

~~INTERNATIONAL TRADE AND ECONOMIC DEVELOPMENT:~~  
THE ROLE OF EXPORTS *u*

by

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## CHAPTER I

### INTRODUCTION

According to Findlay(1973), two major schools of thought regarding the role of international trade in economic development can be found in the economic literature: a) that of the mercantile and neoclassical economists -- the mainstream -- and b) that of the structuralists. He argues the mainstream of trade theory has neglected the development implications of trade between developed and underdeveloped economies and has concerned itself almost exclusively with the patterns of production, consumption, distribution, and exchange which emerge as a result of trade between economies (p.2). While recognizing that trade can have positive effects on an economy, the structuralists argue that difference in the economic structure of developed and underdeveloped economies can result in trade between these two groups which has negative impact on the underdeveloped economies.

Kreinin(1983) summarizes the fundamental postulate of the mainstream approach saying that different efficiencies in using the available resources to produce goods and services determine the relative cost-price position of two countries as potential traders. Each country will tend to "concentrate on the production of the good in which it has a comparative advantage and to obtain the other products

through trade"(pp.207-208). Within the range of technical feasibility, "the actual exchange ratio is determined by the relative strength, or intensity, of each country's demand for the other country's product"(p.210).

The structuralist view of the positive and negative impacts of trade on economic development of developing economies is stressed by Myrdal(1957). On the positive side, his argument is that

The main positive effect of international trade on the underdeveloped countries has in fact been to promote the production of primary products . . . [which] constitute the bulk of their exports.

And in the negative side, he claims that unfavorable market conditions for such primary products --say inelastic demand, slowly rising trend in demand, and excessive price fluctuations-- along with rapid population growth, which is likely to create abundance of unskilled labor, are major factors to determine the disadvantageous position of developing countries as participant in trade(p.52).

A more radical view of the extent to which trade, as shaped in the present, hurts less developed countries can be found in the dependency theory. Nafziger(1980), analyzing Gunder Frank work, summarizes the central idea of the thesis saying: "Frank sees underdevelopment as the effect of the penetration of modern capitalism into the archaic economic structures of the third world"(p.164). According to this view, international relations as currently structured are not suitable instrument to provoke development, especially

for those weaker participants in trade.

The major purpose of this paper is to explore to what extent international trade influences economic growth and economic development in developing economies. This exploration is aimed at providing a test for the hypothesis that external trade can play an important role in the promotion of economic expansion and development, especially for countries exporting manufactures rather than primary goods and products with low rather than high foodstuff content.

To accomplish this central purpose, the paper deals with some selected articles that make up a part of the theoretical background produced by scholars writing mostly since the sixties.

Some empirical observations of Paraguay are also included as a part of the paper in order to get an insight of a particular country's case.

In the second chapter, the most widely accepted definitions of economic development and economic growth are presented. In the third chapter, the relationship between resource availability and development, and the role that external trade can play in fulfilling the lacking resources for development are examined. Some of the major empirical findings in the recent literature are evaluated in this chapter. In the fourth chapter, the issue of the terms of trade, which is regarded by some scholars as a fundamental

determinant of the effectiveness of exports as a leading sector, is discussed. In the fifth chapter, recent statistics figures to illustrate tendencies in the external variables and in the economic performance of Paraguay are presented.



## CHAPTER II

### ECONOMIC DEVELOPMENT - THE IMPORTANCE OF RESOURCES AND THE ROLE OF EXPORTS

Economic development is essentially a complex concept and the current state of economic literature accounts for several possible definitions for it. Among the variety of definitions, Mellor(1966) defines economic development as "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" (p.3). This ultimate objective of economic development of raising the per capita level of living requires, according to him, that total production of goods and services in a society expand more rapidly than the population (p.6).

Stressing the difficulty in measuring achievement in economic development he points out that several procedures have been developed, although no single one is completely satisfactory to account for the many elements of a level of living(p.11). One of the most broadly accepted and employed tools of measurement is the per capita market value of the physical volume of output. Even though this measurement constitutes the most readily used indicator, it still faces some fundamental restrictions which largely have to do with

the incomplete adequacy of prices as a weighting tool, since they do not reflect changes over time or differences across cultures in regard to utility (p.11).

Mellor(1966), discussing the need for economic transformation in the development process, states that such a need is based upon two basic factors: the substantial decline in the marginal propensity to spend on food and other agricultural products as income rises, and b) "the potential in agriculture for very rapid increase in the physical productivity of labor and other factors of production. The change in the consumption pattern is attributed to the varying income elasticity of demand for food among different stages of development and levels of income. An increase in income and development is, therefore, associated with a decline in the proportion of the additional income spent on food, in particular, and on agricultural products, in general(p.19).

Nafziger(1980) emphasizes the distinction between economic growth, defined as "increases in a country's production or income per capita", and economic development. He explains:

Economic development refers to economic growth accompanied by changes in output distribution and economic structure. These changes may include an improvement in the material well-being of the poorer half of the population; a decline in agriculture's share of GNP and a corresponding increase in the GNP share of manufacturing, finance, construction, and government administration; an increase in the education and skills of the labor force, and substantial

skills of the labor force, and substantial technical advances originating within the country (p.11).

In a more general view, Kuznets(1961) writes:

The transformation of an underdeveloped into a developed country is not merely a mechanical addition of a stock of physical capital: it is a thoroughgoing revolution in the modes and patterns of life and a cardinal change in the relative power and position of various groups in the population(p.36).

Myrdal(1974), defines development as a "movement upward of the entire social system . . ." (p.729), referring to the social system as the sum of economic and non-economic factors of a society.

Emphasizing the existence of "circular causation" between all elements within the social system and a interdependent relationship between such elements and their transformations, he(pp.730-731) strongly criticizes the usage of the "gross national product or one of its derivatives as representative of development," regarding it as a "weak" representation in developed countries and even weaker in less developed countries.

Contrary to the extended and "unsatisfactory" procedure of "focusing attention on production, while leaving distribution out of the analysis", Myrdal (p.731) argues that "production and distribution must be thought of as determined in the same macro system" and that "they are causally interdependent."

The foregoing set of definitions shows that the devel-

opment process is characterized by the occurrence of upward changes in the economic and non-economic aspects of a society where the economic facet can be regarded as a necessary, but not a sufficient condition, for the overall transformation. As a necessary condition for development, increased production, which is of major concern in the economic component, is then an inescapable phase to be pursued by a society in order to move to higher stages of general well being.

#### The Importance of Resources for Development

Since the major goal of increased production is to provide goods and services which compose a part of the population's well being, the question that arises is whether a particular country needs to internally provide the complete set of resources needed to organize the production of every component of the population's material needs. Or, can a country that lacks some of the fundamental resources to support expanded production attain what Myrdal calls "movement upward of the entire social system"?

Randall(1981) argues that the key determinant of a country's potential for development is provided by the combination of resources and technology. In this sense, he(p.39) points out that "at any given time, a society's technology and resource availability determine [that] society's opportunity set, which is a set of all possible

choices bounded by the constraints upon the society."

Kuznets(1961), on the other hand, goes further in stressing the relevance of technology in the determination of a country's productive potential saying that ". . . one may argue that the natural-resource potential is a function of the changing stock of technological knowledge . . ." and that "the factors that induce formation of reproducible capital adequate as basis for economic growth are unlikely to be inhibited by an absolute lack of natural resources" (p.36).

The same type of conclusion is suggested by Meade(1961) when he writes that ". . . as time passes . . . , Y [income] would rise even if K, L, and N [ capital, labor, and natural resources] remained unchanged, because growing technical knowledge would enable more to be produced by the same amount of the factors"(p.10).

In terms of the possible effects of deficiencies in resource endowment for development, Kindleberger(1977) says that development may still take place in a country without abundant resources. Over a certain period, a country with such constraints may attain rates of growth comparable to other countries with more abundant resources, but it will be constrained in achieving the same level of income.

Even though he recognizes (p.22) that economic development requires big increases in the consumption of any industrial materials such as steel and energy, Kindleberger

ticular resource need not fatally reduce a country's opportunity for development.

The Role of Trade and the Relevance of  
Export Promotion Strategy

According to Kindleberger, a country can offset the relative disadvantage of the lack of specialized resources by engaging in trade; exporting those products in which it has a comparative advantage and importing those internally unfeasible to be produced given the constraint imposed by the lacking resources(pp.22-23). For example, "lack of steel-making materials means that economic development must be accompanied by large scale exporting" (p.27). Furthermore, observing the cases of several developing countries that have a large capacity for producing certain specific materials,<sup>1</sup> he states: "These obvious examples suggest that the possession of industrial resources is not a sufficient condition of economic development."

