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ALTERNATIVE APPROACHES TO SHORT  
TERM ECONOMIC MANAGEMENT

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The perceptive comments of Leo Leiderman are gratefully acknowledged.

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Preamble

The standard prescription for short-term economic management of balance of payments or inflationary problems consists of devaluation, demand restriction (both in terms of government expenditure and of credit to the private sector) and, usually, import liberalization.

This package has become increasingly less acceptable to a wide variety of constituencies. Some critics complain that it leads to (unnecessary) losses in output and growth. Others point to increases in unemployment. Yet others claim that the package is self-defeating by leading to stagflation. Finally others point to the political disruption which often follows its implementation. Whatever the merit of these or other criticisms, the availability of alternative approaches to short-term economic management would certainly be advantageous, even on the most narrow grounds of the traditional welfare economics of expanded choice.

Because managing a balance of payments problem is inherently different from managing an inflationary situation, as well as to make the task more manageable, we will begin our search for alternatives by focusing on balance of payments management and turn to the management of inflation and price stabilization later.

I

Balance of Payments Management

1. Introduction

The need for alternatives arises because the techniques usually applied seem to yield a mix of balance of

payments improvement which is based far too little on growth of exports and far too much on the reduction of imports. Moreover, the reduction in imports results far too much from reduction in economic activity and far too little from change in relative prices and the consequent substitution of domestic goods for importables in production and consumption.

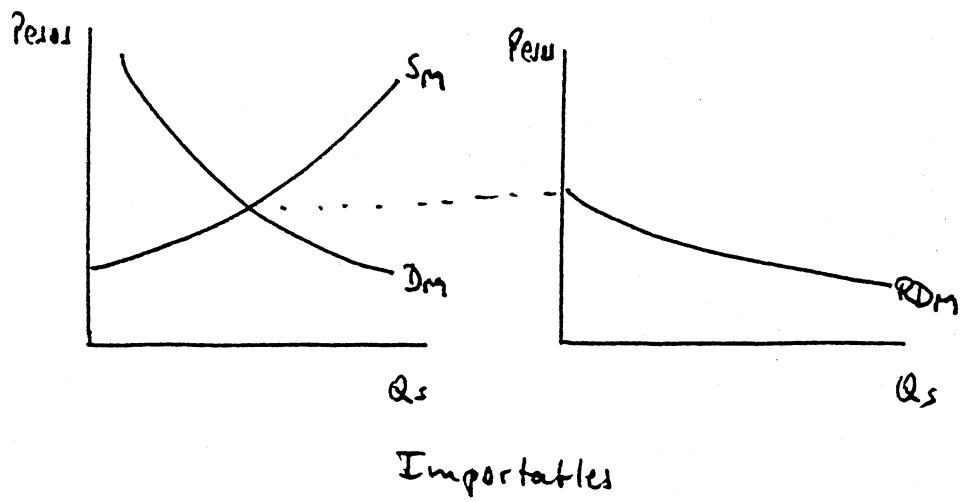
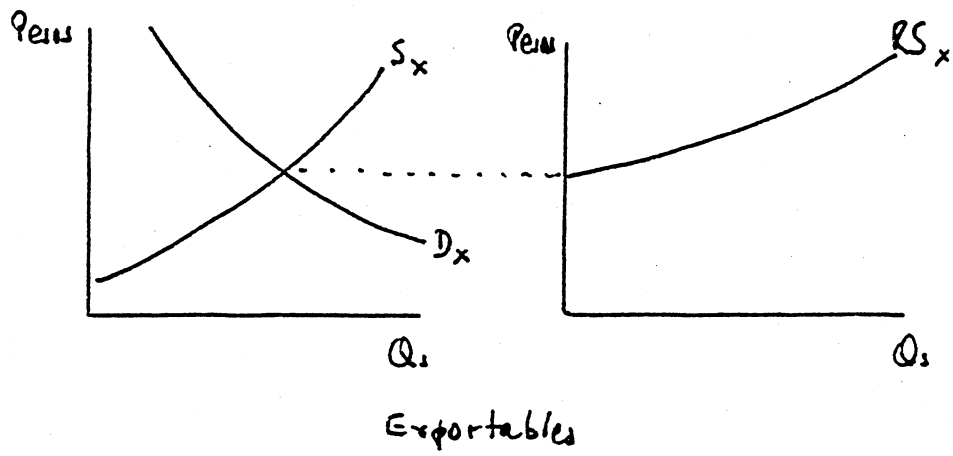
The theoretical expectation derived from standard international trade models does not afford much grounding to this empirical basis for concern.<sup>1/</sup> It is well established that supplies and demands in international trade are residual supplies and demands. Thus, the supply curve of exports is the difference between the supply curve of exportables in the domestic economy and the demand curve for those exportables (see Figure 1). In consequence, the price elasticity of the supply of exports is equal to the weighted sum of the price elasticity of the production of exportables and the price elasticity of demand for those exportables in the domestic market. Similarly, the demand for imports is a residual demand, arising from the difference between the domestic demand for importables and the domestic supply of such importables. Correspondingly, the price elasticity of the demand for imports will be the weighted sum of the domestic elasticities of total demand and domestic supply.

In an economy in which traded and non-traded goods are substitutes, the level of imports and exports should adjust to relative

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<sup>1/</sup> What follows reflects an elasticities-absorption approach; a monetary approach would provide even less grounding for the concern at issue.

Figure 1



price changes (e.g. devaluation) without any change in the domestic level of activity. As relative prices changed, expenditure and the production mix would both be switched, the quantity supplied for export would rise and the quantity demanded of imports would fall. Principally price elasticities would be at work, with income elasticities playing a definitely secondary role. However, if non-traded goods are poor substitutes for traded goods, and if they require an import component, then it is quite possible that an improvement in the balance of payments will require that the demand for non-traded goods fall below productive capacity, particularly if factor prices are less than fully flexible downward in real terms.

In the context of the model just outlined, the dissatisfaction expressed with the outcome of the usual balance of payments management techniques can be traced to the consequences of two features of reality: (i) low elasticity of supply and demand for exports and imports respectively; and (ii) too large a sector of non-traded goods in the economy. Correspondingly, alternative approaches to balance of payments management would need to focus on ways for raising these elasticities and for reducing the size of the non-traded goods sector, for only if these "structural" elements of reality could be dealt with, would the balance of payments adjustment mechanism come closer to its desired functioning.

Before pursuing the line of approach just suggested, it is worth noting that the supply and demand model discussed in the preceding paragraph presents some difficulties for the most common



explanation of existence of balance of payments problem in LDCs, namely that of generalized overheating of the economy. For this model explains the existence of imports precisely because some sectors are "overheated": that is the definition of excess demand. Correspondingly, export sectors are always "under-heated"; that is the definition of excess supply. Only the non-traded goods sectors should be "precisely heated." But surely, the sense of generalized overheating goes beyond the mere overheating of the non-traded goods sector.

