

NEW DEVELOPMENTS IN TRADE THEORY AND LDCs

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This paper surveys the new literature on international trade relevant to the North-South controversy. In the first part, two types of North-South models are considered : the "unequal exchange" theory of Lewis and Emmanuel, and the models of dynamic interaction of Findlay, Taylor and others. The analysis focuses on the determinants of growth, the terms of trade and relative employment in the world economy. In the second part, the paper reviews the empirical literature on South-North and South-South trade, and the theories of North-South technological gaps, intra-industry trade and external economies. Finally, we analyze the literature on exports and economic growth, and the neo-classical, keynesian and disequilibrium approaches to the theory of import controls.

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## NEW DEVELOPMENTS IN TRADE THEORY AND LDCs

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The outburst of economic literature in the 1970s and 80s has been reflected in the analysis of international trade. This paper surveys new developments in that field, insofar as they are relevant to the North-South controversy. The first part reviews the literature on DC-LDC interaction, focusing on the role of asymmetric factor markets as determinants of the international terms of trade. The second part surveys new studies on the North-South and the South-South patterns of trade, analyzing the relevance of HOS theory and of the new literature on imperfect competition and international trade. Finally, the paper reviews some aspects of the economic policy debate, particularly the link between exports and economic growth and the theory of import restrictions.

### 1. The terms of Trade and Uneven Development in the World Economy

#### 1.1. The Traditional Story

It is useful to start the discussion on the terms of trade debate by recalling the most traditional theorem on the matter [Singer, (1964), Johnson (1954), Prebisch (1959), Spraos (1983)]. The theorem is derived as a condition for trade balance in the long run. To derive it in the most simple terms, let us

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\* Executive Director, FEDESARROLLO, Bogotá, Colombia. Paper prepared for the United Nations University, Conference on New Directions in Development Economics, M.I.T., January 1985. Research support for this paper was provided by the Ford Foundation. Comments by Pranab Bhardam, Andre Burgstaller, William Darity Jr., Carlos Díaz-Alejandro, Ronald Findlay, Lance Taylor, Larry Westphal and other participants at the UNU Conference are kindly acknowledged.

assume that there are only two regions, North (N) and South (S), both completely specialized in the production of a single commodity. The gross product of each region ( $Y_i$ ) is given by :

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

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

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

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

Let us call  $e_S$  and  $n_S$  the income and price elasticities of demand for the Southern good in the North (i.e., the elasticities of the  $M_N$  function), and  $e_N$  and  $n_M$  the elasticities of demand for the Northern commodity in the South.

Trade balance equilibrium implies :

$$(3) \quad M_N = p M_S$$

From equations (2) and (3), we derive the well-known condition :

$$(4) \quad \dot{p} = \frac{e_N g_S - e_S g_N}{n_N + n_S - 1}$$

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

$$(5) \quad g_S / g_N > e_S / e_N$$

According to the previous inequality, the terms of trade depend on the interrelation between the growth rates and the income elasticities of demand for imports. If  $e_N > e_S$ , i.e., if the South produces relatively income-inelastic goods, it must face in the long run either slower growth or a deterioration of the terms of trade.

The double factorial terms of trade ( $f$ ) measure the amount of Southern labor that may be purchased with one unit of Northern labor or, in other words, the per-worker national incomes (relative per-capita incomes if labor forces are proportional to population) :

$$(6) \quad f = p q_N / q_S$$

As can be seen from equation (4), productivity improvements in all countries worsen the barter terms of trade, through their effect on  $Y$  and thus on import demand. Nonetheless, the North is able to improve its double factorial terms of trade through productivity increments if :

$$(7) \quad 1 + e_S < n_S + n_N$$

This condition is less stringent than a similar inequality for the South, if the North produces the income elastic good. Thus, so long as  $e_N > e_S$ , the South would be forced to "export" a greater amount of technical progress, thus benefiting less from it in terms of improvements in the living standards of its population than its Northern partners benefit from their own technical change.

The assumptions of the previous model are very simple, particularly regarding

specialization patterns. Nonetheless, a more sophisticated model could be built on neo-classical lines which would show essentially the same conclusions. Indeed, in a HOS world, unless growth (coming from technical change or factor accumulation) is anti-trade biased, the same trade-off between growth and the terms of trade would arise for a country having a comparative advantage in the production of income-inelastic goods. The conclusion would not be valid, either in the former or a neo-classical model, for a small country which does not affect the international terms of trade. However, that would not be a particularly interesting case in the modelling of North-South relations. Thus, in this part of the paper, we would maintain the assumption of complete specialization.

## 1.2. Unequal exchange

### 1.2.1. The Lewis - Emmanuel model

As we have seen in the previous section, a worsening of the factorial terms of trade is a sign that the relative per-worker national income has deteriorated. It is no surprise then that writers on North-South relations have attached such importance to this concept [ Lewis (1969; 1977), Emmanuel (1972), Spraos (1983)] . Indeed, aside from the very debatable concept of "transfer of labor value", associated with the work of Emmanuel and his critics, it is to this variable that the notion of "unequal exchange" has been attached [See in particular Emmanuel (1972, Appendix IV)] <sup>1/</sup>.

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<sup>1/</sup> See also Roemer (1983) for an interesting development of the idea of "unequal exchange" in an Sraffian model involving the maximization of national income, with and without factor mobility.

In the former discussion, however, the factoral terms of trade reflected supply and demand conditions in commodity markets. In the work of Lewis, Emmanuel and their followers, this variable depends on conditions prevailing in the labor markets of DCs and LDCs, which in turn determine commodity prices. The essential idea can be expressed in very simple terms. Let  $w_i$  be the real wage in country  $i$  in terms of the Southern commodity, and assume in Ricardian fashion that capital is a wage fund on which a uniform international rate of profit is made, given capital mobility. Equilibrium prices are thus :

$$(8a) \quad p = (1+r) w_N / q_N$$

$$(8b) \quad 1 = (1+r) w_S / q_S$$

Under these conditions, the barter and factoral terms of trade are :

$$(9) \quad p = (w_N / w_S) / (q_N / q_S)$$

$$(10) \quad f = w_N / w_S$$

The factoral terms of trade are thus determined by relative wages, while the barter terms of exchange depend on wages and productivities.

The causal association between relative wages and the barter terms of trade can be called, following Gibson (1980), the "Fundamental Theorem of Unequal Exchange". In a neo-Ricardian context, Gibson has analyzed the general validity of this relationship. If a region exports more than one commodity, not all of its barter terms of trade will improve when real wages rise; the behavior of the global terms of exchange thus depend on the composition of exports. On the

other hand, if a good is commonly produced in both regions, relative wages cannot be determined independently of commodity prices. The simple association between the barter and factoral terms of trade is thus modified in a more complex model of the world economy.

What determines relative wages ? For Lewis, wages reflect the opportunity of employing labor in the food sector in both North and South. To quote him : "The terms of trade are bad only for tropical products, whether agricultural or industrial, and are bad because the market pays tropical unskilled labor, whatever it may be producing, a wage that is based on an unlimited reservoir of low-productivity food producers" [ Lewis (1977, p. 37) ]. According to his model, a productivity improvement in the export sector in each region is totally "exported" as a deterioration of the barter terms of trade, with constant factoral terms of exchange. On the other hand, a productivity improvement in the food sector increases both the factoral and commodity terms of trade.

Bardham (1982) has explored the validity of Lewis' theorem in the presence of diminishing returns to labor in all sectors and on conditions of wage formation that do not correspond to the simple model developed above or, indeed, to Lewis' model. Particularly, wages are equal to the average productivity of labor in the food sector in the South, while they are determined by marginal productivities in the Southern export and in the Northern food sectors, and by union power in the production of the Northern export commodity. In this

eclectic model, relative wages are affected by productivity improvements as Lewis predicts only if both wages are expressed in terms of food. If the Northern wage has an important non-food component, Lewis' predictions will not hold in the face of productivity improvements in the North : in fact, contrary to Lewis, if the improvement takes place in the food sector, the factoral terms of trade of the North will deteriorate, while if they take place in the export sector, they will improve. On the other hand, while food productivity has the predicted effect on the barter terms of trade in the South, in the North it depends on the extent of diminishing returns to labor in the food sector and on union power in the export sector. Finally, export productivity has the expected impact on the Northern terms of trade, but in the South it depends on the income elasticity of export demand.

In the Marxist literature on unequal exchange, there is no consensus on the determinants of relative wages <sup>2/</sup>. For Emmanuel (1972, Ch. 3), high wages in the North lead to high levels of consumption, which induce fast growth and technical change, both in the development of new products and in labor-saving devices. On the other hand, in the South low wages and consumption determine a vicious circle which reproduce underdevelopment. His model is thus one of "circular causation", akin to those that we will analyze in section 2.2.3. below, in which "development follows the curve of consumption" [ Emmanuel (1972, p. 133) ] .

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<sup>2/</sup> For a complete survey, see Evans (1984).



For Bettelheim (1972), in a more traditional Marxist interpretation, the wage differential is simply a reflection of the "polarized development of the world's productive forces". The conditions which favored rapid capitalist development in the countries that first industrialized also led to a division of labor between industrial and raw material-producing countries. The mechanisms suggested by Bettelheim are not different either from the models of "circular causation", but the emphasis is on production economies, not on consumption. The polarization of the world economy determined by economic forces was reinforced by the political and ideological domination of rich over poor countries. The corresponding "blocking of the productive forces" in the South maintained non-capitalist forms of production and low wages, with a two-fold benefit for Northern capitalists : high profitability from direct investment in the South and low prices of Southern products in world trade (unequal exchange).

The latter interpretation is similar to that proposed by Amin (1973; 1974). This author stresses the role of rural and urban reserves of labor in the maintenance of low wages in the South. Although the basic idea is not very different from that in Lewis' model, the emphasis is different. For Amin, rural reserves are actually induced by the penetration of capitalism in the countryside in poor countries, while urban reserves (underemployment?) are integrated in the production and commercialization of "modern" goods, allowing low-paid labor

to compete with high technology. Thus, far from being dissociated from the capitalist sector in the South, as the dual-economy models imply, labor reserves are actually an essential element in the working of Southern economies. This interpretation is shared by the Latin American dependency school [See, for example, Sunkel (1972)]. On the other hand, wage behavior in the North reflects the development of an "aristocracy of labor", made possible by the exploitation of the Third World through unequal exchange.