Kindleberger's discussion of the importance of trade to fulfill lacking resources reflects the neo-classical position in the matter as stressed by the comparative advantage theory. According to that theory, each country

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As examples of developing countries that have large capacity of production of mineral resources, Kindleberger cites the following: Oil: Iran, Iraq, Saudi Arabia, Kuwait. Iron Ore: Liberia, Brazil, Spain. Copper: Chile, Zaire (formerly Belgian Congo), Zimbabwe (formerly Rhodesia).

will find it advantageous to concentrate on production of the good in which it has a comparative advantage<sup>1</sup> and to obtain the other through trade, being the comparatively advantageous position given by a more efficient usage of the available resources to produce goods and services which determine the relative cost-price positions between two countries as potential traders (Kreinin, 1983).

Further explanation for the reason for trade and specifically on what a country trades with the rest of the world is provided by the Heckscher-Ohlin's theory of factor proportions, which states that the composition of a country's national output is a function of the composition of factors with which such a country is endowed and that the proportion in which the two goods [any particular combination of produced goods] are demanded is a function of the relative prices or terms of trade (Findlay, 1973). Therefore, the ultimate position of a country as exporter of a given good A or another good B is a function of the country's own type of output composition and the relative demand for both products that the country faces in the international market.

The relatively advantageous position of a country in international relations is not fixed with the passage of

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Economic activity in which the country has higher productivity of resources such as labor or, relatively lower unit cost of production

time, because the composition of national output depends on the set of factors in the economy, and because the latter can vary over time depending on the average propensity to save and the growth rate of the labor force. Thus ". . . the greater the rate of growth of labor the greater will be the proportion of the labor-intensive commodity in production in the long-run and . . . the greater the likelihood that the country will have a comparative advantage in the labor-intensive commodity." On the other hand, ". . . the effect of a higher propensity to save is to reduce the labor-capital ratio [or to increase the capital-labor ratio] toward which the system tends in the long run"(Findlay p.138-139).

As these two forces interact in the economy, the rate of population growth tends to define the degree of labor intensity in production whereas the marginal propensity to save is likely to determine the rate of capital formation. The nature and strength of the country's position in the international market and the economy's growth rate would be a function of the resultant force between both factors, according to the Findlay's model.

In effect, as Kreinin (pp.230-232) points out, this nature and the strength of a country's international position, which affects the resource allocation, bring about changes in the level of income; this changed level of income



spurs a change in the amount of savings, which in turn effects variations in the availability of resources for investment and in the growth rate of the economy. He regards the important role played by international trade as dramatic in the case of many underdeveloped countries whose production structures include very little or no capital goods such as machinery and equipment. In such situations, domestically-produced consumption goods are to be externally exchanged for capital goods as the unique way of increasing investment and economic growth.

Ram(1980) refers to the contribution of trade to growth, as viewed by classical economists, saying:

Promotion of trade . . . is promotion of economic growth, especially of developing countries, insofar as, increased trade, besides allocating the resources of the trading partners in the most efficient way, enables a country to obtain needed capital goods and inputs, raw materials, technical know-how, skills and even entrepreneurship, pushes the production frontier upwards, encourages movement of capital. . .(p.20).

Feder(1983), in an empirical work using data from semi-industrialized, less developed countries for the period 1964-1973, reaches similar conclusions as Ram. He concludes that, in general, a country that engages in development strategies that emphasize policies related to the export sector, will attain a closer to optimal allocation of resources because of significantly higher productivity, in the margin, of the export sector with respect to the non-export sector. He finds that the higher marginal productivi-

ty permits the export oriented sector of the economy to generate a substantial externality, the transfer of the gained efficiency to the rest of the economy in the form of increased productivity. The stimulation of the export sector is hence a source of gains for the entire economy.

Emery(1967) reaches similar conclusions when he classified the benefits from export expansion into two categories: a) direct gains -- those related to the provision of means of imports(including capital goods) and development, on the one hand, and to the improved efficiency in using resources on the other; b) secondary gains -- those obtained by increased investment, consumption and the flow of technology (p.471). Altogether, these effects of expanded export act to stimulate a substantial rate of growth in real gross national product (p.472).

Analyzing the outstanding works on the question of the effect of trade on economic growth, Krueger (1980) finds that countries have behaved according to two basic categories:

a) Countries that have committed themselves to import substitution policies, which protect their domestic industries, have attempted to stimulate domestic production.

b) Countries that have engaged in export promotion policies, in which case countries act to stimulate exports usually beyond the extent that would conform to the IMRT=DMRT criterion. This criterion refers to the optimal

condition for production of tradable goods at the point where the international marginal rate of transformation (IMRT) equals the domestic marginal rate of transformation (DMRT).

According to Krueger, export promotion policies have provided better results than import substitution policies. Mentioning several studies, she remarks that deviations of countries' growth rates from their trends have been estimated as a function of the growth of export earnings, provided that economic growth has been found to be highly responsive to the growth of exports.

She finds three possible explanations for export promotion to be more powerful than import substitution:

a) The commitment of countries to trade involves several favorable conditions such as increasing returns to scale, among other "technological-economic" factors, which lead to significant advantages for such a countries in the presence of trade.

b) Under normal conditions, both export promotion and import substitution strategies might affect economic growth similarly. The advantage of the export promotion policies comes, however, from the fact that the import substitution policies were not correctly administered.

c) The optimal level of production is more likely to be attained by "policies adopted in pursuit of an export promotion strategy" than by import substitution policies.

Additional support in favor of policies oriented to affect economic growth through export expansion is found in Tyler(1981), who argues that "the evidence is increasing that export oriented economic growth is not only entirely feasible but can be very rapid as well"(p.122). Reinforcing this idea, he remarks:

The dramatic economic success of some countries pursuing export oriented policies, along with the equally dramatic failures of some countries pursuing autarkistic policies, has provided examples necessitating a re-examination of the role of international trade in the development of poor countries(p.122).

### CHAPTER III

#### THE EFFECT OF EXPORTS ON ECONOMIC GROWTH AND ECONOMIC DEVELOPMENT

In Chapter II, a rather general series of arguments, supporting the positive role of export promotion strategy, were used to specify the linkage of external variables to domestic economic performance. This linkage that export promotion has to economic development can be of two forms: a) provision of foreign exchange to import lacking resources such as capital goods and other inputs, and b) stimulation of changes in the efficiency of allocating resources, which in turn effect changes in the productivity of resources.

In this chapter, some more specific evidence is presented to establish the extent to which economic growth and economic development are responsive to the external stimulus provided by the export sector of the economy. The chapter is aimed to answer the crucial question as stated by Tyler (1980): "The question is whether countries pursuing export oriented policies are likely to grow faster than those not pursuing such policies"(p.122).

The evidence presented in this section come mostly from research involving studies of individual and groups of developing countries for different periods of time.

In general, the evidence suggests intermediate

conclusions between the classical and neo-classical position on the one hand, and the Prebisch structuralist view on the other.

Using a mixture of both a cross section analysis and a time series analysis to regress the average annual rate of growth of per capita GNP on average rates of growth of exports and current account earnings for a sample of 50 countries over the period 1953-1963, Emery(1967) draws the conclusion "that higher rates of economic growth tend to be associated with higher rates of export growth" (p.483). He argues that a change of approximately 2.5 per cent in exports is necessary to lead to a change of 1 per cent in GNP (p.484).

Two major types of criticism have been voiced about Emery's work: First, Syron and Walsh(1968) basically validate Emery's procedure, but regard his conclusions as too general to reflect the wide range of possible effects of export on income. They find that the response of output to changes in the value of exports is larger for developed countries than it is for less developed countries. Furthermore, they find that the proportion of foodstuffs in the total value of a country's exports also plays a central role in defining the extent to which economic growth responds to changes in exports. In effect, based upon additional regressions for separate groups of countries within the 50 countries originally studied by Emery, they conclude that

countries for which foodstuffs account for 66 per cent or more of total exports, do not show significant response of income to changes in exports; that in countries for which the foodstuffs' percentage in total exports is between 33 and 66 per cent, the response is positive and the corrected coefficient of determination is quite similar to that obtained for the overall group of less developed countries; and that for countries with a foodstuff content of 33 per cent or less in total exports, income changes tend to be as strongly associated to export changes as they were for developed countries.

Second, Severn(1968) recognizes that "Emery's paper is a useful first step in the application of quantitative economic tools to the policy" but points out some important disagreements with the methodology employed in developing such research. A major point of the disagreement has to do with the "unidirectional" model employed by Emery in regressing GNP on exports. Severn (p.546) regards that conclusions so drawn are unwarranted because of the mutual causation provided the mutual determination of exports and economic growth by exogenous factors such as shifts in production functions.