While in a one sector aggregate model with a clearly defined supply capacity, overheating has a clearly specifiable meaning, in the context of a multi-sectoral model, which distinguishes exports from imports and from non-traded goods, overheating as a general category becomes meaningless and it is probably more useful to focus on the shifts of specific goods and specific production activities between the categories of import, export and non-traded as a result of changes in the conditions of international trade and the remuneration of domestic factors. It is then the mix of overheated and under-heated sectors and their capacity to sell abroad and procure from abroad which matters.

## 2. Price Elasticities in the Foreign Trade of LDCs

We will look first at exports and then at imports.

### a) Price elasticity of export supply:

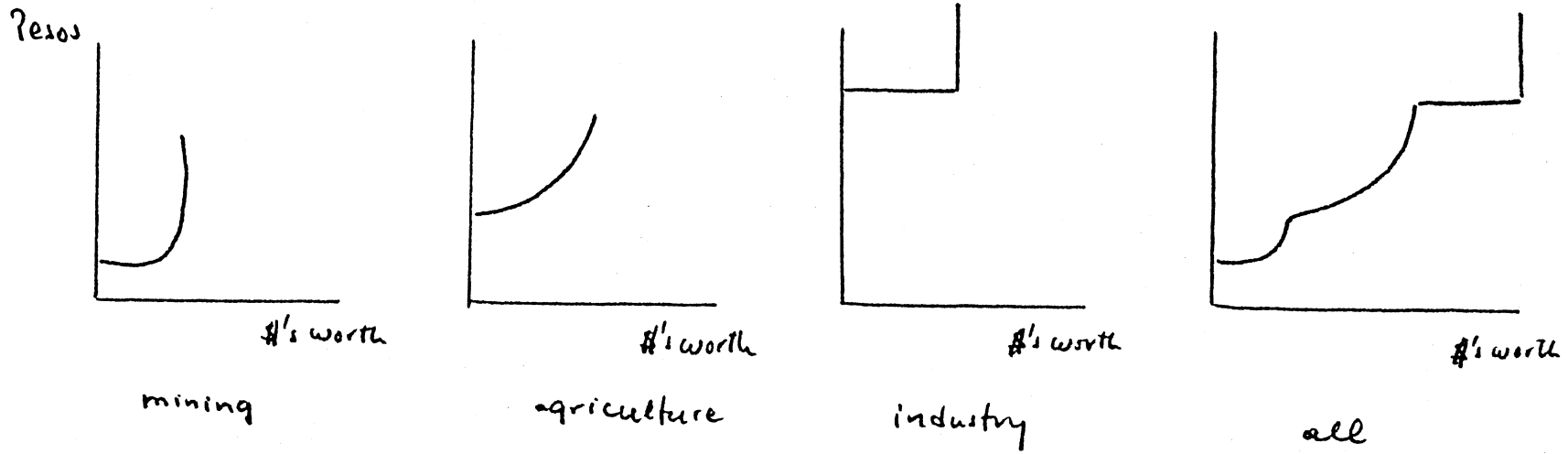
Most LDCs have a wide variety of potential products which they could offer on world markets. For convenience we might group these into mining products, agriculture products, and industrial products. Mining products typically have high fixed investments and a substantial component of rent in their average cost; their marginal costs are low compared to average costs but rise sharply when full capacity output is attained. Marginal cost consists mostly of skilled labor; moreover, there is usually very little or no domestic demand for the product.

In agriculture, it is important to distinguish industrial agriculture from food agriculture. The former is usually fairly capital-intensive in addition to generating an important component of rent in its average costs. Domestic demand for the industrial crop is usually quite limited. Food agriculture is usually found in smaller plot sizes and typically uses less capital in the process of production. Domestic demand for food crops is substantial and in some instances exceeds supply capacity. Marginal cost in both types of agriculture is rising due to the decline in the marginal product of land as additional variable factors are added. The input structure consists of fertilizers, pesticides, and a few other material inputs in addition to labor. Marginal costs in agriculture are typically above those of mining.

Industry typically has a much higher ratio of marginal to average costs than the other two sectors and usually has higher absolute marginal costs besides. Moreover, the input structure is usually dominated by material inputs, many of which are imported. Marginal costs in industry are usually constant in the short run but sometimes decline as a result of economies of scale. Domestic demand for industrial product is considerable but typically falls short of installed productive capacity.

To develop an aggregate supply curve of exports, it is necessary to sum together the supply curves of each of the individual products. To this end, it is useful to define a standard unit of output as a dollar's worth of product at international prices, and to define marginal costs in "pesos" per dollar's worth of output. The graphics of the summation process are shown in Figure 2. It becomes immediately apparent that this summation is not quite as straightforward as it seems, for there is considerable question on how one should interpret the price variable on the vertical axis. The conventional approach would be to use the exchange rate on the vertical axis. However, the exchange rate affects not only revenue but also costs, whenever there are material inputs that are imported or that compete with imports, and/or whenever domestic factors have supply curves defined in real terms on the basis of a cost of living index which includes importables. Moreover, the different sectors we are trying to aggregate, have production structures which differ precisely in this crucial respect: mining has minimal importable inputs, agriculture

Figure 2



has some importable inputs and industry has a large amount of such inputs; on the other hand, mining and industry typically have wage structures which are closely tied to "modern consumption goods" which by their nature are linked closely to the exchange rate; this is less so in agriculture although in this respect one would find differences between industrial and food agriculture.

Aggregation can proceed if we define the price variable as the number of "pesos" per dollar's worth of any output, with domestic costs being held unchanged. The implication is that we could change the domestic currency receipts from a dollar's worth of exports without changing the domestic currency costs of a dollar's worth of inputs. Notice that this implies conceptually adopting a multiple exchange rate system! However, this is not as shocking as it might at first appear since if we look closely at the cost structures, we will find that each of the sectors is affected differentially by such exchange rate substitutes as tariffs, taxes on wages, differential interest rates, differential taxes on output, and profits, and indeed differential wages themselves. Thus an implicit multiple exchange rate system already exists on the cost side<sup>1/</sup> and all that occurs in the construction of the export supply curve is to make the analagous adjustment on the demand side.

When we carry out the aggregation, we find an S-shaped curve, with a fairly inelastic portion in the area of mining and industrial agriculture, an intermediate, somewhat more elastic, segment for

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<sup>1/</sup> Calculations of effective protection recognized this situation by taking differential protection of inputs explicitly into account.

food agriculture, and then a very elastic segment corresponding to industry. The (vertical) cost distances between these different segments of the supply curve are fundamentally determined by the extent to which economic policy and institutional circumstance discriminate between economic activities. For example, if the incidence of tariffs on industrial inputs is higher than the incidence of the corresponding levies on agriculture and mining costs, then industrial costs will of course be much higher per dollar of output than mining or agriculture costs. Note that what matters in this case are the tariff rates as well as the fact that industrial production has a much higher component of intermediate inputs than either agriculture or mining; thus even under equal import tax rates, the incidents of the tax is higher in the case of industrial production. Cost differentials are also affected when agriculture is offered a preferential interest rate. That policy lowers the cost of credit to the sector in comparison to other sectors and thus affects the cost of production correspondingly. Wages have a similar impact. Insofar as industrial wages are higher than wages in the primary sector, either because of legislation, cost of living differentials or different union strength, and/or insofar as fringe benefits are different between the sectors, industry will have higher costs than what would otherwise occur.