While Emmanuel emphasizes the wage-consumption link, and Bettelheim and Amin place their emphasis on the productive structure of DCs and LDCs, Braun (1973) built a model of unequal exchange based on trade restrictions. The essential idea of his model is the existence of a basic complementarity between foreign exchange and internal production in LDCs. Faced with a worsening of external demand, LDCs are forced to devalue in an attempt to defend foreign exchange earnings and internal production. Devaluation shifts the export supply curves of the South. Thus, when policy reactions in LDCs are taken into account, protection in the North may have a sizable impact on the terms of trade and may become a major source of losses in real incomes in the South. Braun's model is an interesting attempt to develop Prebisch's (1951) seminal ideas, specially regarding the mechanisms which explain the deterioration of the terms of trade of the Periphery at times of world crisis. Nonetheless, it

seems weak as a general theory of North-South relations. Moreover, contrary to the previous models, the factors of trade are no longer the independent variable while, contrary to the traditional interpretation, market variables do not play the essential role in the determination of international prices.

In the former discussion, emphasis has been placed on the determinants of relative wages, commodity terms of trade being dependent on wages, productivities and capital mobility. As Bacha (1978) has pointed out, however, it is necessary to bring the balance of payments into the model to ensure global equilibrium. In contrast to the traditional story, however, prices cannot be relied in the present model to ensure payments equilibrium; therefore, quantity adjustments, particularly in the levels of employment, must now play that role <sup>3/</sup>.

To explore this association, we will not introduce trade balance (equation 3) as the additional equilibrium relation, as Bacha does, since it is not a reasonable assumption in a model involving capital mobility. Rather, equilibrium in the world capital market and in the demand and supply of the Southern (or Northern) good will be introduced to close the system. Past capital accumulation determines the world capital stock at any given time --i.e., the total wage bill (W) :

$$(11) \quad W = w_N L_N + w_S L_S$$

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<sup>3/</sup> See also Findlay (1981) for an analysis of quantity adjustments in the Lewis model

where  $L_N$  and  $L_S$  are variables. Let us assume that all profits are saved and that the Northern commodity is the only durable good. Thus, production must be equal to world consumption of the Southern commodity ( $C_S$ ):

$$(12a) \quad q_S L_S = C_S (W, 1/p)$$

Equations (9), (11) and (12a) can be used to derive a demand for Southern labor. A wage pressure in the North has a favorable impact on the demand for Southern labor. On the other hand, a technical improvement in the North and a wage push in the South will have negative substitution effects. An increase of Southern productivity will have favorable substitution but negative "technological" impacts on the demand for labor in the South; the latter will obviously prevail if the demand for the Southern commodity is price inelastic.

If the Southern good is the investment assets, equation (12a) becomes

$$(12b) \quad q_S L_S = rW + C_S (W, 1/p)$$

where  $rW$  is the level of world savings and investment. Equations (8b), (9), (11) and (12b) determine now the demand for Southern labor. The effects of Northern variables are identical to the previous case and deserve no further scrutiny. Southern variables affect the world rate of profit through (8b) and thus investment demand <sup>4/</sup>. Thus, aside from the unfavorable substitution

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<sup>4/</sup> Effects would differ if wages were fixed in terms of the Northern commodity or a global consumer basket. Corresponding theorems will not be developed in this paper.

effect, a wage push in the South has an amplified negative impact on Southern employment through investment. On the contrary, Southern productivity improvements encourage investment demand, overwhelming the unfavorable technological impact on employment and reinforcing the favorable substitution effects on Southern employment.

Two interesting conclusions can be derived from the former analysis. There exists, first of all, a trade-off between the terms of trade and employment. Thus, improvements in the former are only obtained at an employment cost! Moreover, employment in the South is positively linked to Northern wages and, in the process of capital accumulation, to Northern employment. There are, therefore, bases for solidarity between Northern and Southern workers. Nonetheless, contradictions of interests would arise in the previous model if the rate of profit was exogenously given (by post-Keynesian factors, for example). In that case, real wages, expressed in terms of a common basket of consumer goods, would be negatively related.

### 1.2.2. Deadweight losses from trade? A Digression

In the previous discussion, "gains" or "losses" always referred to a comparison of trading equilibria <sup>5/</sup>. These concepts thus had little to do with the usual classical and neo-classical gains from trade argument, which involve a comparison with hypothetical "autarkic" conditions. However, unequal exchange has been associated, by Samuelson (1979, Chs. 251 - 253) and others, with losses in the more traditional sense of the term.

The most interesting contribution on this controversy, is not associated with the work of Marxist unequal exchange writers, but rather with neo-Ricardian trade theory [See, in particular, Mainwaring (1974; 1979), Metcalfe and Steedman (1974), Steedman (1979), Ocampo (1976, Ch. 2)]. It is easy to show in an open-economy Sraffian system that the movement from autarky to free trade always implies an outward move of the wage-profit frontier; indeed, otherwise specialization would never take place in a laissez-faire capitalist economy. In this sense, as Samuelson has rightly argued, real wages must be higher under free trade than in autarky at a given rate of profit.

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<sup>5/</sup> This is also the concepts of "gain" and "losses" in the immiserizing growth literature. For a recent survey, see Findlay (1984). See also the controversy around Chichilnisky (1981) in the Journal of Development Economics, vol. 15, 1984, pp. 89 - 184.

Non-optimality of free trade equilibrium may arise, however, from two very different conditions. The first is related to well-known growth theorems. So long as profits are the only source of saving but are partly consumed, the techniques which maximize profits for a given wage rate are not the same as those which maximize per-capita consumption for a given growth rate. The second result is more specific to trade theory. Specialization in a neo-Ricardian model is determined both by technological and (exogenous) distributive variables. Under these conditions, if real wages are not equalized, some countries may specialize against comparative technological advantages. In a two-commodity case, for example, a country may have a technological advantage in the capital-intensive commodity, but may end up specializing in the production of the labor intensive good if it faces a low exogeneous real wage. In this case, it is easy to show that real per-capita consumption for a given growth rate is higher in autarky than under free trade, i.e., that the consumption-growth frontier has shifted inwards.

The former analysis relates, however, to the comparison of steady state equilibria. Samuelson has argued, however, that free trade is still Pareto optimal, since any movement away from it would entail a loss of present consumption. Indeed, even if it is true that the consumption-growth frontier shifts inward, it can be shown that the transition from autarky to free trade

leads to a temporary consumption boost, and that the discounted present value of consumption (using the rate of profit to discount) actually increases, regardless of the fact that steady state consumption decreases. The argument on trade losses then turns into a discussion on the malleability of capital assets and their ability to be transformed into consumption goods [Mainwaring (1979)] .

As with the traditional gains from trade story, the discussion is highly artificial, involving as it does a comparison with hypothetical "autarkic" conditions. It is debatable what this concept may mean, if factor availability, technologies and even demand patterns are determined by the patterns of specialization [Ocampo (1976, Ch. 2)] . The remaining of this paper would thus disregard "gains" or "losses" in the traditional sense, and will refer to these concepts only to compare trading equilibria.

### 1.3 The Terms of Trade in the Short and in the Long Run

The previous sections have dealt with the determinants of North-South terms of trade under asymmetric demand, labor market and technological conditions. Considerations have been, however, of a short-run character. The present section complements the former analysis by bringing into the picture the determinants of capital accumulation. In all models, perfect specialization prevails. The



South produces a consumer good, while the Northern commodity may be consumed or invested. The production of the Southern good is constrained by the extent of capital accumulation; only profits are saved and invested, thus increasing output in the long-run, with a flexible labor supply at a given real wage. Conditions thus coincide with a Lewis-type economy. Characterization of the North will differ significantly in the models, being represented alternatively, as a neo-classical (Solow), a Kaleckian or a Kaldorian economy.

### 1.3.1. The Solow-Lewis model

In the first model, developed by Findlay (1980; 1981) and his followers, the North is a neo-classical economy. Full employment of labor and capital prevails at all times and growth is determined by the natural rate. Northern conditions can thus be expressed by the natural growth,  $g_N = g_N^*$ , the production function,  $q_N = q_N(k_N)$ , where  $k_N = K_N/L_N$  is the capital-labor ratio, and by an import demand function of the form :

$$(13a) \quad M_N = m_N L_N, \quad m_M = m_N [1/p, (1-s_N) q_N]$$

where  $s_N$  is the savings rate out of total income, and  $(1-s_N) q_N$  is per-worker total consumption.

In the South, profits are a surplus over subsistence wages. Call the per-worker surplus  $z = q_S - w_S = k_S q'_S(k_S)$ , where  $k_S$  is the equilibrium capital-labor ratio at the given real wage, and  $q_S(k_S)$ , the production function. Total profits in terms of the Southern good are thus  $zL_S$ . Since the Northern good is the investment asset :

$$(14) \quad r_S = zL_S / pK_S = z/pk_S$$

$$(15) \quad g_S = s_S r_S$$

where  $s_S$  is the savings rate out of profits. Southern import demand is made up of total investment ( $s_S zL_S / p$  in terms of Northern products) and by consumer demand, i.e.,

$$(16) \quad M_S = (s_S z/p + m_S) L_S, m_S = m_S[p, q_S(1-s_S z)]$$

where  $q_S(1-s_S z)$  is per-worker total consumption.

Short run equilibrium in this model is determined by the equilibrium of supply and demand for both commodities. The condition can be expressed alternatively as a trade balance equilibrium (equation 3). Thus, from (13a) and (16), short-run equilibrium is :

$$(17) \quad s_S z \pm pm_S = m_N L$$

where  $L = L_N / L_S$  is relative employment, and both  $m_N$  and  $m_S$  depend on relative prices.