With the intent to improve Emery's model, he (p.547) suggests "to use a short-run (annual or quarterly) dynamic function with lagged exports assumed to be exogenous." He further recommends "regressing current exports on lagged

GNP" in order to detect the "feedback from income to exports via the income effect abroad." These corrections are regarded as particularly important for developed countries for whom the Emery's type of equation would be "meaningless due to external causation," that is, "growth rates are high because several of the now-advanced countries were recovering from war damage . . . ; exports grew rapidly due to achievement of currency convertibility, removal of trade barriers, and formation of free trade/common market areas" (p.546).

Despite the latter methodological observation, several investigations approximately consistent with Emery's analytical procedure were developed throughout the rest of the 1960's, the 1970's and the early 1980's.

Maizels (1968), also using the method of combining cross sectional data for a group of countries of the Overseas Sterling Area with time series data for the period 1953-1962, finds a generally positive but not strong correlation between exports and gross domestic product. Testing the response of GDP to external variables, he conducts several experiments: First, regressing annual rate of growth of gross domestic product (GDP) on annual rate of growth of

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The following countries are included in the group of countries that Maizels calls Overseas Sterling Area: Pakistan, India, Ceylon, New Zealand, Burma, Zambia, Trinidad, Jamaica, Zimbabwe (formerly Rhodesia), Kenya, Iceland, Malaya, Malawi, Australia, Tanzania, Nigeria, Ireland.



export volume for a subgroup of 16 countries (excluding Pakistan) he finds a regression coefficient of 0.55 and a coefficient of determination of 0.474, which indicate that for such a group of countries, exports can make some contribution to economic growth.

Second, regressing GDP on the volume of exports for nine individual countries, from the same initial group, for which the relevant series was available, he obtains high coefficients of determination for all countries except for India. Excluding India, whose coefficient of determination is 0.1, the figures obtained range between 0.97 and 0.79. Third, regressing GDP on the capacity to import<sup>1</sup> for the same subgroup of nine countries, he finds that the closeness of fit to the data is significantly worse for five countries, approximately the same for three others, and quite good for India. The generally worse results obtained by regressing GDP on the capacity to import constitute for Maizels the opposite of what one would expect, which suggests that other factors may have been operating to influence both exports and GDP.

Ram(1980) uses annual data of 33 developing countries for the period 1967-1975 to regress rates of growth of gross domestic product(Yr) on the ratio of exports to gross

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Capacity to import is defined by Maizels as equivalent to the value of exports divided by the price of imports or to the volume of exports multiplied by the terms of

trade.

domestic product ( $X/Y$ ), and on the ratio of foreign capital flow to gross domestic product ( $F/Y$ ). He finds positive response of gross domestic product to the variable  $X/Y$ , with the parameter estimate significant at the 1 per cent level. The coefficient of determination is low, reaching only .29 when  $X/Y$  is used as the unique variable and .30 when  $F/Y$  is included as the second variable in the model. The response of gross domestic product to both independent variables is substantially higher for a subsample of 11 Asian countries; the parameter estimate continues significantly different from zero at the 1 per cent level. The coefficient of determination is increased to .70 for the one variable model and to .77 for the two variable model. The parameter estimate for the variable ( $X/Y$ ) is found significantly non zero at the 10 per cent level for a subsample of 11 African countries.

For the subsample of 11 Latin American countries "it was not possible to derive any meaningful conclusions . . . because of erratic fluctuations in the original data during this period."

The foregoing figures lead him(p.26) to the basic conclusion that growth rate of exports would tend to play a key function in the determination of the economic performance in underdeveloped countries.

Using a sample of 55 middle income developing

countries, including 6 oil exporters, Tyler(1980) finds positive correlations of economic growth with manufacturing output growth, domestic investment growth, and export growth for the period 1960-1977. The relationships as measured by the Pearson and Spearman correlation coefficients are significant at the 1 per cent level.

Constructing a log linear model with three independent variables: the rates of growth of capital formation, labor force, and total exports, and one dependent variable (the rate of growth of GDP), he obtains a regression for which all parameter estimates are significant at the 5 per cent level. The coefficient of determination for this three variable model is 0.69 which means that 69 per cent of the variance in the intercountry GDP growth rates can be explained by the rates of growth of capital formation, the labor force, and total exports(p.127). The parameter estimate of 0.057 for total exports in such a regression indicates that a one per cent increase in the rate of growth of total exports is associated with an increase of 0.057 of one per cent in GDP growth or, taking the inverse, a 17.5 per cent change in total exports will effect a 1 per cent change in GDP in the same direction. The substitution of manufactured product exports for total exports reduces the response parameter to .045, increasing, however, the coefficient of determination to 0.714 and increasing the confidence level to reject the zero-hypothesis for the parameter of exports.

On the other hand, the exclusion of the variable exports from the model generates a coefficient of determination of 0.661 for the reduced model.

Based upon these empirical results, he concludes(p.129) that the evidence at hand supports the existence of a significantly high relationship between growth of domestic product (GDP) and export performance. He claims that GDP growth rate is responsive to export growth rate which leads him to suggest in terms of policy implications:

Countries which neglect their export sectors through discriminatory economic policies are likely to have to settle for lower rates of economic growth as a result.

And he adds:

Economic policies entailing appropriate price incentives for exports appear to take on a central importance in the economic growth of developing countries.

Also Emery(1967) makes additional contributions to the policy implications of the significant positive relationship between GNP and exports. He writes(p.484): ". . . countries eager to increase their growth rates should adopt the type of policies that will stimulate exports." Specifically, he mentions that such countries need to set a realistic, if not an undervalued, rate of exchange, which implies the need of maintaining monetary and fiscal stability.

In a paper that appears to support strongly the foregoing empirical findings, Early(1980-1981) analyzes the effect of international trade, specifically exports, on the

economic growth of South Korea, a resource-poor developing country which has been growing at very high rates during most of the 1970's --11.0 per cent a year during 1974-78 and 7.5 per cent a year during 1978-80. He cites a report by the World Bank saying that exports at constant prices grew at 32 per cent a year between 1965 and 1976.

Besides the strong effect of international trade on economic growth, Early points out some significant improvements in variables that measure economic development: literacy and welfare of its citizens. Furthermore, he quotes Herman Kahn to say: "one of the most impressive achievements in Korea . . . is ' . . . an increasingly equalitarian income distribution, a feat many economists previously considered impossible for a non-communist developing nation.'"

Conscious planning, sound policies, and a firm commitment to growth are mentioned by Early as some important factors that contributed to the Korean success.

However, some cautionary statements with regard to the vulnerability of the Korean basic export industries (such as the electronic sector) are worthwhile according to Early, from the standpoint of the potential instability of exports. First, "the labor-intensive nature of the [electronic] industry makes it vulnerable to both short-term economic decline and long-term technological change." Second, the high share of exports going to the United States and Japan

[52.5 per cent of the total in 1979], is regarded as a quite undesirable degree of market concentration that needs to be corrected.

A more general conclusion about the sources of export instability is drawn by Brundell, Horn, and Svedberg (1981). Testing the hypothesis that instability in export earnings depends not only on structural variables but also, and very importantly, on the country's trade policy, they construct a linear polynomial model including 13 variables<sup>1</sup> and identify three variables as the most relevant for such instability. The most general conclusion they draw from their model building is that "countries with a large volume of exports, pursuing open-trade policies, and that have promoted manufactured exports, have experienced less instability in export earnings than have other countries" (p.308).

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The following is the initial list of variables to be tested by the model building:

- I = Index of instability in export earnings (the independent variable)
- C = Index of commodity concentration
- G = Index of geographical concentration
- Z = Export market share coefficient
- X = Size of exports (value)
- Y = Per capita income
- Rf = Food ratio
- Rm = Manufactures ratio
- Rr = Non-agricultural raw materials ratio
- Ra = Agricultural raw materials ratio
- M = DC - LDC dummy
- OP = Index of the degree of openness
- OIL = Dummy for oil exporters
- u = Disturbance term

## CHAPTER IV

### THE TERMS OF TRADE AS A MAJOR FACTOR AFFECTING THE EXPORT-DEVELOPMENT RELATIONSHIP

Empirical evidence supporting the positive response of economic performance to changes in export earnings were presented in Chapter III. The discussion of such a relationship leads to the general conclusion that economies show statistically significant response to exports.

However, some of the contributions presented, such as those of Syron and Walsh(1968), Maizels(1968), Ram(1980), and Tyler(1980) suggest that the extent to which economic growth responds to export performance is substantially higher for developed than for developing countries; for Asian than for African developing countries; for countries with high proportion of manufactures than for countries with high proportion of primary products in total exports; and for countries with low foodstuffs content than for countries with high foodstuffs level in total exports.

These variabilities in the response, especially those related to the level of development of the trading partners and the nature of the traded goods, appear to some extent consistent with the structuralist argument about the disadvantageous position of the developing world in international trade due to the "secularly" declining terms of trade for such countries.

