged 1 <sup>st</sup> Diff SITC6+8	0.025650	0.040370	0.635363	0.5264
<b>ehat</b> <sub>t-1</sub>	-0.230129	0.101331	-2.271058	0.0249
<b>C</b>	-0.009983	0.003001	-3.326855	0.0012

R-squared	0.185133	Mean dependent var	-0.189936
Adjusted R-squared	0.165418	S.D. dependent var	1.067414
S.E. of regression	0.975141	Sum squared resid	117.9116
F-statistic	9.390677	Durbin-Watson stat	1.683340
Prob(F-statistic)	0.000012		

**Table 6 Results for the INTT VECM Estimation**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>ehat</b> <sub>t-1</sub>	-191291	0.108981	-1.755268	0.0817
Lagged Diff. SSITC6+8	0.120571	0.062796	-1.920052	0.0571
Lagged Diff. SSITC7	0.037210	0.045180	0.823591	0.4118
<b>C</b>	0.087102	0.011185	7.787252	0.0000

R-squared	0.251122	Mean dependent var	0.512137
Adjusted R-squared	0.233003	S.D. dependent var	1.122851
S.E. of regression	0.983374	Sum squared resid	119.9111
F-statistic	13.86031	Durbin-Watson stat	1.668844
Prob(F-statistic)	0.000000		

### *Declaration*

I hereby declare that this is my original work, has not been presented for a degree in any other academic institution and that all sources of material used for the thesis have been duly acknowledged.

Declared by  
Zinabu Samaro

Confirmed by  
Dr. Alemayehu Geda

---

Candidate

---

Supervisor

July 12, 2006

July 12, 2006