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TRADE AND ECONOMIC GROWTH,
WITH SPECIAL REFERENCE TO THE KOREAN EXPERIENCE

by

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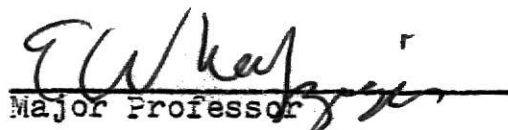
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TABLE OF CONTENTS

	Page
I. INTRODUCTION -----	1
II. THE CONTRIBUTION OF TRADE -----	4
1. Static Gains from Comparative Advantage -----	4
2. Benefits from "Vent for Surplus" -----	6
3. Dyanmic Benefits -----	8
4. Nurkse's View of Trade and Development -----	10
III. THE CRITIQUE OF TRADE AS A POSITIVE DEVELOPMENT	
FORCE FOR LDCs -----	14
1. Export Pessimism and the Terms of Trade	
Argument -----	16
2. Export Instability and Economic Growth -----	20
IV. THE ANALYSIS OF KOREAN EXPORTS AND INCOME GROWTH ---	28
1. Korean Economy -----	28
2. Economic Models of Exports and the Growth	
of Output -----	29
3. Empirical Findings -----	34
4. Trade Policies of Korea -----	40
V. CONCLUSIONS -----	44

LIST OF TABLES

Table	Page
1. Share of Selected Countries and Regions in the World Trade, Various Years -----	3
2. Terms of Trade for Primary Product Exports and LDCs as a Group -----	17
3. Trade Concentration and Level of Instability for Selected Commodities of LDCs -----	23
4. Commodity Concentration for Selected LDCs in 1965 --	25
5. Summary of Exports, Imports GDP and GNP in Korea ---	36

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I. INTRODUCTION

The division of world exports between developed and non-socialist less developed countries (LDCs) was about the same by the mid-1950s as in the late 1920s.¹ From 1953 to 1972, the growth rate of trade in developed countries was more rapid than the over-all growth rate of world trade, which means the share of the developed countries in total world exports has increased while the share of LDCs has decreased.

As Table 1 shows, the share of developed countries in world trade rose from 64.9 to 71.5 per cent between 1953 and 1972.² LDCs' share declined from 25.5 to 18.6 per cent. If we consider a larger share of OPEC countries from 3.7 to 5.6 per cent during this period, the share of remaining LDCs as a group declined from 21.8 to 13.0 per cent. The socialist countries maintained a share of between 9 and 12 per cent.

Since 1973, the trend has changed because of increased oil prices. In 1974, the share of developed countries declined to 64.4 per cent which is a little lower than that of 1953 while that of LDCs increased to 27.2 per cent which is higher than that of 1953. But if we exclude the OPEC,

¹David W. Slater, World Trade and Economic Growth: Trends and Prospects with Application to Canada (Toronto, Canada: University of Toronto Press, 1968), pp. 26-9.

²Hajo Hasenpflug, "Developing Countries in World Trade", in The New International Economic Order, ed. Karl P. Sauvant and Hajo Hasenpflug (Boulder, Colorado: Westview Press, 1977), p. 123.

the share of the remaining developing countries is only 14.2 per cent. Apart from the OPEC countries, the majority of LDCs have experienced decline in the share of world trade during this period.

The main reason for this is a continuously increasing gap in the levels of productivity and income between developed countries and LDCs.³ Another reason is that LDCs have relatively specialized in exporting agricultural products and raw materials which are declining elements of world trade while developed countries have concentrated in the manufactures which are more rapid growing elements of world trade.⁴ The share of agricultural products and raw materials excluding fossil fuels has decreased from 40.2 to 20.0 per cent between 1953 and 1974 while that of manufactures has increased from 48.6 to 57.1 per cent.

The growing gap in income and trade between developed and less developed countries brings about the suspicion on the part of the LDCs that international economic interdependence has been a factor in their relatively poor growth performance. Is economic development of LDCs promoted or hindered by foreign trade ? There are many views regarding this question. In section II we will examine the argument that trade contributes to development and in section III the argument that trade inhibits development will be examined.

³ David W. Slater, op. cit., p. 26.

⁴ Ibid., p. 27.

Although there is no general consensus regarding the impact of trade on economic development, many economists and policy makers have asserted that foreign trade has played an important positive role in the rapid economic growth of Korea during the 1960s and 70s. In section IV, we examine briefly the Korean economy and perform empirical tests of trade influence on economic growth in Korea using Voivodas' model. The summary and conclusions of the report are presented in section V.

Table 1

Share of Selected Countries and Regions in the World Trade
Various Years. (Percentage)

Country	Year				
	1953	1963	1972	1973	1974
Developed Countries	64.9	67.4	71.5	70.7	64.4
EC, Nine	27.9	33.7	37.0	36.5	32.6
United Kingdom	8.7	7.2	5.8	5.3	4.6
Japan	1.5	3.5	6.9	6.4	6.6
United States	18.9	14.9	11.7	12.2	11.5
Less Developed Countries	25.5	20.4	18.6	19.3	27.2
Brazil	1.9	0.9	1.0	1.1	0.9
Hong Kong	0.6	0.6	0.8	0.9	0.7
India	1.4	1.1	0.6	0.5	0.5
OPEC	3.7	4.1	5.6	6.1	13.0
Socialist Countries	9.6	12.2	10.4	10.0	8.4
World Total	100.0	100.0	100.0	100.0	100.0

Source: Calculated on the basis of figures from United Nations, Year Book of International Trade Statistics, various vols. (New York, UN).

II. THE CONTRIBUTION OF TRADE

1. Static Gains from Comparative Advantage

(1) Specialization and the Principle of Comparative Advantage

Classical trade theory states that international division of labor and international trade, which enable every country to specialize and to export those things that it can produce cheaper in exchange for what others can provide at a lower cost, promotes economic well-being and increase national income of every participating country.⁵ A nation has a comparative advantage in those commodities which it can produce at the lowest relative cost. Free trade, based on the principle of comparative advantage, has two theoretical implications.

First, through free trade all countries can escape from the confines of their resource endowments and consume various combinations of commodities which lie outside their production possibilities frontiers. The benefits may be disproportionately distributed depending on world demand conditions and cost differences for different commodities in different countries, but all nations of the world can gain benefits from the free trade.

Secondly, specialization and trade can lead to world output increases for all traded commodities. If every country specializes in the production of these goods in which

⁵Delbert A. Snider, Introduction to International Economics (Homewood, Illinois: Richard D. Irwin, Inc., 1975), pp. 18-21.

it has a comparative advantage and exchanges part of this production for the commodities in which it has a comparative disadvantage, the global output will be increased.

(2) Relative Factor Endowments and International Specialization

The classical trade theory, which was primarily developed by David Ricardo and John Stuart Mill was based on a static one variable-labor cost-approach assuming complete specialization to show the gains from trade. The Swedish economists, Eli Hecksher and Bertil Ohlin modified the classical trade theory considering differences in factor supplies on international specialization.⁶ The Hecksher-Ohlin neo-classical factor endowment approach is based on two important propositions.