In this chapter, the issue of the terms of trade is discussed in light of some of the most important theoretical arguments and empirical findings. These are presented along with the strong structuralist claim that tends to regard external trade as an ineffective means for currently developing countries to pursue to achieve higher levels of general well-being.

Ram (1980), paraphrasing the view of Raul Prebisch, which is representative of structuralist thought, illustrates such a strong reluctance of the structuralist scholars to consider trade as an important tool for development.

. . . Trade can no longer serve as an 'engine of economic growth' as it used to be in the past because the terms of trade which despite all ambiguities obscuring their use and the shortcomings and uncertainties concerning their computation and interpretation, have been considered as an important and convenient indicator for the changes in welfare of the countries engaged in trade, have moved severally[sic] against the developing countries vis-a-vis the advanced economies(p.21).

#### The Approaches to the Determinants for Terms of Trade

Bell(1979) writes that according to the neo-classical trade theory, terms of trade is a variable which is strongly dependent upon the country's production of tradable goods (exportables and importables) relative to the consumption of such goods. This explanation for terms of trade, which is

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1 The commodity terms of trade of a country is defined as the ratio of export prices to import prices in a given period of time such as a year.



stated in very general form, according to Bell, specifies that "if, at the initial terms of trade, consumption of importables increases more than domestic production (or consumption of exportables increases less than domestic production of exportables) then the terms of trade will deteriorate"(p.202).

Seeking an explanation for such an unfavorable movement of the terms of trade against developing countries, Prebisch envisages two key determinants, as stated by Bell (pp.202-204): a) Powerful organizations of labor in developed countries determine greater bargaining power of workers and the capacity of raising wages in such countries, whereas large surpluses of labor in developing countries are central for labor organizations to be weak and the bargaining power of workers substantially lower than in industrialized countries. The capability of raising wages in developed countries and the reduced capability of doing so in underdeveloped countries determine prices of exports from the former to increase and from the latter to decrease in the same proportion as productivity increases.

b) Manufactures have a larger income elasticity of demand than primary products and such a differential also explains the tendency for the price of manufactures to increase over time and the price of primaries to decline, creating what Prebisch calls "the secular trend in the terms of trade."

The Emmanuel model, based upon the basic assumptions of perfectly mobile capital and immobile labor force which cause the rate of profit to be equalized between countries whereas wages may differ, reaches a similar result as that reached by Prebisch regarding the relevance of the wage differences between advanced economies and underdeveloped economies. In effect, Bell (pp.205-210) summarizes this model saying that:

A worsening of the poor country's terms of trade would result from an increase in the wage differential between rich and poor countries [because] . . . a rise in wage rates in the rich country would lower profit rates there, and the international equalization of profit rates would thus depress the price of [the poor country's] exports still further relative to the price of [the rich country's] exports.

Two additional views are analyzed by Bell. He (p.210) cites Brecher, a recent neo-classical writer, as saying: "if the minimum wage constraint is abolished to restore full employment, home welfare may decrease provided that the terms of trade deteriorate sufficiently." Bell regards this statement as clear support for both Prebisch and Emmanuel's theses with respect to the importance of the trend toward increasing wages in developed countries, in contrast to the constant wages in developing countries, causing an unfavorable pattern of the terms of trade for less developed countries.

Lewis, another author whose contribution to the issue of factors causing deterioration in the terms of trade is

analyzed by Bell, considers the differences in the rate of technical progress in the production of various products as a fundamental variable to explain changes in the terms of trade, according to Bell's comparison(pp.213-216). The Lewis hypothesis states that an increase in productivity of a country's tradable production, while production for home consumption remains at the subsistence level of productivity, will cause the deterioration of that country's terms of trade. That is because the benefits of the increase in productivity mainly accrue to the countries which are importer of such a tradable production. The benefits for the importer countries result from lower costs of production and lower prices in the exporter country, where wages continue to be determined by the subsistence incomes in the home consumption industries.

Based upon his evaluation of the relevant literature, Bell draws his conclusion that the condition of the labor supply in an economy deserves a more central position than it has had in the past as determinant of the terms of trade trend (p.217).

#### A Two-Region General Equilibrium Macro Model

Chichilnisky(1981) concludes that the effects of increased volume of exports from the South to the North on the terms of trade and the domestic distribution of the former depend upon the domestic structure of production (pro-

duction of tradable and non-tradable goods) and the nature of the supply of labor in one region relative to the other region. She reaches this conclusion by building a general equilibrium macro model between the South<sup>1</sup> and the North, both regions using labor and capital to produce consumption and capital goods.

If a dualistic structure of production<sup>2</sup> prevails in the South, a condition that is closely related to the existence of abundant labor in the economy, then an increase in exports from the South to the North may bring about a sustained worsening of the South's terms of trade with the North even if this increase in exports is due to a positive shift in demand from the North. Such adverse movement in the South's terms of trade occurs, according to this model, because the dual economic structure and abundant labor in that region determine that the internal demand for the

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In order to differentiate two regions in the world for the purpose of the analysis, the author loosely use the term South to refer to the nations that conform the less developed world or developing countries and characterizes such a region as one with abundant labor and economic dualism. In the same context the term North is employed to denominate the group of most advanced nations of the world.

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Economic dualism exists in an economy when a highly modernized, capital-intensive sector of the economy is remarkably different from another sector which is the traditional, with little or no reproducible capital. A crucial difference between both segments of the society is that of the marginal productivity of labor which is low in the traditional sector (frequently lower than the subsistence wage) and high in the modern sector (usually equal or higher than wages).

own export product increases -- due to the income effect -- when the expansion of exports allows for higher levels of employment and income in the economy. Under such circumstances, an upward sloping price-quantity relationship will characterize the domestic demand for the South's own export products as the volume of exports from the South to the North increases. As a consequence of the upward sloping domestic demand, the excess supply schedule will have a downward sloping curve in the South. In the presence of this downward sloping export supply curve, a shifted international demand curve to the right, will bring about a decline in the price of exports and a deterioration in the South's terms of trade.

Such a decline in the terms of trade is not, however, the only outcome, since a "sustained loss of purchasing power of wages" is a parallel effect.

Thus the less dualistic the economy and the less abundant the labor market, the more likely it is for the South to improve its terms of trade and consequently the more the factor prices tend toward equalization in both regions.

#### Some Empirical Evidence

Developing countries, frequently characterized by their tendency to specialization in primary product exports, had been facing a pronounced deterioration in overall group terms of trade between the early 1950's and the early 1960's

and recovered by the late 1960's and 1970's, according to empirical evidence analyzed by Bird(1979). However, he regards this latter overall measurement of the terms of trade as a poor indicator of the particularly severe terms of trade problems faced by many poor countries during approximately the same period as the aforementioned group<sup>1</sup> recovery occurred. Five groups of developing countries are defined and their effective trend in terms of trade analyzed by Bird over the period 1966-1976 to draw such conclusion. For that period, he finds that, in general, the studied groups of countries experienced improvements in their terms of trade. Only the Other Western Hemisphere and Other Asian countries showed some fluctuations during the early years of the analyzed period. He also notes remarkable differences in the strength of the process between groups. He finds that when the groups of countries are further disaggregated, a larger variety of experiences can be found. He mentions the cases of Costa Rica, Korea, India, Pakistan, Bangladesh, and Sri Lanka as examples of countries whose terms of trade have been actually declining during the first half of the 1970s.

Schloss(1977), analyzing India's secular terms of trade for the period 1861-1939 concludes that no such secular

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The five sub-groups of developing countries analyzed by Bird are:

1) Oil exporters, 2) Other Western Hemisphere, 3) Other Middle East, 4) Other Asian, 5) Other African

decline in the terms of trade has occurred in that particular country case even though there was considerable cyclical fluctuations. Based on that case study he writes:

The Indian data . . . , such it is, negates any general case for secularly declining TOTs. Even if no general case for declining TOTs can be established it may be true, of course, that such a case for a particular country (or group of countries) or a particular raw material (or group of raw materials) can be found (p.468).

#### The Effects of the Terms of Trade

Insofar as the impact of changes in the terms of trade is concerned, Bird (pp.404-406) remarks that a deterioration in terms of trade can affect almost every variable that may define the economic performance of a country, such as balance of payments, real income and living standards, development, the level of employment and the rate of inflation. These effects may occur in an economy regardless the causes for the deterioration of the terms of trade, but the extent to which such economic variables are affected depends on the factors that ultimately caused the decline in the terms of trade.

Nurkse(1953), quoting United Nations' reports, agrees with the idea that the improvement in the terms of trade of developing countries such as that experienced immediately after the Korean War was a significant source of financial resources for economic development in the low-income countries. "A rise in export prices of these countries in-

creases their export proceeds and makes it possible for them to import larger quantities of capital goods needed for their economic advance"(p.97).