Northern growth is determined by the natural rate, whereas Southern growth depends directly on its terms of trade (inversely on  $p$ ) in the short run. Thus if there is a relative scarcity of the Southern good,  $p$  decreases and the Southern growth rate increases. Alternatively, with relative abundance of the Southern good,  $p$  increases and  $g_S$  decreases. Southern growth thus depends on commodity markets in the short run. In the long-run, if both income elasticities of demand are unitary, both growth rates must be equal. Thus, since  $g_N = g_N^*$ , from equations (14) and (15), the long-run terms of trade ( $p^*$ ) are :

$$(18) \quad p^* = z_S / k_S g_N^*$$

As in the unequal exchange models, trade balance equilibrium (equation 17) no longer determines relative prices, but rather long-run relative employment ( $L^*$ ) :

$$(19) \quad L^* = z_S (k_S g_N^* + m_S^*) / k_S g_N^* m_N^*$$

where  $m_S^*$  and  $m_N^*$  are the per-worker consumption in North and South at the long-run terms of trade.

Behavior of the model in the short and the long run can now be discussed. Three different cases may be distinguished : changes in the import demand functions, in other Southern parameters, and in Northern variables. The former are simple. If the  $m_N$  function shifts up, the short run effect would be a

scarcity of the Southern good, thus bringing  $p$  down and increasing the Southern growth rate. The long-run rate of growth and relative prices would not be affected, and thus the whole impact would go to relative employment. Thus, the South would benefit in the short run through better terms of trade and faster growth, and in the long run through employment (lower  $L^*$ ). The same effects would obtain from a lower  $m_S$  function.

The effect of changes in the Southern parameters is not always clear. An increase in the Southern real wage will increase the Southern capital-labor ratio and decrease the per-worker surplus. At constant relative prices, the rate of profit, investment and growth decrease. Since all investment goods are imported by the South, but consumer commodities are only partly imported, total per-worker import demand will decrease, thus bringing  $p$  down. The improvement of the Southern terms of trade would partly compensate the unfavorable effects of real wages on growth, but  $g_S$  would in any case decrease for a time. In the long-run, the terms of trade of the South improve, but the period of slower growth would be reflected in permanently lower relative employment (higher  $L^*$ ). Thus, as in the unequal exchange model, a wage push in the South improves its barter and factorial terms of trade, but only at an employment cost.

The effects of increases in the Southern savings rate or an outward shift of its production function have clear impacts on relative prices, but unclear

effects on Southern growth and employment. In both cases, the surplus invested increase in the South, thus leading to higher per-worker imports. The Southern terms of trade deteriorate in the short run to clear the market, while the long run terms of exchange also worsen according to (18), thus permanently "exporting" technical change and higher savings. The movement of relative prices checks out the favorable effect of savings and productivity on the Southern rate of growth and relative employment. The net effect on these variables is unclear and depends on the behavior of per-worker import consumption in both countries.

The impact of savings and productivity in the North are quite different, reflecting the asymmetry of the world economy. Productivity increments lead to higher import consumption and thus to a short run deterioration of the Northern terms of trade, which encourages accumulation in the South; in the long-run, however, there is no impact on relative prices (i.e., technical change is permanently appropriated through higher real incomes), but Southern employment improves. A higher savings rate has in the very short run the opposite effect. However, so long as per-capita consumption was not maximized in the North in the initial position (i.e., if it was to the "left" of the Golden rule), the increase in the capital-labor ratio which results from a higher rate of savings eventually increases per capita consumption, having the same short and long terms effects on an outward shift of the production function.

As it is clear from (18), the only Northern variable that affects the long run terms of trade is the natural rate of growth. Leaving aside productivity increments, let us consider faster population growth. Import demand in the North will increase, leading to an improvement of the Southern terms of trade, which spreads faster growth to the South. The engine does not beat strong enough, however, so in the long run the South benefits from better terms of trade and faster growth of employment, but in the transition Southern employment lags behind, leading to an increase of  $L^*$ .

Since trade policy cannot affect the natural rate of growth in the North, an interesting feature of the Solow-Lewis model is that the North cannot alter in such way its long run terms of trade. Free trade is thus the optimal policy for DCs. This is not true for the South, which might improve through protection its long term relative prices and employment. An optimal tariff argument can thus be developed from LDCs, the particular rate depending on how tariff revenues are redistributed [ Kiguel and Wooton (1984) ] . This is quite a peculiar result, for it implies that, although LDCs follows the Northern "engine of growth", it is only the South which can actually improve its long term position!

Factor mobility has also been incorporated in the model [ Saavedra-Rivano and Wooton (1983) ] , with results which are related to the previous argument.

Indeed, it can be shown that the North always benefits from factor mobility through higher per capita income, although (if the rate of profit was originally lower) at workers' expense. The South also benefits from labor migration to the North, both through higher wage income earned by workers abroad and through a higher demand for primary goods. However, the South will not benefit from capital inflows. The initial effect would be a deterioration of the Southern terms of trade, as the supply of manufactures decreases with a simultaneous increase in the Northern demand for industrial goods. To restore long term equilibrium (which is still ruled by equation 18), the South must grow at slower pace. This condition, together with Northern capital inflows, "crowds out" Southern capital and reduces relative employment in the South.

### 1.3.2. The Kalecki-Lewis Model

As in the previous model, the supply of Southern goods would be assumed to be given in the short run, while in the long run it increases with capital accumulation. However, the North would be featured as a Keynes-Kalecki economy : supply would be perfectly elastic at a price equal to a mark-up on variable costs, employment and output being determined by Northern investment.

The short run version of this model may be derived from the two-sector macroeconomic model developed by Cardoso (1981) and Taylor (1983, Ch.3), if

the North is identified with the industrial and the South with the agricultural sector. In this model, investment expansion has both an expansionary and inflationary impact. The second of these effects is associated with the rigid agricultural supply and is transmitted into industrial prices through raw material costs or wage adjustments. The increase in the relative price of agricultural goods which characterizes this process has a favorable substitution effect on industrial demand, which is reflected in greater Northern production, amplified by typical multiplier mechanisms.

There are additional effects associated with changes in income distribution which take place in the process. The increase in the relative price of agricultural goods may be viewed as a redistribution from industrial capitalists and workers towards agricultural producers; if pricing rules include a mark up on agricultural raw materials, there will also be a redistribution from workers to capitalists in the North. The net impact on industrial demand depends on the income elasticities of demand for manufacturing goods of the different income recipients. The crucial relation is between the elasticity of demand of agricultural vs. industrial income earners. However, if the South is a balance of payments constrained economy, its elasticity of demand for Northern goods will be very high (indeed possibly greater than one), thus amplifying the typical multiplier mechanisms.



If the former statement is true, an investment boom in the North will have strong inflationary and expansionary effects, while an investment depression will be highly contractionary and will help to mitigate the inflationary forces unleashed during the boom. However, as Kaldor (1976) has remarked, Northern governments may react to inflationary pressures in the upswing by adopting contractionary monetary and fiscal policies. If this is a typical behavior, the world economy would have an inherently deflationary bias, associated with government policies in the boom and with typical (amplified) multiplier mechanisms in the recession. Any large change in commodity prices would then retard industrial growth. Under these conditions, there would be a strong argument for commodity control [ Kanbur and Vines (1984)] .

Taylor (1983, Ch. 10) and Dutt (1984a) have developed on these lines a model of the world economy, analyzing its short and long term dynamics. The South is a Lewis-type economy with behavior similar to that considered in the previous model. If only wages enter into variable costs in industrial production, the Northern mark-up pricing rule may be expressed as :

$$(20) \quad 1 = ( 1 + t ) w'_N / q_N$$

where  $t$  is the mark-up and  $w'_N$  is the Northern real wage in terms of the industrial good. If only capitalist save,  $s_N$  now being the savings rate out of

profits, and investment demand (expressed as the rate of growth of the capital stock) depends on the rate of profit and the rate of utilization of capacity ( $u = Y_N / K_N$ ), then savings-investment equilibrium in the North may be represented by :

$$(21) \quad g_N = s_N r_N = g_0 + g_1 r_N + g_2 u$$

where  $g_0$  is the "autonomous" element of investment demand (the state of the "animal spirits"), and  $g_1$  and  $g_2$  are induced investment parameters.

From (20), it is clear that Northern income is distributed between workers and capitalists in proportions equal to  $1/(1+t)$  and  $t/(1+t)$ . Thus, total profits ( $r_N K_N$ ) are :

$$\begin{aligned} r_N K_N &= Y_N t / (1+t) \\ (22) \quad r_N &= ut / (1+t) \end{aligned}$$

From (21) and (22) we can obtain the equilibrium rate of growth of the North ;

$$(23) \quad g_N^* = g_0 s_N / (s_N - h), \quad h = g_1 + g_2 (1+t) / t$$

Equation (13a) must now be replaced by :

$$(13b) \quad m_N = m_N \left[ 1/p, w_N' + (1-s_N) tw_N' \right]$$

Finally, we must recall that, by definition  $Y_N = uK_N = q_N L_N$  and thus

$$(24) \quad L_N = \overset{K}{uK_N} / q_N$$

where  $K_N$  is a constant in the short run.

Taking (13b) and (23) into account, it is easy to see that equations (18) and (19) still describe the long-term equilibrium of the world economy, if the income elasticity of demand for both goods is unitary. Having this in mind, the analysis of changes in the import demand functions and in Southern parameters is similar to that in the previous model. Northern dynamics is completely different, however, and its effects on the equilibrium of the world economy must be reformulated.

Let us analyze, first of all, the effect of an increasing productivity of labor in the North. Industrial price deflation ensues, leading to a rise of  $w'_N$ . However, as long as investment demand is not directly affected,  $Y_N$  and  $u$  are unchanged, and thus technological unemployment follows (equation 24). In the long run, relative prices are unaffected, but  $L^*$  falls; the latter effect is solely the result of technological unemployment (transmitted through a rise of  $m_{N^*}$ ), and not of any favorable effects in the South. So, as in the previous model, technical change is reflected in the North in higher real wages, but now at an employment cost! Contrary to the Solow-Lewis model, however, the South does not benefit from technical change in the North, since its terms of trade do not improve in the short period, nor does it face favorable employment effects in the long run. Nonetheless if, in Schumpeterian fashion, technical change reflects the active "animal spirits" of Northern capitalists, the growth

rate increases, leading to better terms of trade for the South and to an improvement of LDC employment.