First, different products require productive factors in different relative proportions. No matter what factor prices may be, certain products will always be relatively more capital intensive while others will always be relatively more labor intensive. Moreover, it is assumed that production functions are identical internationally. Secondly, countries have a different endowment of factors of production. Generally, developed countries are assumed to be relatively capital abundant while less developed countries are assumed to be relatively labor abundant. A nation has a comparative advantage in those products which are produced with a great deal of the nation's relatively abundant factors of production.

⁶Ibid., pp. 45-52.

This theory encourages less developed countries to produce and export labor and land-intensive primary products to gain potential benefits from free trade with developed countries.

The basic conclusions are the same in the factor endowment theory and the classical labor-cost theory; each nation can end up consuming more of all commodities by specialization and free trade than without trade. But there are some differences in the factor endowment theory. First, complete specialization will not occur due to increasing opportunity costs associated with resource shifting among commodities with different factor intensities of production. Secondly, factor prices will tend to be equalized across trading countries because the technologies of productions throughout the world are assumed to be identical and domestic product price ratios will be equalized with the international free trade price ratio.⁷ Third, trade tends to promote more equality in income distribution of LDCs in which labor is abundant since labor is more intensively utilized and the economic returns to labor will rise.

2. Benefits from "Vent for Surplus"

A country may not fully utilize all of its productive resources in the absence of trade because of insufficient internal demand. With the opening of trade the country could possibly expand its output of one product (i.e. an agricultural product) for export without having to reduce

⁷Paul A. Samuelson, "International Trade and the Equalization of Factor Prices", Economic Journal 68 (June 1948): 163-184.

its output of another product (i.e. a manufactured product). Underutilized resources create the opportunity to expand production capacity and GNP at little or no real cost by producing export markets products. Thus, trade would create a vent or outlet for the underutilized resources and potential surplus of one product (i.e. the agricultural product)

There are two models based on the "vent for surplus" theory.⁸ One is the "staple" model characterised by surplus natural resources. This model was developed primarily with reference to the Canadian economy but is widely felt to apply to other temperate zone lands originally settled by European migrant labor and capital. Basically some staple (e.g. wheat) is produced for export for which the country has a comparative advantage and farmers income and GNP rise as exports increase. The other version of the "vent for surplus" model arises when the surplus to be vented through trade is one of labor and not natural resources. In this unlimited labor version, a country's economic activity includes a large subsistence sector in which the marginal product of labor might be removed from the subsistence sector to the export sector, accompanied by a significant increase in GNP. This implies that labor is being insufficiently allocated or underutilized in the subsistence economy.

⁸Richard E. Caves, "'Vent for Surplus' Model of Trade and Growth", in Trade, Growth and the Balance of Payments, ed. R. E. Baldwin et al. (Chicago: Rand McNally & Co., 1965), pp. 95-115.

3. Dynamic Benefits

It would be underestimating the importance of trade to economic development, specially of the LDCs, if only the static gains from trade on the usual assumption of given production capabilities are counted. Besides the direct static gains recognized by the traditional comparative advantage and "vent for surplus" theories, trade may provide important indirect or dynamic benefits.⁹

First, trade provides markets and such material means as capital goods, machinery and raw and semifinished materials. By expanding the size of the market through trade a country can enjoy benefits from division of labor and economies of large scale production. LDCs have also enjoyed the tremendous benefits from technological progresses in the developed countries through the importation of machinery, transport equipment, vehicles, power generation equipment, road building machinery, medicines, chemicals and so on, though the advantage is, of course, not all one side.

Secondly, trade serves as the vehicle for transmission of technical know-how, skills, managerial talents, entrepreneurship. In the 19th century, Great Britain was the center of the technological innovation and the industrial revolution. Continental European countries and the U.S. profited greatly from the Great Britain at that time. In the 20th century,

⁹Gerald M. Meier, International Economics of Development (New York: Harper and Row, 1968), pp. 214-54; G. Haberler, "International Trade and Economic Development, in Economics of Trade and Development, ed. J. D. Theberge (New York: John Wiley & Sons, Inc., 1968), pp. 108-12.

Japan and Soviet Russia speeded up their own development by borrowing immense amounts of technological know-how from the West. Today's LDCs can also borrow much technological know-how from the industrially developed countries and adapt them to their countries. Today, there exists a dozen of industrial centers in Europe, the U.S., Canada, and Japan.

Third, trade stimulates the flow of foreign capital. Foreign capital can contribute to the development of LDCs by filling in gaps between the domestically available supplies of savings, foreign exchange and government revenue, and the planned level of these resources necessary to achieve development targets. First of all, capital movement depends on the ability and willingness of developed countries to lend and on the internal policies in the borrowing countries. But the larger the volume of trade, the greater will be the volume of foreign capital movement because a large volume of trade makes the transfer of interest and payments on principle easier than a small volume of trade.¹⁰ It is much easier to get foreign capital for export industries as they can directly and automatically improve the balance of payments.

Finally, trade can be an excellent anti-monopoly weapon. The existence of a large internal free trade area has contributed to the development of a competitive and efficient economy in the U.S. Many economists believe that the main economic advantages of the European Common Market are

¹⁰G.Haberler, "International Trade and Economic Development", in Economics of Trade and Development, ed. J. D. Theberge (New York: John Wiley & Sons, Inc., 1968), p. 111.

benefits from freer competition rather than merely from the large markets and larger scale production which they bring about. Increased competition is important also for the LDCs but the protection of infant industries may justify the restriction of foreign competition until an industry has taken root and has become able to hold its ground without the crutches of import restrictions.

4. Nurkse's View of Trade and Development

In Nurkse's view, trade was "an engine of growth" during the 19th century for the "region of recent settlement" such as U.S., Canada, Australia, New Zealand.¹¹ During the 19th century, particularly in the first half, most of the world's modern industrial production was concentrated in England. From 1815 to 1914 England's population trippled despite heavy emmigration, and her real national income increased by ten times, while the volume of her imports increased more than twentyfold. Since England occupied such an important absolute position in the world economy during this period, her rapidly growing demand for food and raw materials resulted in rapid and sustained export-led growth in the economies of the region of recent settlement which were well suited to produce primary commodities. Thus trade was not only a matter of optimum allocation of a given stock or resources, but also a vigorous process of economic growth was transmitted from the center to the outlying areas of the world.

¹¹Ragnar Nurkse, "Patterns of Trade and Development", in Economics of Trade and Development, ed. J. D. Theberge (New York: John Wiley & Sons, Inc., 1968), pp. 85-102.

In the 20th century, a marked slackening in the rate of the world trade expansion was occurred. In the period from 1928 to 1958, the quantity of world trade increased by 57 per cent while the rate of changes in volume of world trade was roughly 170 per cent from 1880 to 1913.¹² Furthermore, since World War I, and especially since 1950, the exports of LDCs, except for a handful of petroleum-exporting countries have grown much less rapidly than the exports of developed countries. There are several reasons why the demand for food and raw material exports of today's non-oil LDCs is not rising rapidly enough to make trade an engine of growth.¹³

(1) The composition of industrial production in the advanced economies is shifting from light industries to heavy industries having a low content of imported raw materials.