However, Nurkse (p.98) considers "questionable" the argument that the improvement in terms of trade itself is a sufficient condition to solve the problem of financing economic development. An increase in export prices will increase money inflow which may raise prices of the domestically produced goods. For Countries with inelastic short-run supply, the demand for imported goods will tend to go up. Either the demand for imported consumer goods or for capital goods can shift up if the export prices rise in the presence of inelastic short-run domestic supply. The actual structure of the increased imports depends on the particular country and the measures applied to stimulate imports of capital goods rather than consumer goods.

Extending his inferences from the India case study, Schloss(1977) questions the extended concept of undesirability of declining terms of trade. He argues that in some cases,

Export prices may rise leading to an improvement in the TOTs but lead to a loss of export receipts and thus a deterioration in the balance of payments . . . Similarly, suppose production in a country becomes more efficient, enabling the country to lower prices (and sell more abroad). Is such an improvement in efficiency to be deplored on the ground that it will lead to a decline in the TOTs?



He concludes that "it is not self-evident that declining terms of trade [is] necessarily undesirable"(p.468).

#### Terms of Trade and Primary Product Exports

Mellor(1966) states that it is possible for a country to alter the restrictive effect of the relatively declining demand for agricultural production and the employment of human resources in agriculture by international specialization in production and trade (p.19). This is actually the reality for many countries for which "the only significant source of foreign exchange for purchase of goods to further development lies in substantial exports of agricultural products"(p.21).

However, he recognizes that specialization in agricultural production as development occurs is generally difficult to achieve due to two major reasons. First, the increase in the productivity of labor in agriculture, which accompanies development, implies a proportional reduction in the number of workers that can be employed in that sector; in other words, if increased labor productivity of labor in agriculture is pursued, increased levels of employment in the economy can be attained only by expansion of the non-agricultural sectors. Secondly, "agricultural commodities tend to be very bulky, and many are perishable as well. Hence, even a substantial comparative advantage in production of agricultural commodities may be over-balanced by

high transport costs"(pp.20-21).

Answering the question about the reason why developing countries tend to diversify rather than to specialize their economies, Nurkse(1953) states that ". . . expansion of primary production for export is apt to encounter adverse price conditions on the world market, unless the industrial countries' demand is steadily expanding . . ." (p.21), and that "to push exports of primary commodities in the face of an inelastic and more or less stationary demand would not be a promising line of long-run development" (p.22).

Based upon these premises, he concludes(p.22) that, at least in the early stages of the development process, the major orientation for economic growth should be the internal market. This emphasis on the domestic market would allow the country to raise the level of productivity and hence the real purchasing power during the early phases which would in turn act as a catalyst for the long-run growth of international trade.

#### Some Policy Implications

Two basic levels of policy implications are found in the recent literature. On the domestic level, Chichilnisky recommends the application of policies that aim at a more suitable composition of production in order to relieve the factors effecting the presence of abundant labor. Supporting her recommendation, she states:

It may seem paradoxical that what is in general considered the relative advantage of the South, its abundant labour and labour intensive exports, may be a handicap in export policies, bringing about a worsening of its terms of trade, and reinforcing North-South factor price inequality. It follows that relative advantages based on inequalities, are not necessarily self-destructing: in some cases they may actually be self-perpetuating(pp.185-186).

She thus advocates a strong domestic market structure (with the associated high productivity and wages) which, according to her, is a better basis for a long-term success in export policies than the cheap and abundant labour provided by widespread poverty(p.186).

Bird(1979), also envisaged the issue of terms of trade as a central one in the development process and said: ". . . if it is agreed that poverty should be alleviated, one way to do this is to bring about an improvement in the terms of trade of poor countries, irrespective of the current state of relative prices"(p.407).

He referred to a recent proposal of UNCTAD as one of the attempts to accomplish such a goal. This proposal is based on the creation of a buffer stock system aimed at stabilizing prices around their trend, and to increase the long-term trend of prices and terms of trade. To complement the action of the stocking program, the proposal includes some supply management components such as export quotas and/or taxes aimed to regulate the volume of supply in the market place.

He stated, however, the following limitations for the

full realization of the foregoing goals: First, that the effectiveness of supply control to improve terms of trade will depend on the market share for the particular country and on the ready availability of substitutes for the product in question. Second, that improvements in the secular trend of prices do not necessarily imply an improvement in every country's terms of trade but they do imply a redistribution of income. Third, that an accelerated world rate of inflation may occur especially if the relative prices of primary commodities are raised unexpectedly and by large amounts. Fourth, that export quotas as a mechanism of control of supply is frequently subject to failures to control domestic output, hence resulting in stock accumulations, and to create a sufficiently flexible commodity agreement capable to reflect changes in the pattern of production and trade in order to avoid penalizing the relatively efficient producers. The recent failure of the Organization of Petroleum Exporter Countries (OPEC) to maintain the agreed production quota and prices among its members, hence causing a gradual decline in the official prices of the organization, illustrates the importance of the latter cautionary provision to the UNCTAD proposal.

In summary, the recent literature shows a sort of agreement in the conclusion that under certain circumstances, the terms of trade of developing countries tend to deteriorate relative to their more developed trading part-

ners.

Neoclassical economists attribute the deterioration in the terms of trade to factors fundamentally related to demand conditions. Other economists such as those of the structuralist school of thought also impute the deterioration to demand factors, especially the income elasticity of demand which is lower for primary products than for manufactures, but add their claim that countries with dual economy, with abundant labor and with increasing productivity in the export activities (but not in the domestic consumption activities) are likely to have their terms of trade deteriorated over time.

Regarding the effect of the deterioration of the terms of trade, two opposed views are found. Some economists argue that deteriorated terms of trade are directly linked to deterioration of employment, balance of trade, and almost every variable relevant to economic development. Others, however, argue that reductions in export receipts, for example, are more important to be avoided than deteriorations in the terms of trade. Empirical evidence suggests some difficulties in drawing a general set of conclusions about past trends in terms of trade. Indeed, some particular countries have faced severe deterioration in their terms of trade whereas others do not show any evidence of the same.

## CHAPTER V

### AN EMPIRICAL CASE: THE EFFECT OF EXPORTS ON ECONOMIC DEVELOPMENT IN PARAGUAY

Paraguay is located in the center of South America, accounting for a territory of 406 thousand square kilometers and a population of 3.3 million people, and it has an overall density of eight persons per square kilometer.

According to a study of the National Planning Office [Secretaria Tecnica de Planificacion] (1981), the country is endowed with abundant natural resources to support a variety of agricultural activities such as a large number of crops, livestock, and forestry. In effect, it has been estimated that about 19 per cent of the territory is available for cropping and about 51 per cent is suitable for beef cattle production. Precipitation, temperature, and other elements of the climate occur in the country with such frequency and intensity that they allow for the development of most agricultural and livestock activities without irrigation.

The country's endowment of mineral resources is mostly restricted to non-metallic minerals such as those employed in construction and in glass production. Preliminary evaluations have indicated the likelihood of oil and Uranium deposits, but no such deposits have been found in the course of more extensive explorations.

The Recent Economic Growth and the Effect of Trade

The economy of the country has been characterized by low levels of income and low growth rates until the 1960's and early 1970's. Data presented in Table 1 show that by 1962, the real gross domestic product (GDP) per capita reached a level of about \$ 470. This indicator was growing at an average annual rate of 1.8 per cent, compounded, between 1962 and 1970.

Since the early 1960s, some economic measures aimed at strengthening the country's commitment to international trade were emphasized. Among others, it is worth mentioning the intensification of some supporting services such as

Table 1

Paraguay: Total GDP - Population  
and Per Capita GDP

Year	Total Real GDP <sup>1</sup> (Millions of Dollars)	Total Population (Thousands)	Per Capita Real GDP
1962	890.5	1878.4	474
1965	1012.5	2018.9	502
1970	1252.1	2290.2	547
1975	1733.4	2686.5	645
1980	2860.2	3168.0	903
1981	3101.9	3268.5	949
1982	3038.5	3370.0	902

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Guaranies 1977 converted to Dollar at G. 126=\$ 1.

Source: Central Bank of Paraguay: National Accounts Bulletin. 19, 1975/1982.

agricultural research and technical assistance seeking the expansion of exportable agricultural production, and the improvement of both internal and external infrastructure of transport and communication.

In the present, that strategy of development still remains relevant. The National Development Plan prepared by the National Planning Office (1984), states that the basic strategic orientation for the country's development during the period 1985-1989 will still be growth via exports, and the promotion of the agro-industrial activity.

Exports acquired an increasing rate of growth during the 1970's, indicating some response to the strategic commitment that has stressed international trade as a relevant variable for economic development in the country. Official data contained in Table 2 show that the export growth rate had been about 1.7 per cent a year during the period 1962-1971 and increased to about 7.1 per cent a year during the

Table 2.