Reflecting the Keynesian features of the model, an increase of the Northern savings rate has very unfavorable effects on the world economy. In the short run, Northern growth and employment decrease; the fall in Northern import demand leads to a fall in the relative price of Southern goods, which spreads slower growth to the South. In fact, the long run terms of trade of primary commodities deteriorate, as well as relative Southern employment, reflecting that in the transition to a permanently slower rate of growth of the world economy, the South is more adversely affected than the North. As can be seen from equation (23), similar effects would be obtained from a higher mark-up in the North. Indeed, a higher mark-up is equivalent to a rise in the Northern average savings rate, since it redistributes income towards the social group with the lowest propensity to consume (the capitalists), or to a fall in Northern real wages. It must be noted, however, that, so long as the mark-up does not change, a change in Northern nominal wages will have no further impact than to alter the world price level.

As in the previous model, the Northern economy is the "engine of growth". However, if the possibility of Northern investment in the South is introduced, an interaction between both economies would result, as Taylor (1984) has shown. A higher rate of profit in the South would encourage investment by Northern capitalists (in the form of bank debt); the resulting Northern trade surplus would

stimulate economic activity there. The link may be weak, however, if the Southern economy is relatively small. Monetary expansion in the North may also have a favorable effect on lending to the South, thus stimulating Northern activity and Southern growth. Finally, a fall of investor confidence will have unfavorable effects on growth, specific dynamics depending on the interaction between confidence and interest rates and on the specific features of asset markets. If interest rates fall rapidly in the process, a recovery may start, led by the North; but if they are sticky, both regions may grow at a very slow rate for some time, with the South lagging behind.

### 1.3.3. New Vintages of the North-South Growth Model

Two recent papers by Vines (1984) and Burgstaller (1983) have explored new features of the North-South growth model. In the first of these papers, the North is characterized as a Kaldorian economy, where full employment is guaranteed by the adjustment of the industrial mark-up to investment demand, a necessary condition for long-run growth. In this context, it would be more natural to make Northern investment (the "animal spirits") the independent variable of the model and the real wage in that region the residual. Nonetheless, in most of the Vines paper, it is rather the latter which is fixed by institutional reasons, leaving investment to be a dependent variable. Although the basic reasons for real wage fixity in North and South are different, only the South being strictly speaking a Lewis economy, the basic mechanisms of the model do not differ from those of a Lewis-Lewis world economy.

In this context, the terms of trade behave much as the unequal exchange model predicts, i.e., productivity growth leads to a deterioration of the terms of trade in the region where it takes place, while a wage push has the opposite effect. In the short run, growth (investment) in either region depends on the terms of trade, while in the long run it is jointly determined by conditions prevailing in both economies. Technical change in either region increases the long run rate of growth of the world economy, while a wage pressure has the opposite effect. If diminishing returns prevail in the production of primary goods, growth is in fact constrained in the long run by natural resources, as a Ricardian model would predict. If this were true, the South would actually determine the long-run growth of the world economy! More interesting, perhaps, the author develops some of the features of adjustment to long-run equilibrium, pointing out the malfunctioning of market mechanisms, particularly the overshooting of the terms of trade of primary commodities under certain conditions and alternative over and under-investment in agriculture and industry.

The Burgstaller model is a variant of the unequal exchange model of Section 1.2.1. Growth takes the form of accumulation of a wage fund, which faces a flexible labor supply in the South but a perfectly inelastic supply in the North. Once employment in the North is fixed, the real wage in that region becomes an endogenous variable. The author then explores the short and long-run features of his model, deriving Prebisch-type conclusions. Particularly, since part of the increased demand created by the accumulation process will fall on

Northern commodities, adjustments to long run equilibrium can only take place by rationing the inelastic Northern supply through a deterioration of the terms of trade of the South and higher real wages in the North. The steady-state solution to the model is equally interesting. Northern workers get through higher real wages any productivity improvement that takes place in their region, while exporting the benefits to the South in the form of greater employment. On the contrary, productivity increments in the South are exported through a deterioration of the barter terms of exchange, and may even result in a contraction of Southern employment if demand for its product is price inelastic.

#### 1.3.4. Overview

The models presented in the previous sections constitute a diversified menu, reflecting the myriad of assumptions which underline them. A common feature of all these models is that, contrary to the traditional story of Section 1.1, world prices are not determined in the long run by supply-demand considerations. Rather, more akin to the "classical" features of the unequal exchange story, where prices are determined by production costs (given capital mobility), in the former models prices are determined by growth equilibrium conditions, while supply and demand affect the variable quantities of the system - i.e., relative employment.

A common characteristic of all but the Lewis-Lewis (Vines) model is also the attempt to understand the effect of asymmetries in the world economy on international prices. These models predict, as Prebisch had originally done in

the early 1950s, that technical change in LDCs is "exported" through a worsening of the barter terms of trade, but is retained through higher real incomes in the North. In the Kalecki-Lewis model, however, the latter is rather a mixed blessing, since it might result in technological unemployment in DCs. On the other hand, in the Solow-Lewis, Lewis-Lewis and Burgstaller models, the South benefits from Northern technical progress in the form of greater employment, a result which was also derived in Section 1.2.1.

Pressures on the Southern real wage are generally viewed as a means to an improvement of the terms of trade, but generally at an employment cost, as in the unequal exchange story. Moreover, in the Lewis-Lewis model, a wage push generates slower growth in the world economy. On the other hand, Southern thrift is generally seen as a mixed blessing, leading to a worsening of the LDC terms of trade with unclear effects on growth and employment. As expected, DC thrift is regarded as a blessing if the North is a neo-classical economy, but as quite an unfavorable development in a Keynesian North. Finally, in a classical fashion, demand shifts have no impact on the terms of trade in the long run, all its effects being reflected in relative employment.

The previous models have eliminated, however, uneven development as such. Indeed, their basic dynamics is based on the long-run equalization of the rate of growth of North and South. We would have to bring back into the picture a difference in the income elasticities of demand to understand the classic forces



of uneven development [Prebisch (1959), Lewis (1969; 1980), Seers (1962), Spraos (1983), Thirlwall (1983)] . In Section 2.2.3. below we will consider, in the context of the analysis of scale economies, another force of uneven development, external economies and the process of "cumulative causation".

## 2. The Division of Labor

### 2.1. South-North and South-South Manufacturing Exports

The rise of sizable flows of manufacturing exports from LDCs to DCs and among LDCs in the last two decades has produced a substantial literature on the matter. This section surveys the major issues in the discussion. Some aspects, related to the new theories of international trade, will be treated more fully in the following sections.

Using U.S. technical coefficients, Balassa (1981, Ch. 7) has found that South-North manufacturing exports are considerable more labor (specially unskilled-labor) intensive than similar flows in the opposite direction. Based on a multi-country study and using LDC data, Krueger (1983) has reached a similar conclusion. Indeed the labor-intensive character of LDC exports to DCs is even noticeable in natural-resource based manufactures according to the latter study.

Although this finding would tend to confirm factor-proportions analysis, many qualifications would have to be made. First of all, predictions of HOS theory

in a multi-country multi-product world relate more to the pattern of production rather than trade; moreover, predictions would have to take into account availability of factors other than capital and labor [ Krueger (1983, Ch. 4)]. Secondly, the labor-intensive character of LDC exports to DCs is not uniquely predicted by factor-proportions analysis. Indeed, the major reason for that pattern may be the asymmetric features of North and South which account for the lower real wage in the second region, and which were studied in the first part of this paper. Finally, and most importantly, many features of existing flows have hardly any association with typical HOS analysis, as we will see below, while some findings are quite discomfoting for the simple association which has been established by Balassa, Krueger and others. Particularly, Balassa's "stages" approach to comparative advantage (1981, Ch. 6), although claiming that inter-country differences in export structures are largely explained by differences in capital endowments, shows that this association is rather weak for physical capital, being much stronger when measures of "human" capital are used as explanatory variables.

Chenery and Keesing (1981) have presented a more complex view of the manufacturing export patterns of LDCs, differentiating four types of countries. The first one is constituted by those nations which specialized early in their development process in the exports of manufactures (Hong Kong, Singapore, Taiwan, Korea, Israel, Portugal and Greece). These countries have limited natural resources and export mainly labor intensive commodities in technological

stable industries. However, aside from the factor-intensity and the product-cycle components of their trade, they place a great emphasis on the crucial role of marketing, design and information and the corresponding learning processes [See Keesing (1983) for further evidence and Mayer (1984) for a theoretical analysis of externalities in commercialization] . These "dynamic economies of scale" are crucial to explain the high concentration of labor-intensive exports in a few countries, as we will see below. Finally, this and the following group of countries have started to export more sophisticated products, moving up in the product cycle of consumer goods and starting to export on large scale capital goods [See also Cline (1984, Ch. 1)] . In the new technology and skill-intensive products, the links with multinational corporations are crucial, as seen through the growing importance of intra-firm trade [ Helleiner (1981) ] .

According to Chenery and Keesing, a second group of countries is made up of the large semi-industrialized nations (Spain, Yugoslavia, Argentina, Brazil, Mexico and Turkey). These countries have a substantial industrial base created in the stage of import substitution, some of them being rich in natural resources. Although sharing common features with other countries, they are able to exploit scale economies in the production of capital goods, chemicals and other intermediates. In some cases, even more than in consumer goods, design marketing and technical services are crucial for export development in these sectors, reinforcing the role of MNCs. Finally, two other groups of countries, large poor nations (India, Pakistan, Egypt and Indonesia) and those emerging from primary

specialization, export mainly standardized intermediate goods (textiles, plywood, cement, etc.) with widely recognized standards, and known channels of trade, not unlike those typical of primary commodities. Some of these products (textiles, for example, as opposed to clothing) may not be typical labor-intensive commodities.

Thus, aside from typical factor proportions features (labor and land abundance), product-cycle characteristics, historical inheritance (import-substitution policies), MNC intermediation, marketing features, and static and dynamic economies of scale determine the manufacturing export patterns of LDCs. The latter may be crucial to explain the high concentration of those exports in a few countries. Indeed, according to Chenery and Keesing (1981, p. III) :

There appears to be a strong element of learning by doing, which underlies the concentration of manufactured exports in a small number of countries. Once countries have acquired this ability, it seems to offset rising wages for a considerable period and makes it possible to retain their shares of markets in which they would otherwise be losing their comparative advantage.