(2) There has been a more rapid increase in the share of services in the total output of advanced countries and services generally have less raw material content per dollar of output than commodities.

(3) The income elasticity of demand in developed countries for the agricultural raw materials and food-stuffs supplied by LDCs is low.

(4) Some developed countries restricts their imports of agricultural products such as sugar, wheat, fruits, vegetables, etc. which they also produce.

¹²Ibid., p. 92.

¹³Ibid., p. 95.

(5) New technological developments make it possible to increase the amount of output per unit of raw material input. Substantial economies have been achieved in industrial uses of natural materials. (e. g. through electrolytic tin plating and through systemic recovery and reprocessing of metals)

(6) Developed countries have displaced natural raw materials by synthetic and other man-made substitutes (e.g. synthetic rubber for natural rubber and nylon for jute and cotton)

Besides these points, during the 20th century, the center of world production shifted to some extent from resource-poor Europe to the U.S. and Russia, both of which are of continental size and rich in natural resources. In contrast, resource-poor England had been the center of world economy during the 19th century. There are also a number of supply-side factors working against the rapid expansion of primary product exports.¹⁴ Today's LDCs, as opposed to regions of recent settlement in the 19th century, are generally over-populated and resource poor except for petroleum exporting countries. They use internally a great deal of their output of food and raw materials. Furthermore many of them suffer from the structural rigidity of production systems due to limited resources, poor climates, bad soils, antiquated rural institutional, social and economic structures and non-

¹⁴A. Cairncross, "Trade and Development ", in Economics of Trade and Development, ed. J. D. Theberge (New York: John Wiley & Sons, Inc., 1968), pp. 125-27.

productive patterns of land tenure. The skilled labor and huge amounts of capital that greatly facilitated the expansion of production for export in the new lands during the 19th century, are not available for them. Therefore, it would be very difficult to expand their outputs of those products greatly and experience export-led growth even though the world demand for those products was growing very rapidly.

The focal center of economic growth which lies predominantly in North America and Western Europe is not transmitting its own rate of growth to the rest of the world through a proportional increase in its demand for primary products.¹⁵ But still trade can play a positive and important supportive role in the development of most LDCs through various static and dynamic benefits.

¹⁵Ragnar Nurkse, op. cit., p. 95.

III. THE CRITIQUE OF TRADE AS A POSITIVE DEVELOPMENT FORCE FOR LDCs

There are several criticisms of the thing that trade promotes development.

First, the "vent for surplus" argument also has some weakness. It leads to growth, not development. Development involves growth and changes. According to J. W. Mellor, "Economic development is a process by which a population increases the efficiency with which it provides desired goods and services, thereby increasing per capita levels of living and general well-being."¹⁶ But "vent for surplus" theory leads to an expansion of output of traditional products for exports using traditional techniques. Another criticism of this theory is that a sizeable surplus productive capacity which cannot be easily switched from export to domestic production makes a country vulnerable to external economic disturbances if an established trading country faces a fluctuating world market. It is quite natural that a country would be vulnerable if it happens to possess a sizeable surplus productive capacity which it cannot use for domestic production¹⁷.

¹⁶John W. Mellor, The Economics of Agricultural Development (New York: Cornell Univ. Press, 1974), p. 3.

¹⁷H. Myint, "The Classical Theory of International Trade and the Underdeveloped Countries", Economic Journal, 78 (June 1958): 323.

Second, trade, through the demonstration effect, may increase the propensity to consume in LDCs and reduce the savings, investment, and the rate of growth of income.¹⁸ That is, the availability of cheap and attractive imports produced in developed countries whets the appetites of consumers in LDCs to reduce their savings, or to be reluctant to increase them, since they wish to live as close as possible to the standards of living the advanced countries have demonstrated to them and use their income to imitate them. There would be less pressure to consume, and hence more savings if the imports were not available.

Third, trade is said to fail to stimulate growth beyond the rather small number of people directly involved in it-the enclave argument.¹⁹ Trading activity may encourage the rest of the economy to grow through the backward or the forward linkage. If the export activity improves the surrounding economy by finding outlets for resources drawn from it, it may be the backward linkage effect. Or, if some good or service produced for export lowers cost to other domestic industry, it may be called the forward linkage effect. But reality may not be so optimistic in LDCs. In the case of

¹⁸W. M. Corden, "Protection and Growth", in International Economics and Development, ed. Luis Eugenio Di Marco (New York and London: Academic Press, 1972), p. 198.

¹⁹Jan S. Hogendern and Wilson B. Brown, The New International Economics (Reading, Massachusetts, Addison-Wesley Publishing Co., 1979), pp. 414-6.

plantation agriculture, we seldom find such linkages. The capital equipment for the plantation is owned by foreign investors and products are exported but all profits are sent to the foreign country. They only employ local laborers and pay the subsistence level of wage.

Beside these criticisms against international trade, there are two more important arguments which I want to mention in detail. It is said that prospects for exports from LDCs seem to be poor and export instability by international trade may cause vulnerable economic structure in LDCs. The former is the terms of trade argument and the latter is the export instability argument.

1. Export Pessimism and the Terms of Trade Argument

A nation's commodity or net barter terms of trade is defined as $(P_X/P_M)100$, where P_X is an index of export prices, P_M is an index of import prices and we multiply by 100 in order to express the terms of trade as a percentage. One nation must exchange more and more to obtain the same amount of foreign goods as before if the terms of trade are falling. The proposition advanced by a good number of economists is that the terms of trade of developing nations have deteriorated over the last century or so. That is, there is a secular long-run tendency of the term of trade to turn against the primary product exports of LDCs.

The first and most famous long-term trend data are the United Nations figures obtained from old League of

Nations data.²⁰ They show that the British terms of trade ($P_X(\text{manufactures})/P_M(\text{food and raw materials})$) increased from 100 to 163 between 1876 and 1938. Terms of trade for primary product exports decreased from 163 to 100 with 1938 equaling 100, over the same period. The U. N. should have used long-term data for the LDCs versus developed countries, rather than primary products versus manufacturing since LDCs also exported some manufactured products and imported some food and raw materials. But this could not be done because of insufficient data.

Table 2

Terms of Trade for

Primary product exports and LDCs as a group

(inverse of British terms of trade)

(1938 = 100)		(1972 = 100)			
1876-1880	163	1953	110	1972	100
1896-1900	143	1956	107	1973	110
1913	137	1960	104	1974	153
1928	123	1964	102	1975	136
1938	100	1968	101	1976	142

Source: J. S. Hogendorn and W. B. Brown, The New International Economics, Addison-Wesley Publishing Co., Reading, Massachusetts, 1979, p. 405.

UN figures for more recent years that compare the LDCs as a group also show a continuing unfavourable trend. Terms of trade for LDCs as a group declined from 110 to 100 between 1953 and 1972 with 1972 equaling to 100.

²⁰Ibid., p. 405.