Paraguay: Recent Trend  
in Exports

	1962	1971	1982	1962-1982
Total Value of Exports(\$ millions)	145	169	358	
Rates of Growth	1.7	7.1		4.6

Source: Central Bank of Paraguay. National Accounts Bulletin. 19, 1975-1982.



period 1971-1982.

An important proportion of the vigorous growth of exports in the recent past has been explained by the rapid expansion in exports of primary products, of which agricultural commodities have been principal components. Table 3 depicts the proportion of primary and manufactured products in total exports; primary products accounted for about 90 per cent of total exports throughout the period 1960-1978. However, a more disaggregated structure of exports is presented in a document prepared by the National Planning Office (1982). According to that source, 23 per cent of the exports by 1981 were primary products; 58.9 per cent were semi-industrialized products; and 17.2 per cent were manufactured products.

The strength conferred to the export promotion policy has been complemented by a moderate liberalization of imports, especially of raw materials and inputs, for which

Table 3.

Paraguay: Export of Primary Products  
and Manufactures(%)

Total Exports = 100	1960	1970	1975	1978
Primary products	89.2	91.9	89.5	91.1
Manufactures	14.8	8.1	10.4	8.9

Source: Economic Commission for Latin America. Statistical Yearbook for L. America. 1980.

the level of taxation has been set between 5 per cent and 12 per cent. This mechanism was designed to stimulate productive activities in the country, and it has allowed a reasonable balance between imports of consumer goods, which increased from 13 per cent of the total imports to 24 per cent in the period 1960-1970 and then decreased slightly to 19 per cent by 1979, and imports of capital goods and raw materials, which experienced a decrease from 62 per cent to 55 per cent of the total during the period 1960-1979, as shown in Table 4.

Table 4.

## Paraguay: Structure of Imports(%)

Type of Imports	1960	1970	1979
Raw materials and intermediate products	27.8	26.4	21.0
Capital Goods	34.6	29.9	34.3
Fuel and Lubricants	9.0	9.7	20.3
Consumer Goods	13.3	24.0	18.6

Source: Economic Commission for Latin America. Statistical Yearbook for L. America, 1980.

The preferential treatment accorded to imports of productive resources, along with other incentives for investment, was an effective policy in the sense of leading to a gradual import substitution which in turn was an important factor in helping avoid the acceleration of the growth rate of imports. The total value of imports, which had grown at

an average rate of 9.97 per cent a year during the period 1962-1971, experienced only a slight change in growth rates during the period 1971-1982, reaching a growth rate of 10.54 per cent a year, according to the data in Table 5.

Table 5.

Paraguay: Recent Trend  
in Imports

	1962	1971	1982	1962-1982
Total Imports (\$ millions)	71	167	455	
Rate of Growth (% a year)	9.97	10.54		10.27

Source: Central Bank of Paraguay. National Accounts Bulletin, 19, 1975-1982.

The persistently high growth rate of imports has led to a generally increasing trend since 1973 in the balance of trade deficit (Table 6), even though the gap between rates of growth of exports and imports has declined substantially by the early 1980's (Tables 2 and 5).

The vigorous behavior of the external sector appears to constitute a relevant factor in determining the rapid growth of the economy since 1971, despite the fluctuating trend of the terms of trade and the purchasing power of exports<sup>1</sup>. In

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The purchasing power of exports is defined here as the volume of exports multiplied by the terms of trade.

effect, data in Tables 6 and 7 show that during the period 1962-1971 GDP per capita had grown at quite erratic rates --the average growth rate for the period had been about 1.9 per cent a year, compounded-- while the terms of trade and the purchasing power of exports had been generally increasing. During the period 1972-1981, however, the per capita GDP grew at higher and more sustained rates, with the average growth rate reaching about 5.4 per cent a year, while the terms of trade and the purchasing power of exports were more erratic.

Thus one notices that the erratic behavior and generally low rates of economic growth during the 1960's correspond to generally low rates of growth of exports, a higher rate of growth of imports, the highest amount of inputs and capital goods in total imports, and a generally increasing trend in the terms of trade. The more dynamic economic performance of the 1970's and early 1980's, on the other hand, coincides with a rapidly increasing volume of exports, a rate of import growth that is slightly higher than the earlier period, an also slightly declining level of inputs and capital goods among total imports, and a fluctuating trend in the terms of trade and in the purchasing power of exports.

The latter suggests two fundamental implications: a) A close relationship has existed between external variables, especially exports, and the economic growth of the country

Table 6

Paraguay: Some Relevant Indicators  
of International Trade

Year	Exports (millions of Dollars)	Imports (millions of Dollars)	Balance on Trade (\$ millions)	Terms of Trade <sup>1</sup>	Purchasing Power of Exports <sup>1</sup>
1962	145	71	74	48.1	25.0
1963	136	68	68	50.4	24.5
1964	147	85	62	56.2	30.0
1965	181	99	82	62.0	40.1
1966	153	123	30	67.8	37.2
1967	150	127	23	65.2	35.0
1968	138	145	- 7	71.6	35.4
1969	149	162	- 13	73.9	39.4
1970	171	153	18	76.4	46.8
1971	169	167	2	79.4	48.0
1972	204	159	45	85.5	62.5
1973	212	222	- 10	104.4	79.4
1974	236	260	- 24	96.1	81.4
1975	248	221	27	69.4	62.0
1976	226	257	- 31	87.7	71.0
1977	279	360	- 81	100.0	100.0
1978	288	406	-118	91.8	94.9
1979	338	454	-116	71.2	86.2
1980	321	493	-172	70.5	81.1
1981	333	523	-190	60.0	71.7
1982	358	455	- 97	56.0	72.0

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Index with base year 1977 = 100.

Source: Central Bank of Paraguay. National Accounts  
Bulletin, 19, 1975-1982.

Table 7.

Paraguay: Total and Per  
Capita GDP Growth

Year	Real GDP <sup>1</sup> (\$ millions)	Population (thousands)	Per cap. GDP	Annual Growth p.c. GDP
1962	890.5	1878.4	474	-
1963	925.0	1926.1	480	1.26
1964	961.0	1972.6	487	1.46
1965	1012.5	2018.9	502	3.08
1966	1024.3	2066.2	496	-1.19
1967	1111.5	2115.9	525	5.85
1968	1146.5	2169.2	529	.76
1969	1193.7	2227.0	536	1.32
1970	1252.1	2290.2	547	2.05
1971	1320.2	2359.0	560	2.38
1972	1405.2	2433.4	577	3.04
1973	1506.3	2513.2	599	3.81
1974	1630.4	2597.7	628	4.84
1975	1733.4	2686.5	645	2.71
1976	1855.1	2778.6	668	3.57
1977	2092.1	2873.3	728	8.98
1978	2319.3	2970.2	781	7.28
1979	2567.5	3068.5	837	7.17
1980	2860.2	3168.0	903	7.89
1981	3101.9	3268.5	949	5.09
1982	3038.5	3370.0	902	-4.95

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Constant prices: 1977 guaranies converted to Dollar at  
G. 126 = \$ 1

Source: Central Bank of Paraguay. National Accounts Bulletin,  
No. 19, 1975-1982.

during the last two decades. Since export is one of the allocative alternatives for the Gross Domestic Product of a country, a change in the amount exported is regarded as a factor in stimulating a change in output in the same direction.

This positive relationship appears to be highly significant in a simple linear regression in the case of Paraguay. Regressing the level of Gross Domestic Product (Y) on the level of total exports at constant value (X) by a simple linear model, the function estimate is given by  $Y = 199.3 + 2.001 X$ . The coefficient of determination for that simple model is 0.94 which indicates that the level of output has been highly responsive to the level of export volume during the period 1962-1982.

Regressing the annual rate of growth of the Gross Domestic Product ( $Y_r$ ) on the annual rate of exports ( $X_r$ ), however, the function estimate becomes  $Y_r = 2.833 + 0.094 X_r$  with a coefficient of determination of only 0.1 which indicates that the short-run changes (yearly) in Gross Domestic Product are not strongly affected by changes in exports in the same short-period.

b) The erratic behavior of the terms of trade and the purchasing power of exports, especially after 1973, would have had significant impact on the country's capacity to import. In effect, the study of the National Planning Office (1982) has found a substantial deterioration in the

relative importance of exports in the overall capacity to import<sup>1</sup>. Such a relative importance of exports has decreased from 81.5 per cent in 1977 to 56.2 per cent in 1981.

#### Effects of Short and Long-run Changes in Exports

Recent estimates have led to the conclusion that the foregoing export data would account for substantial undervaluations<sup>2</sup> especially since 1975. Available figures for such an underestimation are presented in table 8. Provided the importance of these unregistered transactions relative to the analyzed export data, it is worth to presume that this substantial export expansion during the period 1975-1982 would have had important contribution for the economic performance of the country.