Under these circumstances defining a supply elasticity of exports is an ambiguous matter. The supply elasticity with regard to the sales price will be different from the supply elasticity with regard to the exchange rate, and both of these will be different from the

elasticity with regard to a differentiated export subsidy of a particular description, or from the elasticity with regard to tax measures affecting input costs.

The elasticity traditionally defined refers to the exchange rate. However changes in the exchange rate affect costs as well as revenue, albeit differentially across sectors. In the primary sectors, the major impact of the exchange rate on cost is through the adjustment of nominal wages, which may respond to an increase in the cost of living caused by a devaluation. The extent to which this occurs depends naturally on the extent of unionization as well as on the nature of the supply curve of labor in the primary sector. In industry, the cost push of devaluation works through the wage rate as well, but in addition also operates through material inputs which are either imported or compete with imports. Furthermore, the impact on the costs of the different sectors will be further differentiated because of the presence of rent in the average cost of mining and agriculture, which is not present in the case of industry. As a result of these factors, devaluation is less effective in making industrial production internationally competitive than is the case with primary production.

To what extent each sector contributes to the aggregate elasticity depends on each sector's share of total exports at the initial exchange rate as well as each sector's exchange rate elasticity. Since at the initial exchange rate, there are usually no industrial exports and since the competitiveness of industrial

exporting does not respond much to devaluation, the aggregate elasticity of exports to devaluation will principally depend on the supply elasticity to devaluation of mining and industrial agriculture, and as a result the aggregate elasticity will be rather low.

If, however, we were to compute an elasticity of exports to a differentiated exports subsidy which would, for instance, provide symmetry on the export side to tariff protection in the domestic market, we would be effectuating a drastic change in the profitability of industrial exporting, while not noticeably affecting profitability of mining or agricultural exports. Therefore, the elasticity involved would result principally from the supply elasticity of industrial production, which is by far the higher. As a result, the elasticity of exports to subsidy policy will be high indeed.

In summary, when we have a single exporting sector, using no intermediate inputs, defining the price elasticity of the supply of exports is an unambiguous matter and can be undertaken directly with regard to the exchange rate. When, however, intermediate goods are used in production, and the proportions of such goods vary across sectors, and when, moreover, domestic factor incomes respond to changes in the cost of living which in turn are devaluation induced, and when, in addition, there are significant differences in the prices at which different economic activities buy comparable inputs, (i.e. there exists wage differentiation, tariff differences, etc), then the elasticity of export supply with regard to price is no longer



unambiguously defined, but needs to be specified explicitly as being with regard to exchange rate, export subsidies, changes in the tax regime, etc., etc. It follows that different ways of affecting export profitability will operate on different segments of the export supply curve and therefore will not be faced with the same elasticity. This finding is crucial for policy design and provides the fulcrum which we will later use to suggest alternative balance of payment management techniques.

b) Price elasticity of the demand for imports with regard to the exchange rate:

At constant output levels, the response of the quantity of imports demanded to changes in the exchange rate depends essentially on two elements: (i) extent to which the devaluation causes changes in relative prices between importables and domestic goods or within importables, and, (ii) the underlying price elasticities themselves.

In the absence of intermediate goods, what is at issue is the substitution between an imported good, the price of which is entirely specified in foreign exchange, and a domestic good, the price of which results entirely from domestic factor returns. Where domestic factor prices are not responsive to changes in the exchange rate, there is no difference between the elasticity of import demand with regard to a devaluation and the elasticity of import demand with regard to price changes, because price changes will be exactly identical to the devaluation. However, when imported goods require some complementary domestic valued added to be marketed on internal markets, such as port labor, transportation costs, wholesaling and

retailing, and when domestic goods in turn require an import content, then the equivalence between exchange rate elasticity and price elasticity no longer holds.

Consider, for example, the case where all goods sold on the domestic market have the same import content. Under such circumstances, a devaluation would cause no change in relative prices at all and thus the exchange rate elasticity would be zero whereas the price elasticity might still be non-zero. It is quite easy to see, therefore, that the more similar are the import components of the goods offered on the domestic market, the lower the exchange rate elasticity will be. Furthermore, the more responsive domestic factor remunerations are to changes in the exchange rate (a link typically existing through the cost of living impact of devaluation), the lower the elasticity will be.

The above can be usefully illustrated with the example shown in Table 1, which is designed to portray the change in relative prices of two goods sold in the domestic market as a result of a hefty 50% devaluation. The cost structures have purposely been specified to be very different: product A might well be a backwards integrated domestic industrial good, while product B might well be an import. Domestic factor remunerations are assumed in all cases to rise less than the exchange rate, except managerial/entrepreneurial wages in Case I. Nonetheless, this hefty devaluation of 50% manages to produce a change in relative prices ranging from under one tenth to under one fifth of its size! If devaluation does not change

Table 1

Effect of Devaluation on Relative Prices<sup>1</sup>

<u>Cost Structure</u>	<u>Good</u>	
	<u>A</u>	<u>B</u>
Imported inputs	20%	60%
Production Labor Bill	50%	20%
Managerial/Entrepreneurial Bill	30%	20%
 <u>Case I</u>		
Devaluation = 50%	Increase in $P_A$ = 40%	
Prod. Wage Increase = 30%	Increase in $P_B$ = 46%	
Man./Entr. Increase = 50%	Rel. change $P_B/P_A$ = 4.3%	
 <u>Case II</u>		
Devaluation = 50%	Increase in $P_A$ = 34%	
Prod. Wage Increase = 30%	Increase in $P_B$ = 42%	
Man./Entr. Increase = 30%	Rel. change $P_B/P_A$ = 6%	
 <u>Case III</u>		
Devaluation = 50%	Increase in $P_A$ = 26%	
Prod. Wage Increase = 20%	Increase in $P_B$ = 38%	
Man./Entr. Increase = 20%	Rel. change $P_B/P_A$ = 9.5%	

<sup>1</sup>These examples assume that there are no pure profits. Nonetheless accounting profits may well exist as a way of paying managerial/entrepreneurial wages.

relative prices much, it cannot generate much substitution based on relative price changes.