But, this long-term decline conclusion is questioned on several important grounds.²¹ First, the commodity terms of trade is an inadequate measure. We usually admit that a higher index number for P_X/P_M is a good thing, a lower number a bad thing. But, a rise in the index number may not be favourable in terms of the total revenue. A rise in P_X may be unfavourable if the effect is to reduce the volume of export enough to cut back the total revenue earned in exporting. Or a country's income earned through exports may rise even though export price have fallen. If increased productivity caused the fall in P_X/P_M in the first place, a country can become better off because of a higher quantity of exports.

Second, the commodity terms of trade data do not allow for quality changes and make insufficient allowance for new products. This causes a bias because industrial products have tremendously improved in quality and a host of new product are introduced every year, while the quality and range of most primary products have remain largely unchanged.

Third, the terms of trade index leaves out services. The British valued exports f.o.b. but imports c.i.f. all during this period. Part of the decline in P_M from 1876 to the start of World War I can be explained by the fall in transport costs caused by the introduction of large steam-

²¹G. Haberler, "Terms of Trade and Economic Development", in Economics of Trade and Development, ed. J. D. Theberge (New York, John Wiley & Sons, Inc., 1968), pp. 323-43.

powered cargo ships and the spread of railway abroad.²²

Fourth, it is unreasonable to take the British terms of trade as the representative of the terms of trade of other industrial countries. The indices for other European countries did not support the generalization of a secular tendency of deterioration.²³

Fifth, there are many cases of completely differing trends in the prices of the primary product export of LDCs. We cannot expect identical or similar trends in the prices of food, fibres, fats, minerals and petroleum. To average all such prices in an index gives us little useful information.

Finally, the recent UN figures do not show a steady downward trend of the terms of trade for LDCs in the period after World War II. Table 2 shows that the terms of trade of LDCs has fallen from 1953 to 1972 but there is not a continued fall in the years since then. The terms of trade is the crux of the matter since some commodities such as petroleum and certain minerals are rising in price and some falling. It is not desirable for a country to make decisions concerning primary product export based on an overall average index since the terms of trade cover all primary products and thus tend to conceal as much as they reveal.

²²Ibid., p. 329.

²³Ibid., p. 330.

2. Export Instability and Economic Growth

Ragnar Nurkse argued that export fluctuations were seriously detrimental to the economic growth in LDCs.²⁴

"The instability of export markets for primary commodities makes any steady development policy difficult; discourages investment in primary production itself; generally limits the 'economic horizon', and destroy the continuity so necessary in private as well as public planning. People have learned out of the past that wealth comes quickly in Brazil through a boom, and that a sudden turn of events may bring disaster. The violent fluctuation of the export trade may well be a major cause of the speculative attitude and the 'get-rich-quick' mentality so widespread among businessmen in underdeveloped countries. Through the cyclical instability of foreign trade it may be that dynamic growth in the advanced countries has tended in this way to impede the progress of the poor countries."

In Nurkse's view, both the quantity and quality of investment are likely to be affected in countries where export instability is relatively severe.²⁵ The most important question is whether export instability has any adverse effects on the ability of LDCs to achieve rapid and stable economic growth.

It is helpful to investigate the causes of exports instability to understand effects of exports instability on economic growth. Many economists have pointed to the high

²⁴Ragnar Nurkse, "The Quest for a Stabilization Policy in Primary Producing Countries", Kyklos II (Fasc. 2 1958): 143.

²⁵A. I. Macbean, Export Instability and Economic Growth (Cambridge, Mass., Harvard University Press, 1966), pp. 108-9.

concentration of trade in primary products as a cause of export instability; over 80 per cent of the exports of LDCs are in primary products. The further fact that the prices of primary products such as sugar or cocoa beans have fluctuated tremendously tends to support the view that trade in primary products is one of the major causes of export instability. However, empirical studies about the instability for primary products and manufactured products find the opposite to be true.²⁶ Massell finds that there is no tendency for primary products to be more unstable than manufactures.²⁷ That means LDCs are not trading relatively unstable commodities (i. e. primary products) in terms of world trade.

Nevertheless, LDCs have experienced higher export instability than developed countries. This paradox can be explained by the fact that LDCs are trading more unstable primary products while developed countries trade in more stable primary products. Even though LDCs export mostly primary products, the share of LDCs in the world export of primary products is only 40 per cent.²⁸ An IMF-IBRD study

²⁶ Joseph D. Coppock, International Economic Instability (New York: McGraw-Hill, 1962), p. 35.

²⁷ Benton F. Massell, "Export Instability and Economic Structure", American Economic Review 60 (September 1970): 628.

²⁸ Odin Knudsen and Andrew Parnes, Trade Instability and Economic Development (Lexington, Massachusetts: D. C. Heath and Company, 1975), p. 21.

of trade concentration and level of instability for selected commodities of LDCs shows that the particular commodity heavily traded by LDCs are not necessarily more unstable than those lightly traded by LDCs. Table 3 indicates that some products such as coffee, sugar, rubber and zinc which are heavily traded by LDCs, are relatively more stable than some products such as wheat, linseed, and maize which are less heavily traded by LDCs.²⁹ It appears that the higher instability in LDCs is not a result of the trade concentration on particularly unstable primary products.

Another possible explanation of export instability in LDCs is geographic concentration of trade. That is, the degree of export instability depends on the particular regions or countries to which exports are directed. Some economists tried to find out the correlation between the index of export instability and that of a regional concentration.³⁰ The results turned out that geographic concentration appeared to be unimportant as an explanatory variable.

²⁹Ibid., p. 22.

³⁰J. D. Coppock, op. cit., p. 98.; B. F. Massel, op. cit., p. 628.

Table 3

Trade Concentration and Level of Instability for Selected Commodities of LDCs.

Commodity	LDCs percentage of world trade in this commodity	Index of fluctuation of earnings in this commodities for LDCs 1953-1965 ^a
Petroleum	81.1	3.3
Coffee	100.0	8.0
Sugar	78.5	8.8
Cotton	63.9	9.1
Rubber	97.2	15.5
Timber	17.9	10.3
Wheat	31.0	31.0
Linseed	12.3	45.4
Maize	24.5	20.9
Zinc	82.8	10.7
Copper	44.6	20.3

^a Average percentage deviation from a trend value.

Source: The Problem of Stabilization of Primary Products. International Monetary Fund and International Bank for Reconstruction and Development, Washington, D. C., 1969, p. 31, and p. 56, Table 16.

The third explanation of a cause of export instability in LDCs is product concentration of trade.

"If the export earnings of n individual products are independant and could be considered random variables with finite variance σ^2 , then the variance of the mean export earnings would be σ^2/n . Therefore, under these conditions, as a country continues to diversify, the variance of mean export earnings decreases in proportion to the inverse of the number of products."³¹

³¹Odin Knudsen & Andrew Parness, op. cit., p. 23.

LDCs are highly concentrated in a few commodities as Table 4 shows³². Almost one half of the eighty three LDCs in the survey made fifty percent of their export earnings from the export of one commodity. Over 75 per cent the 83 LDCs had 60 per cent of their export earnings from three or fewer commodities. From an empirical study using a multiple regression model, Massell concluded that LDCs tended to experience greater instability because of their greater concentration.³³

The conventional view which was established on a priori grounds was that the instability of export receipts from primary commodities constituted a serious impediment to the growth of the LDCs. But recent empirical studies contradict the conventional view.