An indication about the relevance of these short-term stimuli is provided, in the Paraguayan case, by the fact that the decline in the purchases of the joint hydroelectric

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In this context, capacity to import is defined as the sum of Exports, Net Transfers, Net Return to Investments, Net Capital Flows, Special Drawing Rights, Net Change in International Reserves.

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The undervalued export is related to the transactions on goods and services with two binational enterprises in charge of execution of two hydroelectrical projects. The Itaipu project has been in construction since 1973 by Brazil and Paraguay, and the Yacyreta project began in 1983 by Argentina and Paraguay. The value of goods and services purchased by these joint agencies has increased dramatically between 1974 and 1981, and then started declining gradually.



Table 8

Money Inflow for Purchases of Binational  
Agencies (U.S.\$ Millions)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
<b>A. Itaipu: Goods and services</b>	0.7	21.5	34.5	71.5	114.5	115.5	121.1	138.5	114.0	127.2
Goods FOB	0.2	10.3	17.4	44.7	68.8	64.4	65.4	68.4	56.5	52.0
Return to Investm	-	-	-	-	-	-	-5.0	-10.9	-12.1	-11.2
Wages	0.2	5.5	7.0	17.1	32.4	27.6	37.9	38.1	31.4	25.6
Other services	0.3	5.7	10.1	9.7	13.3	23.5	22.8	42.9	38.2	60.8
<b>B. Yacyreta: Goods and services</b>	-	1.3	2.4	3.0	11.4	32.2	57.3	73.1	23.3	17.2
Goods FOB	-	-	-	1.5	5.9	14.9	24.7	34.5	9.5	4.8
Wages	-	-	-	1.2	4.7	7.4	12.2	23.3	9.2	7.5
Other Services	-	1.3	2.4	0.3	0.8	9.9	20.4	15.3	4.6	4.9
<b>C. Total Goods and Services</b>	0.7	22.8	36.9	74.5	125.9	147.7	178.4	211.6	137.3	144.4

Source: National Planning Office [Secretaria Tecnica de Planificacion]. Statistical and National Accounts Division. Asuncion: 1982.

agencies by 1982, due to the completion of the most important components of the Itaipu project<sup>1</sup>, has coincided with a decrease in the per capita GDP by almost 5 per cent, as illustrated in Tables 7 and 8.

The inclusion of a dummy variable, in the simple linear regression above, to account for the substantial export expansion during the period 19775-1982, could confirm this hypothesis about the effect of such windfall gains.

The distinction between the long-term trend of exports and the short-term impact of the hydroelectrical projects is, therefore, very relevant in the particular experience of Paraguay during the 1970's and early 1980's, where the short-run impact can be regarded as a kind of shock to the economy which allowed the attainment of additional strength in the country's economic growth. The permanent component, on the other hand, can be regarded as the tendency with which the external component of aggregate demand is consistent in the long-run and represents the relevant instrument to deal with to provoke changes in the domestic output and,

1

The Itaipu project is a joint Brazilian-Paraguayan hydroelectric complex constructed on the Parana River, border between both countries, since 1974. The projected capacity of production of this power station, 12.6 million kilowattios, is one of the largest for a single project. The total cost has been about \$ 15 billion. The volume of direct employment generated by the construction has been about 10.000 persons in each country during the period of maximum requirement. In the case of Paraguay that figure represents approximately 1 per cent of the economically active population.

eventually, "upward movements in the social system."

Evidence to this respect is provided by Davis(1983). As a result of his analysis of the effects of coffee price increases on the economy of several exporter countries during the period 1975-1977, he concludes that the overall effect of such a temporary export price and export value rise depends on the type of distribution of benefits among the domestic economic agents: producers, government, and other related private groups. He observes that in countries where an important proportion of the benefits are accrued by the government through taxes, export duties, and the like, public investment tends to increase significantly, showing an attempt towards implementing development plans and attempting to increase the growth potential of the economy (p.134). He notes that "the emphasis on using the windfall gain for development objectives was reflected in sharp increases in imports." The importance of this effect on imports can be noted, he claims, taking into account that "by the end of 1978 . . . the reserve position of many of the countries was little better than before the windfall gain," which implies that "many of these countries were not in a position to use their own resources to insulate the economy from any further reductions in export proceeds."

### From Economic Growth to Development

In the foregoing section, the basic relationship between exports, and to some extent imports, and economic growth has been depicted for the specific case of Paraguay and for the specific period that includes the 1960's, 1970's and the early 1980's. In this section, some key indicators of the level of development by the end of the 1970's are to be described.

Nafziger(1980), using data corresponding to 129 countries classified into four categories, summarizes some basic indicators of the level of development for each category. Table 9 depicts a synthesis of Nafziger's table containing the average value of each indicator in the individual four categories and the specific values for Paraguay.

According to the data in Table 9, the per capita GNP in Paraguay was \$ 1,300 in 1980, a figure that is not significantly different from the average per capita GNP for the category of middle income countries; similarly, the 3.2 per cent a year growth in GNP is only slightly lower than the growth rate achieved by the middle income countries as a group. The rate of growth of GNP, which is a measure of the strength of a country to expand national output, denotes the realization of a necessary but not sufficient condition for economic development, as discussed in Section II above.

Some additional indicators are necessary to measure the

Table 9

## Selected Indicators of Development

	GNP per capita 1980 (\$)	Avg.-annual growth rate p.c. GNP (1960-80)	Adult literacy rate (%) 1977	Infant mortality per 1,000 live births (1980)	Life expectancy at birth 1980 (years)	Energy consumption per capita 1979 (POLI (1979))
Low income Countries	260	2.3	50	94	57	58 421
Middle income countries	1,510	3.9	67	77	61	66 1,183
Paraguay	1,300	3.2	84	47	65	78 234
High income countries	8,690	3.7	99	15	73	94 6,887
Capital-surpl. oil exporters	12,630	6.3	25	99	57	45 2,609

Sources: Taken from Nafziger Wayne E. The Economics of Developing countries  
Belmont: Wadsworth Publishing Company. 1980.

extent to which the benefits of the economic expansion has been accessible to the population. A few of these indicators are also depicted in Table 9. The level of adult literacy rate was 25 per cent higher than the average rate for the middle income countries in 1977; infant mortality in Paraguay was 47 per 1,000 live births which is substantially lower than the figure for the middle income countries; life expectancy at birth by 1980 was quite similar for Paraguay and the group average; the PQLI, an index constructed by combining literacy rate, infant mortality, and life expectancy, is about 18 per cent higher in Paraguay than in the average middle income country; energy consumption in Paraguay is substantially lower than even the category of low income countries.

These variables provide a general idea as to the transformation process achieved by Paraguay in the recent past. The commitment to export oriented policies since early 1960s have brought about a more dynamic trend in exports; such a stimulation of exports provoked a strong response of the economic activity of the country and the per capita GDP experienced a threefold increase by the early 1980s. The accelerated economic activity of the 1970s and early 1980s has been fundamental for improvements in some basic indicators of economic development such as the population access to education and medical assistance, among other services, reflected in currently reasonable levels of liter-

acy and mortality respectively.

Some key indicators of the transformation, such as income distribution, are not available, and thus represent a practical constraint in providing a more complete illustration of the process.

Nevertheless, the indicators depicted in Table 9 and briefly described above, constitute a rough overview of the improvements in some of the fundamental variables to describe development that accompanied the dynamic expansion of export and output in the 1970's and early 1980's in Paraguay.

## CHAPTER VI

### SUMMARY AND CONCLUSION

A positive correlation between the rate of growth of export and the rate of economic growth is found by several investigations during the recent past. Furthermore, an export to economic growth causation appears statistically significant in most empirical experiments for both developed and developing countries during the 1960's, 1970's and early 1980's. These generally accepted empirical findings suggest that societies seeking the promotion of economic growth through the application of policies to stimulate exports as the leading sector can be successful in achieving sustained economic growth and even economic development. The specific cases of South Korea and Paraguay depicted above tend to corroborate this assertion.

Varying strength in the responsiveness of economic growth to the export stimulus is, however, worth mentioning. Fundamental differences are noticeable whether the country is a primary product exporter or an exporter of manufactured goods; the higher the proportion of manufactures, the greater the response to changes in export. Also the foodstuff content is relevant in order to determine the degree of responsiveness; the higher the foodstuff content, the less responsive the economy tends to be to changes in export. Therefore, reliance on primary commodities should be gradu-



ally replaced by more processed products, and non-food goods should increasingly substitute for foods if the maximum response of the domestic economy to the external stimulus is pursued. Industrialization becomes then a strategic variable to be managed in setting a consistent policy package designed to be an effective driving force for development.