Since the cost structure and the import content of goods offered for domestic sale are so crucial, it is worth noting that they depend on a number of factors. One of these is certainly technology, which determines the material input content. Another is economic policy, which has much impact on the sourcing of the material input. Policy also affects the share of costs which accrue to imports, for given an elasticity of substitution, tariffs and taxes will affect the share of import costs in total costs. Wage setting mechanisms also contribute to import intensity: when unions or government regulations generate higher wages, if the elasticity of substitution is less than one, the domestic value added component rises and correspondingly the import component falls. The same is true with interest rate policy: given an inventory requirement, the higher the interest rate, the greater the domestic value added and the lower the import component. Finally, a very important element is the market organization of the importing sector. To the extent that this sector is oligopolistic, it will charge higher margins and thus lower its import content while raising simultaneously the extent to which domestic producers are able to charge a higher value added over their own import content. It is useful to remember in this connection that in the long run, domestic prices and therefore value added in domestic import competing activity will be determined by the margins in the importing business. In the short run, the opposite may well be true, if there are short run supply inelasticities in procuring additional imports for the economy.

### 3. The Size of the Non-traded Sector

The theoretically sound definition of non-traded goods refers to them as those goods with domestic prices between the import and export points. There is therefore an expectation that these points differ and this difference is usually explained to be the result of the existence of transportation costs. It has been recognized for some time, however, that the spread between the import and export points can also be affected by policy.<sup>1/</sup> Thus, import duties raise the import price and export taxes lower the export price. As these tools of commercial policy are increasingly applied, or others with similar effects are used, the range of non-traded goods expands. It has thus become fashionable to distinguish within the non-traded sector between the tradeable and the non-tradeable goods, with the latter being those which by their nature are not susceptible to trade (e.g. some services).

A good part of the economic policy followed by less developed countries consists precisely of manipulating import duties and export taxes. Indeed, a major fraction of today's developing world are applying or have applied an import substituting industrialization policy (ISI).<sup>2/</sup> This policy consists of raising the import point of a wide variety of goods well above the free trade level. Thus, import competing production is expanded and in the limit, when import protection becomes prohibitive (either because tariffs have been set very high or quantitative restrictions are used, or because domestic production has become more efficient over time and has generated

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1/ For an early discussion of this point see Diaz-Alejandro (1965).

2/ For a general discussion, see Little, Scitovsky & Scott (1970).

water in the tariff) a significant range of tradeable goods become non-traded on the import side. Simultaneously, however, these tradeable non-traded are not exportable because the ISI policy typically involves a low (in terms of local currency per dollar) exchange rate for exports and because a good part of the import protection is absorbed in higher real factor remuneration made possible by policy assisted segmentation of factor markets. Thus the tradeable production which has become non-traded on the import side by policy fiat has also been made non-traded on the export side by the same policy. As a consequence, the tradeable non-traded sector may comprise as much as a third of GNP (all of industrial production for example).

It is useful to elaborate a bit on the policy structure which is involved in import substituting industrialization. To do so it is useful to consolidate the exchange rate and the commercial policy into its multiple exchange rate analog.<sup>1/</sup> This is done in Table 2 which shows a typical structure for an advanced ISI country.

Note that as industrialization has proceeded in successive stages of backward integration, tariffs have been successively raised in a cascade fashion. As a result, prices and costs both have risen compared to free trade levels, however, while costs are above world prices, prices are also sufficiently high to allow sale for the domestic market to be profitable. Thus, for example, the typical industrial producer will have costs based on an exchange rate of 12

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<sup>1/</sup> This approach was first used in CARTTA (1966), Schydowsky (1967) and (1971), and Diamand (1973).

Table 2

The Typical Exchange Rate System of a Semi-Industrialized LDC

"Pesos" per Dollar

<u>Product</u>	<u>Market</u>	<u>Financial Rate</u>	<u>Trade Taxation</u>	<u>Total Rate</u>
Primary Export	Domestic	10	—	10
	Export	10	—	10
Financial	—	10	—	10
Raw Material	Domestic	10	20%	12
	Export	10	—	10
Semi-Manufactures I	Domestic	10	35%	13.5
	Export	10	—	10
Semi-Manufactures II	Domestic	10	50%	15
	Export	10	—	10
Finished Products	Domestic	10	80%	18
	Export	10	—	10

for his material inputs, of 14 for his semindustrialized components, and of 13 for his wages (a mix of 10 on food and 18 on finished goods), thus making an average cost exchange rate of about 13. Since the sales exchange rate is 13.5 to 18 on the domestic market, production is profitable (and of course imports do not come in). On the other hand, for export, no protection similar to that available for the domestic market is usually included and thus while production has to go forward on the cost exchange rate of 13, the export exchange rate is only 10, which clearly does not leave enough room for profitability. Producers in this situation are locked out of internal trade by policy design.

It is also worth pointing out that in this policy context, the normal comparisons of production efficiency are misleading. It is not legitimate under these circumstances to take domestic costs, divide them by the (financial) exchange rate in order to compare the result with the CIF price of imports. For producers costs are not based on that financial exchange rate, they are based on the applicable higher "commodity exchange rate" which incorporates the commercial and other policies affecting costs. Whenever comparison is undertaken by simple division with a financial exchange rate, an "industrial inefficiency illusion" is introduced, which will be stronger the older and deeper the import substituting industrialization policy has gone. If one were to compute a cost of production figure in dollars by dividing local currency costs by the applicable cost exchange rate, one would come considerably closer to a proper measure of productivity. Even so, however, one would at best pick up only private x-efficiency (or inefficiency). A proper evaluation of social



productivity would require the use of shadow prices for the domestic factors. These are likely to differ significantly from the market prices, since unemployment is usually a major feature of the less developed economy and thus one would expect the shadow price of labor to be well below the market price of labor. At the same time, if that situation obtains in the labor market, the shadow price of capital has to be above its market price. However in the market for capital, a further element needs to be taken into account, namely the distinction between installed capacity and new fungible investment resources, with the former having a marginal social cost equal to the user cost while the latter has a shadow price equal to the opportunity costs of new savings.

Because the tradeable non-traded sector has grown in an ISI setting, and thus has been designated the leading growth sector by policy, it has typically accumulated an excessively large installed capacity relative to the needs of the market. This excess capacity is the consequence of a variety of policies leading to underutilization of plants within the hours worked, low use of shift work throughout the day, and numerous days of idleness throughout the year.<sup>1/</sup> The consequence for the supply elasticity in the tradeable non-traded sector is significant. For a range, supply will respond at constant price to increases in demand. Additional capacity utilization can thereafter only be brought into use as a result of higher product prices or changes in the factor markets. Since many of these in turn can be affected by economic policy, the elasticity of supply of this sector varies significantly with regard to the specific policies used to change the price structure facing the producer. We have here once again the same ambiguity encountered in discussing aggregate price elasticity of exports.

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<sup>1/</sup> For further discussion of excess capacity and its determinants see Schydrowsky (1980).