This cumulative aspect of export performance and the increasing number of successful competitors may make it increasingly difficult for newcomers to get established in the sectors in which they have a comparative advantage. Even if transitional countries make room, expansion of exports from a few successful LDCs could swallow up most of the opportunities, leaving too little for the rest of the LDCs.

The World Bank (1984, Ch. 3) indeed predicts that the concentration of

exports in a few LDCs would continue in the following decade. Cline (1984, Appendix D) and Taylor (1982) characterize the NICs as an "exclusive club", since would their successful patterns be generalized, they would in fact rampant protectionism in the North. Diaz-Alejandro (1978, p. 268) goes so far as to claim that "the call for a New International Economic Order may be interpreted partly as a call for adjusting to 'two, three, more Japans' within the world capitalist economy".

Contrary, however, to the previous concept, Havrylyshyn and Alikhani (1982) claim that there is a second generation of successful LDC exporters, which starting from natural-resource based exports, have moved into textiles, clothing and similar products, and then into engineering goods, following a patterns similar to the NICs, and selling in similar markets (the DCs). The NICs, in turn, have moved up in the ladder of product sophistication, much as Balassa's "stages" approach would predict. According to this view of South-North trade, admittance to the "club" is only a question of adequate development policy, while DC protectionism has not been and will not be in the foreseeable future a significant limiting factor [See Hughes and Waelbroek (1981), Riedel (1984)]. Nonetheless, while confirming the limited relevance of protectionist limitations, Cline (1984) draws quite a different picture of LDC manufacturing exports. According to this author, the NICs have indeed moved up in product sophistication, replacing partially and at the margin supplies from DCs, but have hardly reduced their relative importance in traditional exports, thus leaving little room for new

LDC exporters. Only in two out of nine traditional sectors (processed meat and apparel) is there any evidence of this shift, while in the rest there is high and even rising concentration of LDC exports in the Asian and Latin American NICs.

Disagreement on the role of South trade is even more noticeable in the literature. Lewis (1980) sees such trade as a mechanism to stabilize Third World growth in the face of a slowed down Northern engine. In this perspective, amply shared by Latin American structuralists, intra-Third World trade is a mechanism to implement an efficient global import substitution policy in the South [ See Fishlow (1984) for a development of this idea in a two-gap context] . Amsden (1980; 1984) has emphasized the skill-intensive character of South-South trade. If skills are regarded, not as pre-condition, but rather as a product of trade, South-South trade would contribute to the learning process which characterizes the adaptation-generation of technology in semi-industrialized countries. [ Stewart (1982), Katz (1984), Teitel (1984)] . South-South commodity trade has thus been associated with the exports of technology from semi-industrialized countries, which are seen as a by-product of local technical change [ Dahlman and Serco- vich (1984)] . The greater relative importance of exports of capital goods in intra-Third World trade [ Amsden (1980)] would tend to confirm this hypothesis.

Contrary to the former view, Krueger (1983, Ch. 6) and Havrylshyn and Wolf (1983) emphasize the capital-intensive character of South-South vs. South-

North exports. Although this is not an inefficient pattern as such (indeed, it may be compatible with predictions of HOS analysis), it points out to the importance of import-substitution products in intra-Third World trade, which has been encouraged by preferential commercial policies. The second of the aforementioned studies also criticize arguments adduced by defenders of intra-LDC trade. Particularly, they point out the very dynamic character of DC manufacturing imports from the South, which have grown at a faster rate than South-South manufacturing trade outside of Latin America. On the other hand, although the authors accept that capital-goods are more important in intra-Third World trade, they point out that South-North trade of those goods has grown recently at a faster rate.

The association of trade preferences with an inefficient capital-intensive manufacturing exports is particularly irrelevant for Latin America, for which it is supposed to apply. Indeed, although the association may have been valid for the 1960s, where intra-regional trade in Latin America was based on preferential mechanisms [Diaz-Alejandro (1974)], later analyses of such trade have shown that trade agreements cannot explain its growth in the 1970s. Recent studies by Fishlow (1984) and ALADI (1983) show that non-preferential exchange grew faster than total trade in the last decade; in fact, such trade increased its relative importance in LAIA (LAFTA) trade from a minimum of 10-20% in the early and mid 1960s to 60% in the second half of the 1970s. Rather, both papers stress the importance of trade liberalization by many countries in the

1970s, while the ALADI study also emphasize the role of externalities created by protected trade in the 1960s, which developed commercial and communication links which had been maintained at a minimum level in the previous decades. Moreover, the absence of adequate links may explain the sub-optimal level of certain trade flows today (between the Spanish and English-speaking Caribbean countries, for example). The recent collapse of intra-regional trade in Latin America also point out the discrimination against such exchange which arise from inadequate functioning of payments agreements and from the practice of direct import controls [ Ocampo (1984)]'. Thus, "infant trade" and "compensating" arguments could be used to justify preferential trade treaties in the Third World.

A recent study by Thoumi (1984) has reached similar conclusions. This author has shown that the growth of intra-regional trade in Latin America has not been directly associated with integration schemes. According to his work, sub-regional blocks have arisen in the process, some without any preferential basis, some running contrary to existing integration schemes (v.gr., Bolivia's stronger relations with the Southern Cone than with the Andean Group countries). Moreover, some of the most dynamic links which have arisen within integration schemes may in fact have little to do with formal trade preferences. The Colombian-Venezuelan trade is one case to the matter [See, for example, Garay(1981)] .

South-South manufacturing trade remains a very controversial issue. Trade preferences have played a decreasing role in such trade, contrary to what some



authors have claimed, but may in fact increase in the future if the "global import substitution" school gains grounds. As a by-product of freer trade in the 1970s, however, it is hard to criticize it. Whether it is a defensible when induced by trade preferences remains a debatable issue, in so far as trade diversion outweighs trade creation, and to the extent that two-gap, "infant trade", "compensating" and dynamic economies of scale considerations are important.

## 2.2. The New Literature of International Trade and LDCs

For the purpose of this paper, the new theories of international trade will be divided in three broad categories. The first is made up of what may be called technology-gap theories, including the product-cycle hypothesis [Posner (1961), Vernon (1966; 1979), Wells (1968; 1972)]. Three models which analyze the implications of technology gaps in the North-South scenario will be considered in Section 2.2.1. below. The second group is constituted by theories of product diversification and intra-industry trade, which develop the seminal ideas of Linder (1961) and Grubel (1970). New developments in this field will be surveyed in section 2.2.2. Finally, section 2.2.3. brings into the discussion the analysis of traditional "external economies" and their role in the development process.

Both sections 2.2.2. and 2.2.3. deal with economies of scale which are external to the firm, but may or may not be internal to the industry in the analysis of "cumulative causation". They thus cover part of the ground of the theory of scale economies and international trade, which has been recently

surveyed by Helpman (1984). A basic difference between both forms of "external economies" will, however, be apparent. Particularly, the analysis of product diversification is based on economies associated with the division of the productive process in a large number of distinct operations - "vertical" and "horizontal" specialization, to use Balassa's terminology (1981, Ch.1). For the purpose of the present analysis, they will be called "economies of specialization". These economies may be associated with the concentration of production in a particular place (they necessarily are for non-traded commodities). However, this may be considered an exception, as Ethier (1979; 1982) has claimed, and thus they are generally appropriated at an international (or, at least, supra-national) level. On the other hand, classical "external economies" are associated with spatial agglomeration of some sort. They will thus be referred to below as "economies of agglomeration", taking into account, however, that are only partly identical with a similar concept utilized in location theory [See, for example, Richardson (1969, Chs. 3 and 4)]. The dividing line is, of course, fuzzy, since the economies of specialization may be location-specific in some cases, while they may become an agglomeration factor under certain conditions.

### 2.2.1. North-South Technological Gaps

In the first part of this paper, the terms of trade and relative employment reflected the asymmetric features of the Northern and Southern economies. It would be useful to complement the former analysis by bringing into the picture another asymmetry of the world economy -- the Northern technological lead.

This section of the paper surveys three recent models in which technical disparities are the major feature of North-South interactions. In the first of these models, productivity improvements are the central element of technical change. In the others, following the product-cycle literature, product innovation is the dynamic factor.

In Krugman (1982), labor productivity in the North increases steadily over time (not necessarily at the same rate for all commodities), while the South lags behind in the adoption of the best practice techniques. At any given time, the North-South wage differential is determined by technological disparities, labor supplies and the parameters of the commodity demand functions. The North specializes in the production of goods for which the rate of innovation is fastest or the imitation lag by LDCs longer. An interesting feature of the model is that the South always benefits from faster Northern technical progress, since its barter terms of trade always improve, even if its factoral terms of exchange (relative wages) necessarily worsen. On the contrary, the North does not necessarily benefit from "catching up" by the South, since the improvement in the latter's relative wages may as well lead to a deterioration of the Northern commodity terms of trade. In this model, Northern real income clearly depends then on its technical lead, a factor which may encourage technological protectionism. On the other hand, if conditions prevailing in the labor markets of DCs and LDCs determine relative wages, the former statements will apply to employment in the North. So, a slack in the rate of technical change may

lead to commodity protectionism in the North, in an attempt to minimize its unfavorable employment effects.

Wage disparities in the previous model reflect productivity differences. When the only form of technical progress is product innovation, the source of real income disparities is a form of monopoly rent on newly developed products. In this case, a sort of Schumpeterian quasi-rent accrues to Northern residents as a by-product of technical progress [See Griffith (1974), Krugman (1979b), Bardham (1982) and Stewart (1984)]. In Krugman's model, there are two kinds of commodities: "old" and "new". For old products, technology is common to both regions, while new commodities are a Northern monopoly. Since labor productivity in "old" sectors is identical in both regions, they would be exclusively produced in the South if wages are not equalized. In this case, relative wages (and the commodity terms of trade) depend on the relative number of old and new products, on labor supplies and on the demand functions. A higher rate of innovation necessarily benefits the North, both through greater product variety and through an improvement of its barter and factoral terms of trade; for the South, only the former effect is positive. "Catching up" benefits the South, but necessarily hurts the North through a deterioration of its terms of exchange. As in the previous model, if labor market conditions determine relative wages, the former effects on the terms of trade would be replaced by changes in employment. Thus, "catching up" would lead to either technological or commodity protectionism in the North, in an attempt to defend real income or employment.