³²Ibid., p. 25.

³³B..F. Massell, op. cit., p. 629.

Table 4

Commodity Concentration for Selected LDCs in 1965.

Country	Primary export commodity	Percentage share of export earnings of three commodities
Venezuela	Petroleum(93%)	99
Mauritius	Sugar(96%)	98
Iran	Petroleum(90%)	95
Ceylon	Tea(63%)	93
Uganda	Coffee(48%)	88
Chile	Copper(70%)	85
Ghana	Cocoa beans(66%)	85
Colombia	Coffee(64%)	85
Bolivia	Tin(72%)	80
Malaya	Rubber(44%)	77
Dominican Republic	Sugar(49%)	74
Argentina	Wheat(25%)	57
Kenya	Coffee(30%)	51
Mexico	Cotton(19%)	33
Korea	Fish(9%)	17

Source: The Problem of Stabilization of Prices of Primary Products. International Monetary Fund and International Bank for Reconstruction and Development, Washington, D. C., 1969, p. 153, Table 28.

The argument that export instability reduces investment is implicitly based on possible reaction to the uncertainty induced by export fluctuation. Higher levels of uncertainty may cause higher interest rates due to higher risks to lender. Only high return investments of short duration will be profitable and total investment will be retarded. A more indirect argument holds that with uncertainty in the balance of payments and exchange rates, capital leaves the country for more stable investment markets. But the empirical studies

do not support this a priori reasoning. Caine finds that a high level of investment has prevailed in Malaya and Indonesia during periods of very sharp fluctuations in the price of their principal products.³⁴ Coppock finds only an insufficient correlation between the export instability index and net fixed capital formation as a percentage of GNP used as a measure of investment.³⁵ MacBean found that the coefficient of the instability index is positive but statistically insignificant when he regressed the ratio of gross domestic fixed capital formation to gross domestic product on the instability index. According to these results, export instability does not seem to deter investment.

Although export instability does not seem to cause the reduction of investment, export fluctuations might still slow down the growth rate of economy through reduction in the productivity of investment. Much investment might be in the form of inventories to meet shortages or possible booms in future demands because export instability brings about difficulty in forecasting. As a result, the productivity of investment might decrease by export fluctuation even though total investment does not decrease. But this hypothesis is not confirmed empirically. According to the empirical

³⁴Sir Sidney Caine, "Comment on Ragnar Nurkse's 'Trade Fluctuations'", Kyklos II (Fasc. 3 1958): 188-7.

³⁵J. D. Coppock, op. cit., pp. 108-109.

studies of Coppock and MacBean, export instability does not reduce productivity or the rate of growth of GNP.³⁶ Therefore, the case for viewing export instability as a severe deterrent to economic growth in most LDCs is not proven. Though short term export instability may reduce the ability of some LDCs to achieve high rates of economic growth, for LDCs in general, export instability does not appear to have been an important obstacle to their economic development.

³⁶Ibid., p. 106; A. I. MacBean, op. cit., p. 122.

IV. ANALYSIS OF KOREAN EXPORT AND INCOME GROWTH

1. Korean Economy³⁷

The Republic of Korea is a mountainous peninsula which is relatively small and densely populated. The latest census conducted in 1977 put the population of Korea at about 36,000,000. Mineral resources are limited. The pressure of population on this small and resource poor country is serious since the population density of 363 persons per square kilometer of land and 14.8 persons per hectare of farmland is among the world's highest.

Korea's rapid economic growth in the past decade can be attributed in large part to the successful implementation of a series of five year economic plans which started in 1962. During the 1962-76 period Korea's GNP grew at an average rate of about 10 per cent annually. Per capita GNP rose from \$87 in 1962 to \$864 in 1977. The increase was nearly three fold in real terms. This remarkable progress transformed Korea from the traditionally poor agricultural country to a semi-industrial, middle-income nation with an increasingly strong external payments position. The share of agriculture in GNP declined from 44 per cent in 1961 to an estimated 20 per cent in 1976, while the share of manufacturing in GNP rose from 12 per cent in 1961 to 36 per cent in 1976.

³⁷ Parvez Hasan and D. C. Rao, Korea, Policy Issues for Long-term Development (Baltimore and London: The Johns Hopkins Univ. Press, 1979), pp. 3-71; Paul W. Kuznets, Economic Growth and Structure in the Republic of Korea (New Haven and London: Yale Univ. Press, 1977), pp. 43-83.

Korea shipped only \$40 million worth of goods to foreign markets in 1961, but by 1977 exports increased by 250 times to \$10 billion. During this period, 1961- 1977, the exports grew at an average rate of nearly 40 per cent a year in current prices and 32 per cent a year in constant prices. The proportion of exports of goods and services in GNP increased from 8.5 per cent in 1965 to 15 per cent in 1970 and 36 per cent in 1976. Furthermore, the share of manufactured commodities in total commodity exports increased from 65 per cent in 1961 to 90 per cent in 1976. Many economists and policy makers asserted that the expansion of exports had led the economy upsurge in Korea. In the following section the relationship between trade and economic growth in the Korean economy will be analysed with Vivodas' models.

2. Economic Models of Exports and the Growth of Output

Recently, many empirical analyses have been performed to find out the relationship between the rate of growth of export and that of total product in LDCs. Here two aggregative models are considered to explain the relationship between trade and growth.³⁸ One is the open economy Harrod-Domar model and another is the two-gap model of Chenery and associates. In the first place, since both models have similar structures we examine the common relationship contained in them and then

³⁸C. S. Voivodas, "Exports, Foreign Capital Inflow and Economic Growth", Journal of International Economics 3 (March 1973): 337-49.

proceed to build them up separately.

The full capacity condition is as follows;

$$dY_t = \frac{1}{g} I_t \quad (1)$$

where Y_t is capacity output in period t , I_t is the change in capital stock (the time dimension of all derivatives is omitted for simplicity) and g is the incremental capital output ratio. The full capacity condition - the capital stock K is used to capacity at all times - is expressed in terms of a simple stock condition like $K = gY$ for at all t . It is also written in derivative form as $dK = g dY$ instead of $K = gY$ and the derivative dK is investment I . Here, we assume that capital and labor are employed in fixed proportions and there is also sufficient amount of labor to ensure this proportion.

Savings are linearly related to output and income.

$$S_t = sY_t \quad (2)$$

where S is the amount of total savings and s is the average and marginal propensity to save.

Imports are also linearly related to output and income,

$$M_t = mY_t \quad (3)$$

where M is the total amount of imports and m the average and marginal propensity to import. Exports are regarded as exogenously determined.

$$X_t = X_0(1 + e)^t \quad (4)$$

where X is the amount of total exports and e the export growth rate. The export growth rate is assumed to depend

on the rate of growth of foreign output and the foreign elasticity of demand.