#### 4. Policy Alternatives for Balance of Payments Management

The purpose of an alternative approach is to boost the contribution of increased exports to balance payments improvements, to raise the impact of the change of relative prices and to contain the fall in the level of activity. The previous discussion indicates that in order to achieve these goals, policy must aim at operating on the elastic upper section of the supply curve of exports and it must also make into traded goods as high a fraction of the tradeable non-traded goods as possible.

When discussing the aggregate supply curve of exports, it was pointed out that its form depends crucially on the policy package for which it is designed. Thus, the elasticity of the supply of exports is very low to generalized conventional devaluations. On the other hand, supply of exports would be quite elastic to measures that change the peso revenue from export of industrial goods that are currently subject to a strong tax as a result of the general anti-export bias of the ISI growth policy.<sup>1/</sup>

A policy to boost the contribution of export growth to balance of payments management should, therefore, be one consisting of a differential devaluation, which would raise the local currency revenue from the export of industrial products, by setting the rate for each output at a level at least comparable to the total exchange rate affecting industrial costs. Such a differential devaluation would bring the structure of exchange rates on the sales side into line with the implicit structure created

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<sup>1/</sup> Quantification of this anti-export bias can be found for example in Balassa et al. (1971)

by the trade restrictions and other policies on the cost side. As a result, the cost differences which cause the export supply curve to have its S-like shape would be offset and the kink in the export supply curve would disappear, making the curve as a whole much more elastic and providing a much greater response to any future changes in the basic financial exchange rate.<sup>1/</sup>

The same differential devaluation would make the previously tradeable non-traded goods into traded goods for it would suddenly open the possibility of penetration of export markets to the wide variety of goods restricted to the domestic market by the ISI policy. Essentially, the differential devaluation raises the export point and places it in the vicinity of the import point. Since many commodities have water in their tariff, and since short run marginal cost is often below long run marginal cost and below short run average cost, an export point even close to the import point will often generate market profitability for exporting sufficient to make the erstwhile domestic goods into export products.

The differential devaluation suggested above can be categorized in different ways:

a. It is a policy action designed to offset the existing implicit multiple exchange rate structure on the cost side and thereby makes the whole exchange rate system more efficient.

b. It is a policy measure which provides symmetry in commercial policy, complementing import restriction with export promotion.

c. It is a policy which provides the needed vent for surplus

<sup>1/</sup> For a 2-digit sectoral comparison of domestic and export sales exchange rates with cost rates for Argentina, see Berlinski and Schydrowsky (1982).

to the excess capacity accumulated over the years in the ISI policy.

d. It is a policy which allows existing unemplyed capital and labor to be put to work in order for the economy to "grow out of its balance of payments problem."

There are at least as many implementational alternatives for a policy of differential devaluation as there are interpretations of what it fundamentally means. All the policies have in common that they compensate for the initial circumstance which caused the low elasticity of export supply to devaluation and for the excess size of the non-traded sector. Three alternative approaches to implementation are discussed below.

(i) Compensatory export bounties:

This is the most simple policy of all: upon export, every dollar's worth received is assigned a certain amount of compensatory export bounty, say in the form of a tax cancellation certificate. In this way, the export exchange rate is selectively and differentially modified for each potential export in accordance with the compensation which is appropriate.

There are two main problems with this approach and one objection. The main problems consist of deciding at what rate the bounty should be set for each commodity and how to finance the requisite disbursement from the treasury. The objection is that the bounty only affects goods and does not affect invisibles.

The rate setting problem is by far the major one. The

simplest way to set the rates is to have a uniform across-the-board bounty on the value of exports, however, that is sure to set the rate too high for some products and too low for others. As a result, a number of tradeables that should be traded will continue to be non-traded and on the other hand windfall profits will be generated which have the danger of allowing negative value added in export activities. A second rather straight forward approach consists of applying a symmetry rule, using existing import tariff rates as the appropriate rates for the export bounty. While this is superior to the across-the-board rule, it assumes there is no water in the tariff and that the tariffs themselves have been properly set. The third alternative and certainly the most difficult one is to set the rates ad-hoc after careful study of each individual product, perhaps involving negotiation with the respective producers. This alternative allows taking into account such factors as the cost exchange rate involved, the domestic resource cost of foreign exchange in the productive process at issue, the divergence between market and shadow prices, etc. It does, however, have the drawback of some arbitrariness and of an enormous laboriousness in design.

The fiscal costs issue is relatively more straightforward. Without question the export bounty will imply a disbursement from the treasury insofar as exports under the system actually take place. At the same time, however, these new exports will set in motion a foreign trade multiplier, absorbing existing installed and

underutilized capacity together with unemployed labor. The result will be an expansion in the tax base with corresponding new revenue for the treasury. Whether the new collections fall short of or are in excess of the original disbursements represented by the bounty is an empirical matter. One would expect that the more closed the economy is, the more likely it will be that the collections will exceed the bounty. The same is true of the extent to which domestic costs are close to world prices and of the extent to which the tax system is elastic to the level of output. The few empirical calculations that exist in this regard all indicate very sizeable tax collections resulting from activation, however that does not guarantee that it should be so in all cases.<sup>1/2/</sup>

The objection that the export bounty affects only merchandise trade and does not affect invisibles is not fully valid. Undoubtedly it could be made extensive to invisibles such as tourist flows and it could also quite easily cover freight charges. However far more fundamentally, it must be borne in mind that these are compensatory bounties and that therefore the major fraction of the invisibles, namely the financial transactions, are not candidates for such reimbursement because they have not been subject to the corresponding tax.

(ii) Compensated Devaluation:

This is a more sophisticated way of implementing an across-the-board compensatory export bounty. It consists of simultaneous and offsetting modifications of the financial exchange rate and

<sup>1/</sup> See Schydrowsky (1971), Urdinola and Mallon (1967), Gonzalez-Izquierdo (1981).

<sup>2/</sup> Notice that while tax revenue grows as output expands, what is at work is a (Keynesian) foreign trade multiplier, not a Laffer curve.

the trade taxation system.<sup>1/</sup> In essence, the cost increasing effects of a devaluation are compensated by offsetting tariff reductions (or import subsidies) and export taxes while such compensation does not take place for the non-traditional exports that one wishes to promote, nor for financial transactions. A comparison of the numerical results of a uniform compensatory export bounty and of a compensated devaluation is shown in Table 3. Examination of the Table will show that difficulties accrue under compensated devaluation when food is an import (export) product for then compensatory import subsidies (export taxes) would be needed. If these are not feasible or not adopted, then there will be some differences in the effect of a compensated devaluation and of a uniform compensatory export bounty. Naturally, a compensated devaluation cannot by itself reproduce the effects of a differentiated compensatory export bounty; however, both measures can certainly be combined to produce any mix one wished to attain.

(iii) Domestic Tax and Price Measures.