A recent paper by Harris (1985) formalizes new elements of a North-South model in a world of heterogeneous commodities and a Northern technical lead. The model introduces an "innovation function" common to both regions, according to which the rate of creation of new products depends positively on the productive structure of the region (measured by the labor supply), but inversely on the number of products already produced, indicating the presence of diminishing returns to experience ("maturity"). So, in contrast to the previous model, the South also innovates, benefiting at the same time from diffusion of Northern technical innovations. In this model, Northern "maturity" and the diffusion process tend to iron out initial differences, and thus to improve the Southern barter and factoral terms of trade. However, the gap will only be eliminated if the two regions are sufficiently similar in productive structure ("labor supplies"). Otherwise, uneven development in the two regions would be reproduced over time. The difference in real incomes would depend on the difference in productive structures and on the parameters of the innovation and diffusion functions.

### 2.2.2. Economies of Specialization

The recent theory of intra-industry trade is based on the work of Dixit and Norman (1980, Ch. 9), Ethier (1979; 1982), Helpman (1981), Krugman (1979a; 1980; 1981b) and Lancaster (1980; 1982; 1984). The specific form of product diversification differs according to the authors. Dixit, Norman and Krugman visualize a world of homogeneous consumers (at least at a national level), each

of which uses up all the different designs produced in each sector. Lancaster and Helpman, on the other hand, conceive a world of diversified consumers, each of them demanding a particular design which is close to this "ideal specification". Finally, Ethier formulates a model in which consumers costlessly assemble a homogeneous final good out of diversified components. Regardless of these differences, the different authors develop in fact a fairly similar conception of the mechanisms of international trade.

In all theories, the economy can be divided up into homogeneous (H) and diversified (D) sectors. In the former, competitive rules apply, while in the latter monopolistic competition prevails. Each design in the D sectors is produced by one firm, subject to increasing returns to scale. Prices are formed as a mark-up on variable cost, the mark-up depending inversely on the elasticity of substitution between designs. Zero-profit condition determines the number of firms (or the number of diversified commodities produced), each of an equal size under the most simple formulation.

Specialization between H and D sectors, or among D sectors follows typical factor-proportions analysis. If factor endowments are sufficiently different, inter-industry trade will prevail. On the other hand, if they are similar, intra-industry trade will dominate -- i.e., countries will mainly exchange different designs produced in the same sectors. In the larger market, greater variety will

be a dominant feature, being one of the sources of gains from trade <sup>6/</sup>. The other source would be lower prices, if greater variety increases the elasticity of substitution between designs, thus inducing a reduction of the mark-up. The idea comes out most clearly in the work of Lancaster, since a greater amount of designs means that the consumer is able to choose between a larger number of products which are closer to his ideal specification. Price reductions are obviously a sign that each firm is producing a larger amount of commodities and thus enjoying its own economies of scale.

If preferences are unequal in the different countries and transport costs positive, the theory will predict that specialization within each D sector would be in the production of the designs with the larger home demand, corresponding to Linder's theory of "representative demand". On the other hand, with positive transport costs but differences in country size, the largest country would enjoy a higher real wage. If factor mobility were then allowed, agglomeration of production in the largest market will follow. Curiously, however, labor may move into the country with the worst technology, if the effect of size on real wages offsets any productivity differential [Krugman (1979a;1980)] .

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<sup>6/</sup> On the other hand, as the market expands, high fixed-cost goods will tend to replace commodities with high variable and low fixed cost. The shift may reduce total utility for all or some groups in the population, if the displaced commodities have a high consumer surplus ("prestige handicrafts"). See Dixit and Norman (1980, pp. 278 - 281) .

Policy prescriptions emanating from this model are not univocal. Due to the double benefit from intra-industry trade (greater variety and lower prices), there would be strong grounds for trade liberalization, since that process will produce those benefits without the income distribution effects of traditional inter-industry specialization [Krugman (1981b)]. However, as Lancaster (1982) has argued, the transition to a more liberalized regime is not smooth. Some firms in each country must leave the industry, they all must undergo the costs of changing product specifications (the simple model always assume them to be zero), while the D sector itself must shrink if the country does not have a comparative advantage in its production.

Contrary to the policy recommendations of traditional trade theory, a tariff in a D sector may be optimal for a small country [Lancaster (1984)]. This may be so if home and foreign designs are close substitutes -- i.e., if the closest to each domestic design is a foreign and not a domestic commodity. Protection thus raises the monopoly power of home firms, inducing a rise of domestic prices parallel to the tariff-induced increase of import prices. However, with positive profits, entry into the industry follows, increasing the production of domestic designs. In the final equilibrium, scale economies and domestic competition lead to a reduction of domestic prices over the initial position. Obviously, consumers who prefer imported goods would be worse off; nonetheless, if tariff revenues are redistributed, all residents may benefit from protection. It must be noted that these benefits will not turn out if home and foreign designs



are very different. In this case, the monopoly power of domestic firms is not increased with protection, since the closest competitors are domestic, not foreign firms. Domestic prices are unchanged, and higher competition is not induced.

Dixit (1984) has developed some implications of the former analysis in a North-South model. Each region produces a traded and a non-traded commodity. In the North, the traded commodity is a D consumer good produced under increasing returns and monopolistic competition. In the South, it is a homogeneous intermediate good produced under constant returns and perfect competitive rules; this commodity is used in the North together with labor to produce the D consumer good. Typical "neo-classical" effects in this model depend on the elasticity of substitution of labor for the intermediate good in the North. What is interesting, however, an elastic substitution has a favorable effects on the variety of D designs in the face of changes in some exogeneous variables (growth of the labor force in the North and technical progress in the South). This result is favorable to the South, both directly and through the impact of greater variety on the price elasticity of demand for D designs, as expected in the Lancaster model; if this is so, variety induces a reduction of mark-up and prices of D goods, as we have seen. Due to this effect of monopolistic competition in the North, free trade is not an optimal policy for the South. Indeed, an LDC export subsidy (tax) is optimal if its intermediate good faces elastic (inelastic) substitution for labor in the North.

Other implications of the former analysis for LDCs have been drawn by Stewart (1984). First of all, if the demand for the imported designs of D consumer goods increase as real income rises, as expected by Baker (1977), import demand would be income-elastic, generating typical structuralist balance of payments difficulties. Secondly, if the development of new designs is costly, they will be made up to correspond to the larger Northern demand. Since the South is a capital good importer, this implies that machinery is too capital-intensive for its needs. This leads in turn to "structural technological heterogeneity", as noted by Prebisch (1952, Ch. 2) three decades ago. Inadequate specifications thus reduce the gains from importing D commodities. Thirdly, as we saw above, labor in the larger region would enjoy higher wages if transport costs are positive; this would again reduce the gains from trade for the South. Finally, in D sectors, import substitution policies in the LDCs will face a trade-off between efficiency (scale economies) and variety. Under these conditions, there would be a good opportunity for trade creation and price reductions in intra-regional trade. However, as Stewart rightly points out, the exploitation of those advantages depend on institutional innovations, which in the North were associated with market liberalization and MNCs. In the South, such innovations are still wanting; indeed, countries may be quite reluctant to implement trade liberalization for D consumer goods in South-South trade, due to the opposition of domestic producers.

### 2.2.3. Economies of Agglomeration and "Cumulative Causation"

While the economies of specialization and product diversification have played a secondary role in development theory, more traditional external economies have been a central focus of certain schools of thought. Static economies of this kind can be broadly identified with Hirschman's (1958) concept of backward and forward linkages, which relate to the demand for and supply of complementary goods. Complementarities of this sort may operate through input-output interrelations, but also through consumption (higher employment and profits leads to a greater demand for consumer goods) or through the labor market (availability of labor of different skills), as Rosenstein-Rodan (1943), Scitovsky (1954) and others have pointed out. Dynamic economies operate through the training of labor, the learning process implicit in the adaptation of technology and induced innovations [Myint (1971, Chs. 6 and 7); Katz (1984); Pack and Westphal (1985)]. They may also be associated with a higher rate of investment, if technology is embodied in new capital goods, and with the development of marketing and information links, as we have seen in Section 2.1.

Some economies of this sort may be truly macroeconomic, but others may be industry-specific to a certain extent. As pointed out by several authors, the former would tend to generate a process of "agglomeration" or "uneven development". Myrdal (1957) built his principle of "cumulative causation" on the working of external economies, while Perroux (1961, Part II) developed on the

same basis his theory of "growth poles" in the world economy. Kaldor (1970) rightly pointed out, however, that an essential condition for uneven development of this sort to evolve is that the higher productivity growth in the most dynamic region would not be appropriated completely through higher real wages (or other costs). The most dynamic region would then face decreasing "efficiency wages", which encourages further production and productivity growth through dynamic economies of scale. As we saw in Section 1.2.1., Emmanuel and Bettelheim have also developed models of uneven development based on external economies of some sort, with the emphasis of the first author on consumption and of the latter on production economies. It must be pointed out that all these theories are based on "macro" external economies. If they are industry-specific, the analysis would have to be reformulated, to generate "specialized agglomeration" of some sort, not unlike the more traditional treatment of scale economies in trade theory [See Helpman (1984, pp. 341 - 348)] .

Recent analyses have provided a formalization of the mechanisms of uneven development under macro external economies. Dixon and Thirlwall (1975) and Thirlwall (1983) provide a simple formalization of Kaldor. In their model, GDP growth is a by-product of export growth. Mark-up pricing on variable labor costs prevails. Productivity is subject to a Verdoon (dynamic scale economies) effect and exports depend on relative prices and income abroad. If the external demand is income elastic, GDP growth would tend to be fast. Through Verdoon effects, productivity growth would be encouraged which, if not appropriated

completely through higher real wages, would lead to falling relative prices and faster export growth. So, uneven development based on external economies amplifies uneven development of a more traditional type, based on differences in the income elasticities of demand, if efficiency wages fall in the most dynamic countries.