In the two-gap model analysis, the investment function distinguishes between two components of capital formation;

$$I_t = \min(aI_t^d, bM_t^k) \quad (5)$$

where I_t^d is domestic investment resources and M_t^k imports of capital goods. The two components are assumed to enter the production function in fixed proportion where there is a lack of substitutability between the two.

To complete the model we need to include equilibrium conditions and identities.

$$I - S = M - X \quad (6)$$

This is derived from the national accounting relationships $Y = C + I + X - M$ where $C = Y - S$ is the total amount of consumption while government expenditures are not treated separately.

We can summarise the complete open economy Harrod-Domar model with the following set of equations.

$$dY_t = \frac{1}{s} I_t \quad (1)$$

$$S_t = sY_t \quad (2)$$

$$M_t = mY_t \quad (3)$$

$$X_t = X_0(1 + e)^t \quad (4)$$

$$I_t - S_t = M_t - X_t \quad (6)$$

Substituting for S_t and M_t in equation (2) and (3) into (6), we obtain

$$I_t = sY_t + mY_t - X_t \quad (7)$$

Substituting for (7) into (1), we obtain

$$dY_t = \frac{1}{g}(sY_t + mY_t - X_t) \quad (8)$$

The division of both sides of equation (8) by Y_t gives

$$\frac{dY_t}{Y_t} = \frac{1}{g}(s + m - \frac{X_t}{Y_t}) \quad (9)$$

This reduced form equation can be written as

$$\frac{dY_t}{Y_t} = \alpha - \beta \frac{X_t}{Y_t} \quad (10)$$

$$\text{where } \alpha = \frac{s + m}{g} \quad \text{and} \quad \beta = \frac{1}{g}.$$

Equation (10) means that there is a negative relationship between the rate of growth of output and the ratio of exports to total output. It thus corresponds with the hypothesis that exports hinder economic growth. That model assumes that capital formation is the only source of growth where there is no distinction between domestic and foreign capital and that imports are solely for consumption purposes.³⁹ Thus export and investment are competing for limited domestic resources. As exports increase, resources for investment will decrease. Therefore the rate of growth of output is negatively related to exports.

We now return to the two-gap model. The simplified two-gap model consists of five functional equations;

³⁹Ibid., p. 340.

$$dY_t = \frac{1}{g} I_t \quad (1)$$

$$S_t = sY_t \quad (2)$$

$$M_t = mY_t \quad (3)$$

$$X_t = X_0(1 + e)^t \quad (4)$$

$$I_t = \min(aI_t^d, bM_t^k) \quad (5)$$

and four identities:

$$I_t - S_t = M_t - X_t \quad (6)$$

$$F_t = M_t - X_t \quad (11)$$

$$M_t = M_t^k + M_t^c \quad (12)$$

$$I_t = I_t^d - M_t^k \quad (13)$$

where M_t^c is imports of consumer goods in period t and F_t is foreign capital inflow. An important feature of the model is that it postulates two limits to the amounts of capital formation as specified by eq. (5). The one limit is operative if imports of capital goods are sufficient but domestically produced capital goods are insufficient. Investment and growth are limited by domestic investment resources. In that case,

$$I_t = aI_t^d \quad (5)'$$

and

$$dY_t = \frac{1}{g} a I_t^d \quad (1)'$$

Relationships (2), (3), (6) and (5)' give

$I_t = aI_t^d = sY_t + mY_t - X_t$ which, if substituted into (1)' and divided by Y_t , yields the reduced form of the model

$$\frac{dY_t}{Y_t} = \frac{1}{g} \left(s + m - \frac{X_t}{Y_t} \right) \quad (14)$$

The result is identical to the reduced form of the open economy Harrod-Domar model, (8). Equation (14) again shows a negative relationship between the proportion of exports to total output and its rate of growth.

Let us consider now the alternative limit to capital formation. It arises when there is sufficient amount of domestic resources but an insufficient amount of capital goods imports. Under these conditions,

$$I_t = bM_t^k \quad (5)''$$

and

$$dY_t = \frac{1}{g} bM_t^k \quad (1)''$$

From equation (11) and (12) we obtain

$$M_t^k = F_t + X_t - M_t^c \quad (15)$$

Substituting for equation (15) into (1)'' and dividing both sides of the resultant equation by Y_t , we obtain,

$$\frac{dY_t}{Y_t} = \frac{b}{g} \left[\frac{F_t}{Y_t} + \frac{X_t}{Y_t} - \frac{M_t^c}{Y_t} \right] \quad (16)$$

Equation (16) states that there is a positive relationship between the rate of growth of output and the ratio of exports to total output with the positive intermediate link between exports and capital goods imports.

3. Empirical Findings

The data in Table 5 was used in estimating the equations. The period covered by the data is 1953-1976.

Equation (1) gives the results of the empirical test of the relationship between the growth of output and the ratio of exports to output. Output was measured by GDP. Numbers in parentheses indicate standard error.

$$\frac{\Delta Y}{Y} = .0552 + .2713 \frac{X}{Y} \quad R^2 = .3638 \quad (1)$$

(.0783)

We observe a positive relationship between the two variables. The coefficient of the export variable is significant at the 5 per cent level. About 36 per cent of the variation in the growth rate of output is explained by the export output ratio. When output was measured by GNP, the results (equation (2)) were nearly the same.

$$\frac{\Delta Y}{Y} = .0551 + .2616 \frac{X}{Y} \quad R^2 = .3434 \quad (2)$$

(.0789)

An additional regression equation was fitted to the Korean data in an attempt to test the output-export function in forms which are different from that specified in equation (1). The rate of growth of output was regressed on the proportion of export change to national output (GDP).⁴⁰ The results in this case are:

$$\frac{\Delta Y}{Y} = .0586 + .8369 \frac{\Delta X}{Y} \quad R^2 = .5292 \quad (3)$$

(.1722)

⁴⁰ The same regression model was used by Derek T. Healey, Olufemi Fajana and Leslie Stein.

Derek T. Healey, "Foreign Capital and Exports in Economic Development, The experience of Eight Asian Countries", Economic Record 49 (September 1973): 410; Olufemi Fajana, "Trade and Growth: The Nigerian Experience", World Development 7 (January 1977): 75; Leslie Stein, "The Growth of East African Exports and Their Effects on Economic Development (London: Croom Helm Ltd., 1979), pp. 236-7.

Table 5

Summary of Exports, Imports, GDP and GNP in Korea.
(In billions of won at 1970 constant prices)

Years	Exports	Imports	GDP	GNP
1953	16.99	109.42	832.49	843.52
1954	10.25	98.09	881.33	890.18
1955	12.86	104.76	929.17	938.24
1956	11.46	122.38	933.57	942.21
1957	15.56	144.80	1005.56	1014.44
1958	19.72	125.27	1058.26	1067.15
1959	22.86	102.59	1099.26	1108.33
1960	28.43	117.53	1121.09	1129.72
1961	38.20	106.60	1177.71	1184.48
1962	42.96	141.23	1213.41	1220.98
1963	46.16	179.22	1320.36	1328.31
1964	57.06	133.34	1434.35	1441.99
1965	80.26	149.55	1520.76	1529.70
1966	122.28	237.92	1703.89	1719.18
1967	165.99	320.43	1827.82	1853.01
1968	235.03	468.04	2061.09	2087.12
1969	310.07	538.77	2373.53	2400.49
1970	381.23	642.44	2577.39	2589.26
1971	459.35	773.55	2828.84	2826.82
1972	643.34	801.23	3035.74	3023.63
1973	1034.29	1087.04	3534.16	3507.45
1974	1010.74	1120.43	3844.07	3811.27
1975	1174.20	1134.13	4183.11	4129.32
1976	1680.94	1470.82	4809.43	4767.90

Source: P. W. Kuznets, Economic Growth and Structure in the Republic of Korea, Yale Univ. Press, New Haven and London, 1977, pp. 219-220.