As an alternative to operating on the revenue side, it is possible to operate on the cost side, reducing selected elements of cost in a manner destined to make exports more competitive. Thus, for example, it is possible to give exporters tax credits on a variety of items: social security and other fringe benefits payable on wages, some or all of the wage bill, additional depreciation on installed capacity put to work, financial costs incurred in export, working capital, etc. It is also possible to

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<sup>1/</sup> See CARTTA (1966), Schydrowsky (1967), Diamand (1973).

Table 3

## Alternative Modifications to the Exchange Rate System

		Initial Situation			Uniform Export Subsidy			Compensated Devaluation		
		Fin. Rate	Tax	Total Rate	Fin. Rate	Tax/ Sub.	Total Rate	Fin. Rate	Tax/ Sub.	Total Rate
Primary Export	Domestic	10	-	10	10	-	10	12	16.6%	10
	Export	10	-	10	10	-	10	12	16.6%	10
Financial	-	10	-	10	10	-	10	12	-	12
Raw Material	Domestic	10	20%	12	10	20%	12	12	-	12
	Export	10	-	10	10	50%	15	12	25%	15
Semi-Manuf. I	Domestic	10	35%	13.5	10	35%	13.5	12	12.5%	13.5
	Export	10	-	10	10	50%	15	12	25%	15
Semi-Manuf. II	Domestic	10	50%	15	10	50%	15	12	25%	15
	Export	10	-	10	10	50%	15	12	25%	15
Finished Products	Domestic	10	80%	18	10	80%	18	12	50%	18
	Export	10	-	10	10	50%	15	12	25%	15



proceed directly to the provision of inexpensive finance to the exporting activities or by tying tax rates to the level of exports and/or the rate of capacity utilization. Finally, it is possible to use public utility rates, port charges and transportation rates as ways to achieve the same end.

All these domestic policy measures are essentially alternatives to a differentiated export bounty and have the same implementation difficulties as that alternative does.

## II

### Management of Inflation and Price Stabilization

#### 1. Introduction

It is useful once again to begin by stating the reason for concern and for the search for alternatives. Price stabilization policy in its current main-line form is essentially a policy based on reducing demand. Its consequence is often to depress the level of activity.<sup>1/</sup> Thus in the best cases one pays a considerable cost in terms of real income and economic welfare for slowing the rate of price increase; in less successful efforts, the loss of real income occurs but stabilization of prices is not achieved. Yet inflation is traditionally defined as a situation in which too many "pesos" are chasing too few goods and thus the options for stabilization are few; either one reduces the amount of "pesos" doing the chasing or one increases the amount of goods being chased. The latter alternative is usually regarded as one taking too much time, hence demand restrictions seems to be the only short run

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<sup>1/</sup> For a discussion of why this happens see, for instance, Schydrowsky (1979), Taylor (1980).

alternative. This conclusion is overly pessimistic for several reasons to be stated below.

In the first place, it is rather simplistic to state that inflation is always an excess demand phenomenon. The ambiguity of the meaning of overheating has already been discussed in the context of balance of payments problems; the same arguments apply to a simple excess demand view. Once one abandons the excessive aggregation of the one sector macro economic model, an open economy will always have sectors in which there is excess demand, or imports would not exist; by the same token there will always be sectors in which there is excess supply, or exports would not exist. In addition, it has been well recognized for a long time that inflation may also come in the cost-push variety. And although it may be true that in the long run a cost-push inflation is not sustainable without validation from the demand side, that long run may be so long as to make the intervening costs of breaking a cost-push inflation through demand restriction quite prohibitive. Discussion of the management of inflation and price stabilization therefore needs to start by looking at different types of inflation which have commonly occurred in less developed countries, of which the demand pull and cost push variety are only two.

Before proceeding, however, it is also useful to bring out that the assumption made by the standard approach that output can not be expanded in the short run is also empirically very questionable. Were capacity fully utilized in all economic sectors then,

indeed, output could only expand as a result of new investment and, as is well known, investment requires a gestation period and thus output could only accrue some years after the investment was put in place. However, it has already been noted that many LDCs have considerable over-capacity in their industrial sectors and oft-times in the rest of their non-traded goods sectors as well.<sup>1/</sup> This capacity is mobilizable without any investment gestation period, since the physical plant and equipment are already in place. Naturally, mobilizing this potential additional supply is not instantaneous, but neither is demand restriction. Thus in the more realistic situation in which many LDCs find themselves, there is scope for expansion of supply in very much the same time frame as there is scope for reduction of demand. Our discussion of economic management of inflation and price stabilization will therefore deal in part with the question of how to use this potential to contain price increases.

## 2. Types of Inflation

It is useful in the context of most LDCs to distinguish four different kinds of situations in which domestic prices rise faster than international prices: (a) demand-pull inflation; (b) domestic-cost-push inflation; (c) exchange rate inflation; and, (d) spiral inflation. Let us discuss the characteristics of each one in turn.

(a) Demand-pull inflation is the most well-known variety and the one that is regarded as (correctly or incorrectly) to be most usually present in LDCs. Demand-pull inflation is characterized by excess demand in all sectors of economic endeavor except in the

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<sup>1/</sup> See evidence cited in Schydrowsky (1980), and Hughes (1976).

traditional exporting sectors. In other words, the quantity demanded from the economy's productive facilities exceeds the capacity to produce these quantities at or about the prices of past years. As a result, prices rise. If the economy is an open one, operating with tariffs but no quantitative restrictions, one would not expect prices to rise past the import points; rather, the excess demand obtaining for domestic productive facilities will spill over into imports and the inflation will be contained at the price of balance of payments deterioration. For the import points to be the upper level which domestic prices can reach, however, we need to have an infinitely elastic supply of imports in the domestic market. It is generally assumed that if a country is small, this condition will obtain. However, the only thing that the small country assumption states is that the prices at which the rest of the world is willing to sell to the small country do not depend on the quantity which this country buys. In other words, the CIF port of entry price is constant and there is an infinitely elastic supply of foreign goods to the importing country's port. This is quite a different statement from saying that the elasticity of supply of imported goods in a country's domestic markets is infinite. For considerable domestic value added intervenes between the port of entry and the domestic market place: transportation, port labor, wholesaling, retailing, storage, etc. While the supply of pure imported goods at the entry point may be infinitely elastic, it is not at all clear that the supply of the

domestic complementary factors needed for bringing those imports on- to the domestic market is in infinitely elastic supply. Quite the contrary, the evidence indicates that when the demand for imports grows very rapidly, the prices of importables rise, even when no foreign exchange scarcity obtains, as occurs for example in the various LDC oil surplus countries). If demand grows slowly enough, then import supply will expand and the demand-pull inflation will generate a balance of payments deterioration which may eventually lead to a devaluation which in turn will raise the price of importables, with all import-competing goods following. The circle will thus have been closed and the higher prices which the demand-pull inflation entails will have been brought about. In a demand-pull inflation, prices tend to rise ahead of wages and in most cases the share of government in GNP rises as well.