Krugman (1981a) has developed a two-country two-sector model to formalize the uneven development story. Agricultural productivity is unchanged and equal in both countries, while industrial efficiency increases with capital accumulation in each nation. In the industrial sector, profits (or losses) are generated in the non-steady state solution due to differences between labor costs and the price of industrial goods which clears the market. All profits are reinvested in the industrial sector. Under these conditions, the author shows that any Northern head start in the process of capital accumulation cumulates over time, the North crowding out Southern manufacturing production. The result depends, of course, on the equalization of wages in both regions, which guarantees that productivity increments in Northern manufacturing production are reflected as a fall of efficiency wages.

The latter point comes out more clearly in Dutt (1984b), although in an unsatisfactory way. The basic difference with respect to Krugman's model is the assumption that capital accumulation has a spillover effect on agricultural productivity in each country, and thus on wages. The author shows that if the spillover

is stronger than the effects of capital accumulation on manufacturing productivity, initial differences will be ironed out. The author thus captures the idea of Kaldor, Dixon and Thirlwall regarding the behavior of efficiency wages, but through a mechanism which is quite unlikely, since industrial accumulation will certainly have stronger effects on industrial than on agricultural productivity.

What are the implications of the former analysis for economic policy ? Development theorists have derived completely different implications from the former analysis. Nurkse (1967) built on it a defense of "balanced" growth. Hirschman (1958) argued that Nurkse's conclusion was false, since balance growth would require immense amounts of resources which were not available in LDCs. Rather, he argued, external economies generate a development process characterized by uneven advance of different sectors, disproportions and disequilibria, with inflationary and balance of payments tensions arising at different points. Under these conditions, development policy should be oriented to the choice of the investment strategy which shows the greatest potential of being self-propelling, i.e., of being able to induce further investments to correct imbalances created at former stages.

The balanced-unbalanced growth discussion of the 1950s faded in the following decades, as an increasing emphasis was placed on the role of static and dynamic scale economies in export policy. Myint (1971, Chs. 6 and 7) argued in fact that a dynamic learning process could only be the by-product of the

competitive pressures imposed by an open economy. Keesing (1967) claimed a similar point, placing a special emphasis on the process of adequate skill creation induced by competitive pressures. More recently, Krueger (1984) and others have argued on similar lines. Indeed, it has become one of the essential defenses of export-oriented policies, as we will see in the following section.

Two points could be made, however, to close the present discussion. The first relates to the nature of agglomeration economies. The argument for export orientation could in fact be made even if external economies are of macroeconomic nature, as long as we agree with Hirschman on the limited resources at each country's disposal, but in fact a strong export argument can only be made if external economies are somewhat industry-specific. A second point relates to the quite hetherodox policy recommendations that may follow if the emphasis is placed on dynamic economies of scale [ Westphal (1981), Pack and Westphal (1985)] . Indeed, even if exports are the final objective, high protection may be required to secure an adequate market for the initial output at a satisfactory rate of return [See also Krugman (1984)] . Moreover, quantitative restrictions may be a better policy instrument, to the extent that they automatically grant the protection that is necessary. If penetration of the world markets is desired from the very start, dumping must actually be encouraged, its costs being incurred by discriminated domestic consumers. Finally, selectivity must be assured to concentrate resources in a few sectors. However, deciding what industries to promote and which not to requires great administrative capabilities

and a high degree of government intervention. A free trade policy is thus suboptimal, to the extent that the private sector tends to spread resources in an excessively diversified manner, without being able to accumulate in any sector the level necessary to start a process of cumulative causation.

Thus, contrary to liberal defenders, so far as export-oriented policies are based on agglomeration economies, they are a recipe for strong government intervention, including high protection at certain stages of development. Moreover, they may be an exclusive formula, not amendable to general adoption by LDCs if, as Chenery and Keesing argued, the process of "cumulative causation" which works in favor of successful exporters also restrains the progress of those which have fallen behind.

### 3. The Economy Policy Debate

The debate on the role of economies of scales is part of a larger discussion on the virtues of export-oriented vs. inward-looking policies. The last part of this paper will survey some of the major issues of the polemics, focusing in particular on the analysis of exports and economic growth and on the theory of import restrictions.

#### 3.1. Exports and Economic Growth

A close empirical association between exports and economic growth has been shown in several recent studies. Michaely (1977) found a significant correlation



between the marginal export-output ratio and the growth of GDP per-capita for 41 LDCs in the 1950-1973 period. The association was particularly strong for 23 countries with incomes per-capita of more than US\$300 and insignificant for the poorest countries. Balassa (1978a) found a significant correlation between export performance and the growth of non-exported GNP for 11 LDCs, with a more significant correlation for the late 1960s and early 1970s than for the early part of the former decade. Heller and Porter (1978), on the other hand, correlated the growth of exports and non-exported GDP per capita for the same sample of 41 LDCs used by Michaely, obtaining highly significant results. However, when seven "high performers" were excluded from the statistical tests, no significant correlation was found. Finally, Tyler (1981) correlated GDP and export growth for 55 middle income LDCs in the 1960-1977 period with positive results.

Using a different type of analysis, Krueger (1978) regressed GNP on a set of explanatory variables which included exports and dummies for different types of foreign trade regimes, and an "autonomous" time trend for each country. Her results emphasized the importance of autonomous elements, obtaining statistically insignificant effects of trade regimes and a coefficient for the export variable which indicated that an additional 10% growth of sales abroad would be reflected in a 1.1% growth of GDP, an effect which was lower than the average share of exports in GDP. When export performance was used as a dependent variable, a large unexplained trend for each country was again found,

with unclear effects on trade regimes and a significant "static" response to real exchange rates (with an elasticity of 1.5). These empirical results were rather discouraging for the author, which concluded that "while there are numerous microeconomic changes that accompany devaluation, liberalization and altered (trade policy) bias, it was not possible to detect significant effects of those changes on growth performance" [Krueger (1978, p. 277)] .

In still different framework, some authors have introduced as one of the arguments of the production function the export level, using a Solow-type analysis to differentiate the contributions of capital accumulation, labor force expansion and exports to the growth of GDP. Michalopoulos and Jay (1973) and Balassa (1978a) obtained a rather low coefficient for the export variable, indicating that a 10% additional expansion of sales abroad would be reflected only in an additional 0.4% growth of GDP. Tyler (1981) obtained only a slightly larger coefficient (0.55 - 0.57%). The most significant result was obtained by Feder (1983), which also provided a complete formulation of the production function model. According to this formalization exports have two distinct advantages : higher factor productivity than non-exported production, and an externality effect on the latter, which reflects a higher flow of innovations, training of labor, extension of better management techniques, etc. Thus, export and non-export supply are given by :

$$(25) \quad X = X (K_X, L_X)$$

$$(26) \quad \dot{N} = N (\dot{K}_{N'} + \dot{L}_{N'} + \dot{X})$$

while factor productivity differential (equal for both capital and labor) are :

$$(27) \quad \dot{X}_K / N_K = \dot{X}_L / N_L = 1 + d$$

If the externality effect has constant elasticity  $v$ , the growth of GDP is :

$$(28) \quad \dot{Y} = a\dot{K} + b\dot{L} + [d/(1 + d) - v] \dot{X} (X/Y) + v\dot{X}$$

Using data for 31 middle income LDCs in the 1964-1973 period, Feder observed both a significant externality effect ( $v = 0.131$ ) and high factor productivity differentials ( $d = 0.77$ ). He concluded that a 10% additional growth of exports would be reflected in a 2% growth of GDP. However, even this high coefficient was not significantly different from the mean share of exports in GDP (23.5%).

The previous studies have been viewed as a documentation of the decisive advantages of export-oriented vs. import-substitution policies. Advantages of the former have been claimed at three different levels. First and foremost, a better allocation of resources is induced through the neutrality of incentives. This element is reflected in higher factor productivities, fuller exploitation of scale economies, better utilization of capacity, lower capital-output ratios, inventory accumulation, etc., the specific emphasis depending on the author. Secondly, competitive pressures from abroad induce a high rate of technical innovations and a dynamic learning process, in the direction of the analysis of the previous section. Finally, higher export earnings ease to foreign exchange bottleneck and facilitate the access to international capital markets. The latter

may in fact be crucial for the success of liberalization attempts when they are started, since the export response comes with a lag [See Krueger (1978; 1983, Ch. 3; 1984), Bhagwati (1978), Balassa (1978b; 1981, Ch.1), Feder (1983)].

The former conclusions are debatable both at an analytical and at an empirical level. Using a two-gap model, Bacha (1984) has criticized the linear relationship between export and GDP growth assumed in the previous studies, since it implies that the internal savings constraint is never effective. Feder's production function approach is also subject to criticism on neo-classical grounds, since it assumes no diminishing returns to an increasing export share. It also disregards the possibility that the relative efficiency of export vs. non-export production be different depending on the size of the domestic markets of LDCs.

From an empirical point of view, it is important to emphasize, first of all, that the correlations between export and GDP growth are strongly affected by high performers, as Tyler has pointed out. On the other hand, Krueger's results leave almost all differences to be explained by "autonomous" elements. Finally, factors excluded from the analysis may explain the observed correlations. Using data for 50 LDCs in the 1970 - 1981 period, Taylor et. al. (1984), for example, found that fast growers were able to run larger non-oil trade deficits to convert into higher oil imports and/or capital formation to support growth, facing at the same time a less stringent agricultural supply bottleneck. These factors, together

were the success in shifting the export structure towards income elastic goods explained the ability to grow above average rates.

The association between good export performance and "unbiased" trade regimes is not encouraging either. The list of "high performers" in Michaely, Heller and Porter's samples (Greece, Israel, Portugal, South Korea, Spain, Taiwan and Jugoeslavia) is hardly a set of liberal economies, and may in fact reflect the quite different economic conditions and strategies that may lead to "success". Moreover, even in the most outward looking economies (the Chilean liberal experiment aside) the incentive system is hardly unbiased, nor is an unbiased regime the most promising in a dynamic context, as we saw above. Comparative studies [(Bhagwati (1978), Krueger (1978))] are convincing on the differential role played by direct import controls under different trade regimes ( a fact which may simply show that such controls are unattractive to LDCs when balance of payments conditions do not make them necessary), and on the absence of irrationally high tariffs in the more liberalized regimes, but hardly on the existence of any true "neutrality" of incentives. What is clear is that successful regimes have conscious export policy, which is reflected in preferences granted to exporters. But as the example of many (successful and less successful) LDCs shows, this is itself a form of discrimination, which is hardly seen by economic authorities to be incompatible with the protection of import-competing industries in variable degrees.