Parvez Hasen and D. C. Rao, Korea, Policy Issues for Long-Term Development, The Johns Hopkins Univ. Press, Baltimore and London, 1979, p. 465.

Equation (3) indicates a positive and significant relationship between two variables and gives a stronger relationship and a better fit than equation (1). Very similar results (equation (4)) were obtained when output was measured by GNP.

$$\frac{\Delta Y}{Y} = .0578 + .8276 \frac{\Delta X}{Y} \quad R^2 = .5239 \quad (4)$$

(.1722)

Hence, in the subsequent analysis of the relationship between export and output growth the functional form in equation (3) will be adopted.

The model developed in previous discussion permits an assessment of the relative impact of exports and foreign capital on economic growth. For the present analysis, foreign capital inflow was measured by the difference between import and export (i. e., $F = M - X$). Our assessment involves the regression of $\Delta Y/Y$ on $\Delta X/Y$ and F/Y . This type of functional relationship is a variant of equation (16) in the previous discussion of models.⁴¹ We obtain the following results for Korean data.

$$\frac{\Delta Y}{Y} = .0594 - .0092 \frac{F}{Y} + .8332 \frac{\Delta X}{Y} \quad R^2 = .5293 \quad (5)$$

(.2013) (.1947)

⁴¹This type of functional relationship is widely used in the literature. For example, B. I. Cohen, "Relative Effects of Foreign Capital and Large Export on Economic", Review of Economics and Statistics 50 (May 1968): 75.

This equation shows a negative relationship between the rate of growth of output and the ratio of foreign capital to output. However, the foreign capital coefficient is very small and not statistically significant at conventional levels. On the other hand, the regression coefficients of the exports variable remain consistently positive and statistically significant. Comparing equation (3) with equation (5), it shows that the inclusion of the foreign capital variable as an explanatory variable adds little to the value of the R^2 . According to these results, we can say that foreign capital has not had a great impact on output growth while the increase in exports has played a significant role in the stimulation of output growth.

Korea began its ambitious economic development plan in 1962 for the first time. The first five-year economic development plan which covered the period 1962-1966, constituted the foundation of the current rapid rate of economic growth. The second five-year plan for 1967-1971, and the third five-year plan for 1972-1976 were also successful to mobilize scarce resources, to promote the modernization of the industrial structure and to expand exports. The years covered by this study can be divided roughly into two sub-periods; 1953-1961, when there was not a systematic economic development plan and exports were small and 1962-1976, during which the export-led economic development plan was implemented.

Equations (6) and (7) show the regression results for the period 1953-1961 and 1962-1976, respectively.

$$\frac{\Delta Y}{Y} = .0419 + .4450 \frac{\Delta X}{Y} \quad R^2 = .0099 \quad (6)$$

(1.6836)

$$\frac{\Delta Y}{Y} = .0816 + .5503 \frac{\Delta X}{Y} \quad R^2 = .4474 \quad (7)$$

(.1765)

For the period 1953-1961, we observe a positive relationship between the rate of output growth and the ratio of increases in export to output. But, the coefficient of export variable is definitely insignificant. Less than one per cent of the variation in the rate of output growth is explained by the equation during the period. In contrast, we can find a positive and statistically significant relationship between two variables for the latter period. About 45 per cent of the variation in the rate of output growth is explained by the regression. Thus, from these results we can conclude that exports played a much larger role in the Korean economy during the second than in the first sub-period.

Both exports and imports expanded many fold after the early 1960s. Before then, exports were less than 50 million dollars and import averaged 300-400 million dollars a year. Exports had increased to 1.6 billion dollars, imports 2.5 billion dollars by 1972. Export expansion also contributed to acquiring the foreign exchange needed to import capital equipment which is necessary for rapid economic growth. Export growth resulted mainly from strenuous government export promotion efforts and from Korea's competitive advantage in producing labor intensive manufactures. In the next section, we examine the trade policy of Korea which played an important role in expanding exports.

4. Trade Policies of Korea

(1) The Adoption of an Outward-Looking Strategy

In the post war period several Latin American and Asian countries adopted an inward-looking development strategy. This strategy is based on import substitution which attempts to replace commodities, usually manufactured goods which were formerly imported, with domestic sources of production and supply behind high protective barriers such as high tariff or quotas on the importation of certain commodities. Korea also adopted an inward-looking development strategy replacing imports of nondurable consumer goods and the intermediate goods which can be produced efficiently on a relatively small scale and require mostly unskilled and semiskilled labor.⁴² However, once such import substitution ended, the expansion of these products and their inputs are limited by domestic demand. By the late fifties, Korea had replaced virtually all such imports.

If a country wants to follow an inward-looking strategy continuously, it has to seek import substitution in other intermediate products, machinery and durable consumer goods. But this second stage of import substitution may not bring about so satisfactory results as the first one. The industries in the second stage of import substitution generally need high levels of technology and capital and wide domestic markets which must be limitations to most LDCs. Furthermore a high level of protection under an inward-looking strategy tends to prevent competition and discourage improvement in

⁴²Bela Balassa, "International Policies in Taiwan and Korea", in International Economics and Development, ed. DI MARCO (New York and London: Academic Press, 1972), pp. 159-63.

technology and in product quality. Thus, exporters of primary goods have to pay the high cost of industrial inputs and lose income due to overvalued exchange rates often associated with protection.

Korea did not follow this kind of second stage of import substitution. Instead, she adopted an export-oriented policy at the beginning of 1960s. This policy change was quite natural because she had poor natural resources and a narrow domestic market. And the availability of a well-motivated labor force with a high educational level and relatively low wages also encouraged her to adopt outward-oriented policies. Thus, Korea could take advantage not only in exporting labor intensive goods but also in absorbing unemployment.

(2) The System of Incentives

Prior to 1960, Korea adopted a system of incentives corresponding to inward-looking policies. High tariffs and quantitative restrictions provided protective barriers against imports. But, this kind of incentive system caused a bias against exporting manufactured goods and penalized the primary sector through the high prices of manufactured inputs and low price of foreign exchange which reduced the income of exporters of primary goods. The outward-looking development strategy has entailed changes in the system of incentives in favor of exports.⁴³

⁴³Ibid., pp. 163-167.