(b) Domestic cost-push inflation is quite a different phenomenon. It is typically set off by demands for higher real incomes, usually wages, backed by the bargaining power of unions or the political power of organized labor. When wages go up, businesses attempt to pass on these wage increases to their buyers raising prices. Along the way, an effort is made to maintain real profits, by anticipating the price increases which will result from the wage-push inflation. Thus, it is not uncommon for a wage-push inflation to be accompanied by a profits-push inflation.

Another kind of cost-push inflation which is also increasingly common has its origin in financial liberalization. When long existing controls on the interest rate are relaxed or removed altogether,

and the cost of money borrowed from banks rises, this typically affects the cost of "modern" business, which finds that its inventory and other financing costs have gone up and that target rates of return on investment must also be adjusted accordingly.<sup>1/</sup> The attempt to pass on these costs increases to customers sets off the interest-push inflation.<sup>2/</sup> Any one of the different kinds of cost push inflation can occur independently of the degree of utilization of capacity; indeed, it is conceivable that demands for higher wages come about as a offset to lesser overtime or shorter working hours. More commonly, profit margins are increased to compensate for a fall in volume of production and sales; thus one quite commonly finds profit-push inflation associated with a recession.

Domestic cost-push inflation does not feed as directly into a balance of payments deterioration as demand pull inflation, since it needs to work through relative price change and substitution.<sup>3/</sup> However, under cost-push inflation, the domestic cost of importing also rises and thus whether or not a balance of payments problem ensues depends very much on the extent to which costs have risen in importing activities in comparison to similar costs in domestic

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<sup>1/</sup> For a discussion of the role of credit in inflation and stabilization see, for example, Aspe (1978), Cavallo (1977) and Schydrowsky (1979).

<sup>2/</sup> Note that the increase in interest costs may be a one time price increase or may be a repeated one if the liberalization is staggered. Its propagation to the prices of goods and services, however, may occur over a number of periods. Thus, while the increase in interest rate will not by itself generate a sustained rate of inflation, the price increase during the adjustment period is not distinguishable by economic agents from a lasting inflation.

<sup>3/</sup> Note that imported cost push will be quite different. For example, an oil price increase affects domestic prices and the balance of payments at the same time.

production. Under cost-push inflation, typically the real income of the factor pushing inflation rises, and the government is likely to lose share of GNP.

(c) Exchange rate inflation occurs when a devaluation is forced by a shortage of foreign exchange which co-exists with ample supply capacity of goods demanded on the domestic market and which also co-exists with absence of costs pressures from the factor supply side. Such a balance of payments crisis could come about when domestic demand expands to more fully utilize domestic installed capacity and this leads to an increase in demand for imported inputs, without a parallel increase in the supply of foreign exchange. Such a situation reflects an imbalance in the economy between the sizes of the traded and non-traded good sectors and may be the result of earlier erroneous allocation of investment resources over time or the result of an erroneous commercial policy which has created a large number of tradeable non-traded goods or both. In any case, the precipitating factor of the inflation is the change in the exchange rate which produces price rises for all imports, competitive price increases in import competing goods and cost pressures in all other sectors of production which require imported inputs and inputs of goods the price of which in turn is related to the rate of foreign exchange. The real incomes of wage earners, profit receivers and government all decline in this type of inflation and the only gainers are the producers of exports, whose returns increase.<sup>1/</sup>

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<sup>1/</sup> To the extent that different income receivers are protected by indexing, these distributive effects are reduced.

It is important to distinguish the exchange rate inflation from the latter phase of a demand pull inflation in which a devaluation also occurs. Under demand pull, the devaluation results from excess domestic demands spilling over into the balance of payments and causing a shortage of foreign exchange. In an exchange rate inflation, there is no excess demand in the domestic market, rather, supply capacity exceeds the quantity demanded and the shortage is only felt in the foreign exchange market because of an imbalance between the demand for foreign exchange at full capacity utilization and the capacity to supply that foreign exchange.

(d) An inflationary spiral ensues when any one of the three other inflations or imported inflation have got the ball rolling and all economic agents attempt to protect themselves from the consequences of the initial price increase. Thus, for example, if a demand-pull inflation starts prices rising, it is not unlikely that a cost inflation will follow as factor income receivers attempt to defend their real incomes. This may well in turn cause the government to expand its deficit finance in an attempt to maintain its real purchases. If the inflation starts with a wage push, this may lead to a fuller utilization of capacity and thereby may set off an exchange rate inflation as a second stage, which may well be followed by further cost-push inflation as wage and other income receivers attempt to avoid the lower real income resulting from the devaluation.

Inflationary spirals are particularly pernicious because they increase the homogeneity of the price system. The longer an inflationary spiral continues the less money illusion there is among



the economic agents in an economy, the more everybody learns to operate in terms of real relative prices and the less anybody is willing to accept a cut in real income relative to anybody else. As a result, once inflation has reached the spiral stage, it may no longer matter very much how it got started.

### 3. Alternative Management of Inflation and Price Stabilization: Profilaxis

"A stitch in time saves nine" according to an old saying; avoiding inflation is the best technique for its management.

In the cases of demand-pull and cost-push inflation, such insight is not very novel or useful, for economists have been preaching for a long time that government should not generate nor permit excess demand and that laborers and others should not demand income increases in excess of rises of productivity. However the context in which this advice is of considerable practical import is that of exchange rate inflation.

When a balance of payments problem occurs, which is the consequence of a specific scarcity of foreign exchange and not the result of demand generally exceeding the installed capacity in the economy, a devaluation will set off inflation and cause a recession, while alternative ways of dealing with the specific scarcity of foreign exchange can avoid the inflationary consequences altogether. The respective techniques are those which have been discussed before in the context of alternative forms of managing a balance of payments problem: essentially using the excess supply in the sector of tradeable non-traded to earn foreign exchange and alleviate the specific scarcity threatening to generate inflation. Thus, differential devaluation, implemented in any of its diverse

ways, is a first rate profilactic for an exchange rate inflation.

It is worth noting that this profilactic approach to exchange rate inflation is useful in contexts which have elements of demand and cost inflation. For example, as the demand pull begins to gather strength, and begins to press on capacity in some sectors, there may still be other sectors which have plentiful excess supply and which can be mobilized to break the bottle-neck arising in the balance of payments as a result of the expansion in demand. Likewise, as cost inflation increases factor incomes and thus domestic aggregate demand and capacity utilization, pressure on the balance of payments is likely to be of the specific sectoral kind (before becoming general), which once again can be dealt with through the techniques appropriate for avoiding an exchange rate inflation. Nonetheless, it should be clear that profilaxis has its limits and will not prevent all inflations from occurring.

4. Alternative Management of Inflation and Price Stabilization:  
Therapeutics

It is useful to consider separately two kinds of inflation: (i) low grade inflation ranging up to perhaps 20-25%, and (ii) virulent spiral inflation, typically 50% and higher and of several years duration.