The exact meaning of "efficient development policies" thus requires closer scrutiny. Moreover, admitting the demonstrated virtues of some degree of export orientation, other factors may be present in the success stories: "cumulative causation" mechanisms, proximity to markets (for Southern European countries, for example), prior development, as well as internal factors of which we know very little. Moreover, it is clear that for the South as a whole, as well as for specific groups of countries, overall dynamics will continue to be determined by Northern growth and trade policies, as the "engine" models of Part I indicate. Indeed, global stimulations undertaken in the 1984 World Development Report [World Bank (1984, Ch. 3)] indicate the greater sensitivity of Third World growth to Northern scenarios than to "optimal" LDC trade policies, which in the projections account for at most a 0.5% additional growth of LDCs in the next decade. The Report also emphasizes the diversity of conditions prevailing in the Third World today, which hardly admits broad generalizations. Particularly, opportunities for manufacturing exports on a large scale do not seem to be as universal as generally assumed, as Chenery, Keesing, Cline, Taylor and others have emphasized.

### 3.2. Import Controls

While tariff policy has become a fairly standard branch of trade analysis (with wide disagreements on the extent to which protection should be used), controversies over the implications of import controls have raged openly in the last decade. The debate not only reflects fundamental theoretical disagreements,

but also a contradiction between the rejection of direct controls by international organizations and their common use in several countries. It may thus be useful to review the discussion, to disentangle the different perspectives on the matter.

The major issues of the present debate are not very different from those that were raised in the early post-war period regarding the virtues of control vs. devaluation as mechanisms of balance of payment adjustment. It is, therefore, convenient to start the analysis by recalling some important contributions to the debate.

Triffin (1948) argued that devaluation had two major advantages over controls : it interfered to a lesser extent with economic freedom, and helped to correct the payments imbalance both on the side of exports as well as imports. On the other hand, import controls were more selective and eliminated the adverse terms of trade effects produced by devaluation when exports faced less than perfectly elastic demand abroad. Finally, he argued, both devaluation and higher tariffs were inflationary, but the unfavorable effects on the price level could be avoided if quantitative restrictions were complemented by price controls and rationing.

Alexander (1950-1) centered his analysis on the terms of trade and welfare effects of alternative policies. Devaluation tended to depress export prices according to the author, with unfavorable welfare effects on the economy. Import controls, even if they were not reflected on internal prices, tended to

raise the marginal welfare value of imported commodities. Conditions determining the "optimal" control policy were in fact identical to the traditional optimal tariff argument. Some corollaries to this analysis are interesting. The first relates to price elasticity of demand for imports at home : if foreign goods were necessities (low price elasticity), only a low level of import restrictions would be desirable. On the other hand, if the economy was in less than full employment, the opportunity costs of producing additional exports with unemployed resources were also low, thus increasing the advantages of devaluation.

Hemming and Corden (1958) applied the absorption approach to the analysis of import controls. The essential idea was that controls could only improve the balance of payments if they increased savings (due to the delay in rearranging expenditure, or to the postponement of consumption and investment in anticipation of restrictions being removed) or reduced investment (running down of stocks and imported machinery). If these effects were not present, controls had an expansionary effect at home which would reproduce the balance of payments deficits through two mechanisms : the internal consumption of exported goods and the impact of greater employment on import demand.

Finally, Tew (1960) argued, following an extensive literature on the matter, that devaluation could generate a wage-price spiral, in addition to its unfavorable impact on the terms of trade and possible destabilizing speculation. Import controls could evade these effects and induce a positive impact on the



balance of payments if forced savings were induced. As in the previous analysis, forced savings or desinvestment were produced if consumers and investors delayed expenditure on the expectation that controls would be removed in the future ; otherwise, they would simply change the composition of expenditure.

The Cambridge Economic Policy Group has recently provided a formalization of some traditional ideas on import controls [Cripps and Godley (1976; 1978), Godley and May (1977)] . In their models, forced savings and inflationary effects of controls are absent. So, import rationing generates a complete and rapid expenditure shift towards home goods, which face a completely elastic Keynesian supply. Positive employment effects can thus be produced relatively fast with this policy instrument. Favorable balance of payments impacts could also be obtained if controls allow domestic policies to become more restrictive. Effective devaluation, on the other hand, works through an inflationary transfer of income towards profits in the export sector (not in the import-competing sector, due to domestic mark-up pricing). Three unfavorable effects of devaluation compared to import controls can be differentiated. First of all, a wage-price spiral may develop, as workers defend their real incomes. Secondly, a global loss may be produced through a deterioration of the terms of trade. Finally, export responses come with a lag so that, even if the final level of employment is ensured (by the appropriate domestic policies), the trajectory to

a new equilibrium is characterized by a lower level of economic activity.

Modern disequilibrium theorists have developed an analysis of import control policies under conditions of rational choice [Cuddington(1981), Cuddington et.al., (1984)]. As in the Cambridge models, fix pricing rules prevail. However, constrained consumer choice implies that forced savings would be partly induced by import rationing, as well as forced substitution for domestic commodities. Two regimes can be defined, according to whether exports are constrained by domestic supply (Classical Unemployment) or external demand (Keynesian Unemployment). In the former, import controls would have no employment effect; forced substitution for domestic commodities would actually lead to a reduction in the net volume of exports (i.e., exports are "crowded out" ;with unclear effects on the balance of trade. In this case, an increase in the domestic price of importables is clearly preferable to controls, since it induces higher domestic production of importables and frees some exportables to be sold abroad.

In the Keynesian case, on the contrary, import controls are highly expansionary, with positive effects on the balance of trade. An increase in the price of importables, on the other hand, induces higher production of those goods, but also a lower production of exportable goods for domestic consumption. The analysis thus reveals the stronger impact of controls in the second case, a fact which is compatible with the analysis of Hemming and Corden and with the Cambridge models. It may be noted that in both regimes, devaluation has

unclear effects on the balance of trade. In the Keynesian case, the net effect depends solely on the price elasticity of demand for exports; under classical unemployment, exportable supply increases with devaluation, but so does domestic demand, with an unclear effect on net sales abroad.

In the analysis of Dervis et. al. (1982, Ch. 9) fix-pricing rules disappear and many neo-classical features are brought into the analysis : rising supply curves, market-clearing wages and savings-determined growth. Two types of control regimes are differentiated : premium and fix-price rationing. In the former, price controls on imported goods are ineffective and licensed firms are able to obtain a profit from selling foreign goods in the domestic market. In the latter case, price controls are effective, but consumers and investors are forced to spend their income on domestic imperfect substitutes, which face a less than perfectly elastic supply. No forced savings are produced in the process.

As expected, neo-classical results are obtained in this model. Devaluation is clearly preferable, since it acts both on the side of exports and imports and does not generate any distortions. The loss of GDP is lower with devaluation than with both forms of import controls, as well as the decline in real wages which is necessary to restore balance of payment equilibrium in the face of an external shock. The loss of GDP is increased, moreover, if resources are used in "rent-seeking" activities under premium rationing. The greatest disadvantage

of devaluation is the adverse terms of trade effect, which would lead to a reduction of real income and welfare. The policy choice thus depends on the relative importance of allocative efficiency compared to the adverse terms of trade effect generated by devaluation.

Other critics of import controls have developed arguments on similar lines. In their criticism to the Cambridge model, Scott et. al. (1980) emphasize the efficiency loss from controls, the advantages of operating both on the side of exports and imports and the danger of retaliation if controls were adopted by DCs. They also criticize the pricing and wage-formation rules of the Cambridge model. On the other hand, Bhagwati (1978), Krueger (1978; 1984) and others emphasize the inefficient allocation of resources generated by import control regimes. Their analysis is based on a form of "premium rationing". Thus, controls always affects the internal price of importables and import-competing goods, contrary to typical behavior in the Keynesian and Disequilibrium models. Relative price changes then induce an inefficient mobilization of resources from the production of exportables into high-cost import competing sectors and into unproductive rent seeking activities.

Closer empirical test would be necessary to analyze the relevance of the former models for LDCs. Crucial in this respect is the behavior of the domestic prices of importables and import-competing goods when controls are effective. Also crucial is the extent of the forced savings and substitution effects, as well

as the magnitude of the resource shifts induced by controls. "Small country" considerations would tend to minimize the relative importance of terms of trade arguments. However, even if primary exports prices in foreign currencies are unaffected by devaluation in LDCs (also in "large" countries, since they would then control export supplies), the same may not be true for the exports of manufactures and services. The reason is not associated with supply and demand consideration, but rather with imperfect competitive rules, which imply that the export supply is elastic at a price which is fixed in domestic currency, while foreign demand must be induced by reduction in prices in terms of foreign currencies.

Empirical considerations aside, some final remarks could be made on the relevance of the former models. In fact, while the neo-classical critique may be valid in the long run, the Keynesian and Disequilibrium models may provide a strong short run defense of import controls. While export responses work themselves through in a system of gradual exchange rate adjustments, or if the short run shadow exchange rate is too high to be forced into the economic system, controls provide a necessary and useful complementary mechanism of adjustment. How useful it is depends, of course, on the relative importance of the short-run forced savings, desinvestment and substitution effects, as well as on how solid fix-pricing rules are (including government controls). Of course, the specific dynamic process depends on the behavior of capital markets. However, an analysis of this problem would take us to far afield from the major topics of this paper.

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## NEW DEVELOPMENTS IN TRADE THEORY AND LDCs

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<u>PAGE</u>	<u>LINE</u>	<u>INCORRECT</u>	<u>CORRECT</u>
1	16	Singer (1950)	Singer (1964)
28	11	Viner (1984)	Vines (1984)
36	8	Alikhami	Alikhani
46	17	Krugman (1979; 1980)	Krugman (1979a; 1980)
47	5	Krugman (1981)	Krugman (1981b)
53	8	Nurkse (1953)	Nurkse (1967)
59	3	Balassa (1981, Ch.1)	Balassa (1978b; 1981, Ch.1)
65	3	Cuddinton	Cuddington
71	-	Dixit and V.Norman, 1979	Dixit and V.Norman, 1980

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