The lower income elasticity of demand for primary products in general and for foods in particular, which is a undeniably important factor that affects the response differential, is also regarded as playing a central role, along with other equally relevant elements, in tracing the country's terms of trade tendencies. A deterioration in the terms of trade would be linked to the nature of the country's export via the effect of the income elasticity of demand, as explained according to the Prebisch led structuralist school of thought.

The characteristic of the labor market and its effect on wages are also regarded as playing a key role in the causation of changes in terms of trade. The more abundant labor and the more stable the wages in a particular country, the more likely it would be for such a country to have its terms of trade deteriorate over time. Provided that the abundance of labor and the stability of wages are closely linked to the economic structure of the country, say to the degree of economic dualism, this latter element turns out to be another key determinant of the terms of trade. Hence,

the more dualistic the economy, the more likely it is for a country to have deteriorated terms of trade. These latter findings suggest that economic policies oriented to correct the given economic structure toward greater homogeneity would be effective in reducing the potential for further deterioration of the terms of trade.

Despite the apparently determinant role played by the terms of trade in the overall economic performance of a developing country, some amount of uncertainty still remains about its actual effect. A wide range of arguments are used in the discussion of this particular aspect. On the one extreme, some scholars such as Bird and Nurkse accept that deterioration in the terms of trade can influence a large number of variables in the economy and they argue that the strength of such influences would depend upon certain economic characteristics, especially those having to do with the price elasticity of supply and demand. Opposed to this view, Schloss suggests that some goals, such as improvement in the balance of payments and maximization of export earnings, may acquire higher priority in a given country than a non-declining trend in the terms of trade. The dynamic economic performance of Paraguay during the seventies, in spite of the greatly fluctuating terms of trade during the same period, seems to validate this latter claim. Schloss' argument neglects, however, the fact that effectively deteriorated terms of trade imply declining pur-

chasing power and eventually decreasing capacity to import, which in turn is a crucial constraint for economic development, especially for countries lacking some of the essential resources and/or the technical capability for the provision of capital goods.

## BIBLIOGRAPHY

- Bell, Trevor R. (1979), "Theories of the Terms of Trade of Less Developed Countries: A Critical Survey," Economia Internazionale, (May-August), 32, pp. 200-217.
- Bird, Graham (1979), "The Terms of Trade of Developing Countries: Theory, Evidence and Policy," Economia Internazionale, (November), 32, pp. 399-413.
- Brundell, Peter, Horn Henrik, and Svedberg, P. (1981), "On the causes of Instability in Export Earnings," Oxford Bulletin of Economics and Statistics, (August), 43, pp.301-313.
- Chichilnisky, Graciela (1981), "Terms of Trade and Domestic Distribution: Export-Led Growth with Abundant Labour," Journal of Development Economics, (April), 8, pp.163-192.
- Davis, J. M. (1983), "The Economic Effects of Windfall Gains in Export Earnings. 1975-78," World Development, (February), 11, pp. 119-139.
- Early, A. (1980-81), "Economic Development through International Trade: The Case of Korea," Economic Forum, (Winter), 11, pp. 79-88.
- Economic Commission for Latin America. Statistical Yearbook for Latin America. 1980.
- Emery, R. F. (1967), "The Relation of Exports and Economic Growth," Kyklos, 20, pp. 470-486.
- Feder, G. (1983), "On Exports and Economic Growth," Journal of Development Economics, (February/April), 12, pp. 59-73.
- Findlay, Ronald E. (1973), International Trade and Development Theory. New York: Columbia University Press.
- Kindleberger, Charles P., and Herrick, Bruce (1977), Economic Development. New York: McGraw-Hill.
- Kreinin, Mordechai E. (1983), International Economics: A Policy Approach. New York: Harcourt Brace Jovanovich, Inc.
- Krueger, A. O. (1980), "Trade Policy as an Input to Development," American Economic Review, (May), 70 pp. 288-292.

- Kuznets, Simon (1961), "Toward a Theory of Economic Growth," in Robert Lekachman, ed., National Policy for Economic Welfare at Home and Abroad, New York: Russell & Russell Inc.
- Lewis, Arthur W. (1958), "Economic Development with Unlimited Supplies of Labor", in A. N. Agarwala and S. P. Singh ed., The Economics of Underdevelopment, London: Oxford University Press.
- Maizels, Alfred (1968), Exports and Economic Growth of Developing Countries. Cambridge: At the University Press.
- Meade, J. E. (1961), A Neo-Classical Theory of Economic Growth. London: George Allen & Unwin Ltd.
- Mellor, John W. (1966), The Economics of Agricultural Development. New York: Cornell University Press.
- Myrdal, Gunnar (1957), Economic Theory and Underdeveloped Regions. London: G. Duckworth.
- \_\_\_\_\_ (1974), "What is Development?" Journal of Economic Issues, (December), 8, pp. 729-736.
- Nafziger, Wayne E. (1980), The Economics of Developing Countries. Belmont: Wadsworth Publishing Company.
- National Planning Office [Secretaria Tecnica de Planificacion] (1981), Natural Resources of Paraguay, Project PAR/79/P-05. Asuncion.
- \_\_\_\_\_ (1982), The National Effort and the External Financing. Asuncion.
- \_\_\_\_\_ (1984), National Plan of Development: Period 1985-1989 (Preliminary document). Asuncion.
- Nurkse, Ragnar (1967), Problems of Capital Formation in Underdeveloped Countries. New York: Oxford University Press.
- Ram, M. (1980), "Exports, External Capital Inflow, and Economic Growth in Developing Countries with Special Reference to South Asian Countries," Indian Economic Journal, (April/June), 27, pp. 20-27.
- Randall, Alan (1981), Resource Economics: An Economic Approach to Natural Resource and Environmental Policy. Columbus: Grid Publishing, Inc.

- Schloss, H. H. (1977), "Declining Terms of Trade: Myth or Reality," *Economia Internazionale*, (November), 30, pp. 466-469.
- Severn, Alan K. (1968), "Exports and Economic Growth: Comment," *Kyklos*, 21, pp. 546-548.
- Syron, Richard F., and Walsh, Brendan M. (1968), "The Relation of Exports and Economic Growth: A Note," *Kyklos*, 21, pp. 541-545.
- Tyler, William G. (1981), "Growth and Export Expansion in Developing Countries: Some Empirical Evidence," *Journal of Development Economics*, (August), 9, pp. 121-130.

INTERNATIONAL TRADE AND ECONOMIC DEVELOPMENT:  
THE ROLE OF EXPORTS

by

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An Abstract of a Master's Report

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Economic development, which implies a complex upward transformation of the economic and non-economic components of a society, depends on a broad number of factors. Among those, the endowment of resources or factors of production is an important determinant of economic growth and development because those endowments along with the current technology in the country defines the country's production opportunity set. The shortage or even the lack of resources within the country, however, need not be an absolute constraint for a country to attain higher levels of development. Trade can remove some deficiencies that would otherwise limit development, especially those related to internal scarcity of natural resources, capital goods, and other inputs.

Several empirical studies conducted since the sixties have provided evidence to support the hypothesis that a high correlation exists between exports -- especially of manufactured and non-food products -- and economic growth. Indeed, economic growth has been found to be highly responsive to changes in export with the strenght of such a response being higher for manufactured and non-food products relative to primary and food products, respectively.

The higher correlation and stronger response that exist between the manufactured good exports and economic growth confer some consistency to the argument that the terms of



trade -- which has been found to be more likely to deteriorate for primary product exporter countries -- is a factor that influences development. This relationship between the nature of export products and the terms of trade is a reason for structuralists to claim that developing countries -- frequently specialized in primary product exports -- have faced secular decline in their terms of trade, and that economic growth and economic development of such countries have been adversely affected due to the decline in their terms of trade.

Even though no consensus exists around the latter arguments, deteriorated terms of trade can be regarded, however, as playing an important role. In effect, an unfavorable price relation effect changes on the purchasing power of exports (defined as the volume of exports multiplied by the terms of trade); on the capacity to import (defined as the sum of export value, net capital flow, net transfers, net return to investments, Special Drawing Rights, and net changes in international reserves); and, hence, on the country's potential for development. In the case of Paraguay, a substantial deterioration in its terms of trade, especially during the second half of the 1970s, has coincided with a sharp decline in the relative importance of exports in the capacity to import, increasing consequently the relative weight of capital flows and other components in the capacity to import.

In addition to the nature of the export product, the characteristics of the economic structure and the closely related condition of labor supply are important factors that influence the terms of trade of a country. Higher level of economic dualism the existence of two technologically different segments in a society -- is associated with higher probability for deterioration in the terms of trade.

The preceding relationships suggest that economic policies aimed at strengthening the manufacturing sector of the economy and driving the society towards higher structural homogeneity are consistent with an export oriented type of development strategy.