In early 1961, a single exchange rate was adopted with the official exchange rate devalued from 65 won to 130 won per dollar, ending the previous dual exchange rate and easing import restrictions. However, the devaluation of the won had little positive impact on the trade balance, because of rapid inflation. Imports were again restricted severely and the dual exchange rate was reintroduced in 1963.

In May, 1964, the dual exchange rate system was unified again when the official exchange rate was devaluated from 130 to 255 won per dollar. At the same time, severe import restrictions were eased and a comprehensive export promotion system was developed. The advantageous treatment of both primary and manufactured exports were on balance but manufactured exports were somewhat favored over primary exports since the incentives reduced the cost of inputs of manufactured goods to a greater degree than that of primary goods. Some important benefits to exporters from the incentive system to promote exports are as follows.

Custom duties on imported materials and capital equipment were exempted when they were used as inputs in the production of export commodities. Income taxes on profits earned from exports were reduced by 50 per cent. Export credit and loans were available for the purchase of raw materials and equipment at low rate of interest. Exporters were able to import goods on the prohibited list for their own use or for resale by an export-import linkage system. Electricity and transportation were available at preferential rates to exporters. KOTRA (Korea Traders' Association), an

official trade organization, offered various types of information about export and import market. It was natural that those kinds of incentive measures improved the profitability of exports. The expansion of exports also improved the balance of payments and made possible the liberalization of imports.

However, those incentives resulted in some adverse effects on economic development as a result of the various benefits to exporters. For example, the domestic cost of some export products became rather high. According to the study of the Korean Trade Research Center, in 1966 the direct and indirect domestic cost of earning a dollar through exports of electrical machinery exceeded 600 won when the exchange rate was 271 won per dollar.⁴⁴ Similar results were found out for plywood and knitted fabrics. The incentive system has to be changed to equalize the benefits provided to the use of domestic and imported inputs in the production of exports to encourage the domestic manufacturing of intermediate goods and machinery.

⁴⁴Ibid., p. 176.

V. CONCLUSION

The fact that the share of the less developed countries in world trade has declined and the gap between developed and less developed countries has become bigger and bigger, brings about the suspicion on the part of many less developed countries that international trade has been detrimental to economic growth. So far as theoretical discussions are concerned, there is no general consensus regarding the impact of trade on economic development.

However, in Korea it has been asserted that international trade has played a very important role for its rapid economic development during 1960s and 1970s. The empirical investigations of the nature and strength of the relationship between trade and economic growth in Korea economy during 1953-76 was performed using the Voivodas' models. The results show a positive and significant relationship between the rate of growth of output and exports, and hence provide empirical support for the assertion that trade has been an important factor in Korean economic growth. It was appropriate to follow outward-looking strategies for economic development during 1960s and 70s because Korea had poor natural resources and a narrow domestic market. The results were quite successful. It is reasonable for Korea to continue the export oriented economic development strategies in the future.

Total commodity exports of Korea was about \$5 billion in 1975. The Korea Development Institute indicated

that in 1991 the total commodity exports in 1975 constant prices will reach \$54.3 billion (or \$115 billion in current prices), about 73 per cent of which will be heavy and chemical industry goods.⁴⁵ The growth rate of total exports in Korea is expected to reach 18 per cent annually in real terms during 1977-81 and decline to 14 per cent per annum for 1982-86 and further to 12 per cent per annum for 1987-91. The goal of export growth seems quite feasible since the world trade volume is expected to grow at about 7 per cent per annum during the period of 1982-91 and Korea's export elasticity with respect to the world trade volume was 5.26 during the 1960s and 5.78 during the first half of 1970s.⁴⁶

However, if Korea continues to rely heavily on the same labor-intensive light manufacturing goods, it may be difficult to achieve the further expansion of exports because of increases in wages. The export structure has to be changed toward electronic, chemical and heavy industry goods since Korea will have an increasing comparative advantage in the future in such high value added and resources-saving industries such as electronic and machinery. It is necessary to continue export incentive policies. They should aim at facilitating the smooth structural change in domestic

⁴⁵ Long-Term Prospect for Economic and Social Development 1977-91, Korea Development Institute, Seoul, Korea, 1978, p. 49.

⁴⁶ The export elasticity with respect to the world trade is defined as the ratio of the percentage change of exports to the percentage change of world trade volume.

export industries towards the electronic, chemical and heavy manufacturing sectors. Information gathering activity in the foreign market should also be promoted to diversify export markets.

Import policies are as important as export policies since most of the raw materials are imported for export production. Imports should be gradually liberated to induce a more efficient resource allocation, the improvement of international competitiveness and a more stable price structure. Furthermore, import liberalization will prevent strong monopoly practices in the domestic markets and the imposition of retaliatory measures of restriction by the major trading countries. Korea has to continue outward-looking policies in the future to keep a high rate of economic growth.

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TRADE AND ECONOMIC GROWTH,
WITH SPECIAL REFERENCE TO THE KOREAN EXPERIENCE

by

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The problem of the growing gap in income and trade between developed and non-oil developing countries brings about the question whether economic development in LDCs is promoted or hindered by foreign trade. There are two major theoretical arguments regarding the impact of trade on economic development.

One is that trade is helpful to economic development. Besides the static gains from comparative advantage and benefits from "vent for surplus", trade provides many dynamic benefits. First, trade makes possible division of labor and economies of scale by expanding the size of the market. Second, trade serves as the vehicle for the transmission of modern technology, managerial talents and modern equipment. Third, trade stimulates the flow of foreign capital. Finally, trade can be an excellent anti-monopoly weapon.

However, critics of trade counter this impressive list of gains. First, the "vent for surplus" theory leads to growth, not development. Second, trade through the demonstration effect may increase the propensity to consume in LDCs. Third, trade may create the enclave which does not encourage the rest of the economy to grow. Furthermore, it has been argued that a secular long run deterioration of the terms of trade and export instability of LDCs have had an adverse effect on the ability of LDCs to achieve rapid and stable economic growth. Recent studies, however, do not support this claim.

Though there is no general consensus regarding the impact of trade on economic development, it has been asserted

that trade has played an important positive role in Korea for the rapid economic development during 1960s and 1970s. This paper attempted to investigate the nature and strength of the relationship between trade and economic growth in the Korean economy during 1953-76 using the Voivodas' models. Our results show a positive and significant relationship between the rate of growth of output and exports and hence empirically support the assertion that trade has been an important factor in Korean economic growth. It was also found that exports played a much larger role in the Korean economy for the period of 1962-1976, during which the export-led economic development plan was implemented than for the period of 1953-61 when exports were small.

Rapid growth of Korean exports resulted mainly from strenuous government export promotion efforts and from Korea's comparative advantage in producing labor-intensive manufactures. Total commodity exports of Korea was about \$5 billion in 1975. Korea Development Institute has predicted that in 1991 total commodity exports in 1975 constant prices will reach \$54.3 billion. If Korea continues to rely heavily on the same labor-intensive light manufacturing goods, it may be difficult to achieve the further expansion of exports because of increases in wages. To achieve such a high goal of export growth it will be necessary to change the export structure from labor-intensive light manufacturing goods to electronic, chemical and heavy industry goods in the future.