(i) The low grade inflation can be managed with a simultaneous application of two different techniques. The first of these consists of drowning excess demand in increased supply. A differential devaluation is deliberately applied in order to provoke export-led

capacity utilization in the tradeable non-traded sector. As this sector begins to generate exports, it pulls the rest of the economy with it through the foreign trade multiplier. In the process, new fiscal revenue is generated for the treasury, which partially or wholly drowns the pre-existing deficit; simultaneously the higher income generates a demand for additional financial assets on the part of the private sector, thus enlisting the monetary balance of payments adjustment mechanism in the service of stabilization.

The second technique available is particularly useful in the face of cost inflation and it consists of breaking the inflationary spiral by weakening the link between wage increases and cost increases. The instruments to break this link are three: economies of scale attendant to fuller utilization of installed capacity in the context of export-led growth, increased x-efficiency as a result of higher and more stable volumes of production, and tax reform, substituting payroll and other cost raising levies by alternative revenues sources (such as taxes on Ricardian rents). It should be noted that all three instruments imply increases in productivity and thus represent once and for all gains. They are likely to be quite large, however, and thus may well be sufficient to bring a low-grade inflationary spiral under control. Because of their one time nature, however, their suitability for dealing with rapid inflation is much more limited.

(ii) Virulent spirals are bedeviled by the curse of homogeneity. All economic agents attempt to maintain their real incomes and

nobody is willing to let their terms of trade deteriorate. Economic agents perceive themselves as being in a zero-sum game and are all determined not to lose.

The logical approach to this situation is to develop an incomes policy which freezes relative income shares but reduces the inflation by agreement. However the usual problem is that wages are more easy to control than prices and therefore the labor sector is reluctant to enter into this kind of agreement. The textbook response is to use import competition as a mechanism of price control, opening up the economy through the reduction of tariffs and the elimination of quantitative restrictions and using an active crawling exchange rate as the tool to regulate price increases.

The combination of incomes policy and active crawl has all the elements that should make for its success: control on wages by agreement, control on prices through regulated import competition. Nonetheless, it is not without its pitfalls and dangers. If the economy has been closed for a long period of time, import competition will not initially be very strong. Rather than domestic prices being governed by the ceiling given by the import point, imports are likely to be priced at domestic levels, with rents accruing to importers. This is the result of short run inelasticity in the supply of importing services which was discussed in the context of the balance of payments problems. If domestic prices continue their upward movement, however, the exchange rate

will become over-valued and this will give rise to the expectation that the policy as a whole is unsustainable and that a major devaluation is going to be undertaken in the future. Such expectations undermine the rest of the incomes policy thus reinforcing the divergence between the domestic inflation and the trend in world prices. In the context of the zero-sum game, the expectation that the incomes policy will have to be abandoned is enough to guarantee its lack of success.

The time frame within which one attempts to slow down the virulent spiral therefore becomes fundamental. If enough time is allowed for the link between domestic prices and import points to be solidly established, the policy has a chance of success in terms of its conception. However, with a long time horizon one risks losing the patience of the economic agents who have agreed to the domestic part of the incomes policy. On the other hand, leaning too soon on the slender reed of import competition before it has become a trustworthy bough dooms the policy quite certainly.

A major change in the prospects for stabilization of virulent spirals can come about if the context of the effort is changed from zero sum to positive sum. If each of the economic agents thought that they had something to gain by stabilizing as opposed to merely avoiding losses, agreements would last longer, individual time horizons would be lengthened and the winddown of inflation could proceed at a pace at which it is more likely to be sustainable. In order to transform the context into that of a positive

sum, attention has to be paid once again to the supply side. By including a differential devaluation in any of its forms in the policy package, one can generate some export-led growth based on the use of capacity and unemployed labor in the tradeable non-traded sector, thus providing increases in real incomes to labor, and economies of scale and productivity gains to business; both of these put downward pressure on the spiral as discussed previously. When this supply plank is added to incomes policy and an active crawl, economic agents see that expanded real incomes can go together with less inflation; the willingness to take a risk for stabilization increases and the possibility of individual loss is seen in terms of lower improvement rather than in terms of absolute reduction in real income.

### III

#### Empirical Applicability of Alternative Management Techniques

There are two necessary conditions for the empirical applicability of the alternative short term economic management techniques discussed previously:

(i) unutilized productive capacity must either exist in the economy or must be created as a result of the demand side policies being adopted;

(ii) this unutilized productive capacity must be mobilizable by policy.

Countries evidently differ with regard to both conditions.

The existence of unutilized productive capacity in semi-industrialized LDCs is increasingly documented. Data now exist on shiftwork and days of the year plant and equipment are utilized for a dozen or more countries spanning the various continents. Moreover some work has been done on comparing current output with past peaks. Nobody disputes the existence of abundant employable labor in these countries, and there is evidence as well that skills can be picked up quite quickly. Thus countries that have an industrial sector which have progressed at least somewhat into the ISI phase are most likely to satisfy the first condition.

However, industry is not the only place where LDCs accumulate excess capacity. Studies exist showing how multiple cropping throughout the year can raise the productivity of land. But there is no conceptual difference between multiple cropping and multiple shifting. Thus in many a country excess capacity exists in agriculture as well.

Finally, demand side policies generate excess capacity automatically, by depressing the level of activity. Thus even in the case where there was no excess capacity to begin with, as soon as the level of activity is depressed, scope for supply side measures appears.

One can conclude then that there is a large number of countries in which condition (i) will be found to hold. Nonetheless, the potential contribution will vary by country depending on the importance in the economy of the excess capacity sectors. A direct

relationship with the level of development and industrialization is likely in this case. With the least developed LDCs, alternative management techniques may consist in making a few white elephants gray; for the more developed LDCs a major growth spurt may be involved.

The satisfaction of condition (ii) depends to a large extent on the flexibility of the policy apparatus and the extent to which policy makers are willing to adopt the measures that will bring forth the desired response, independent of ideological prejudice. It must be recalled that policy response elasticities are after all the reactions of individuals to stimuli; in many LDCs, because of their small size, the number of individuals reacting is quite small. As a result, policy makers do not as a rule deal in the impersonal world of the statistical aggregate; they deal with the very personal reactions of a small number of individuals, who can often be identified by name. Under these circumstances, policy reaction can always be obtained, it may often be a matter of making the appropriate political transaction.

Finally, some concerns of a welfare theoretic nature need to be raised. Let us assume that mobilizable capacity exists and that one succeeds in mobilizing it. Almost invariably the measures adopted will imply discrimination between sectors and will entail short run activation of economic production which one may not wish to maintain for the longer run (because short run social marginal cost on installed capacity is likely to be much lower than long



run marginal cost). Trade-offs then apparently arise between long run static welfare optimization and short run needs. The first-best solution is to develop a phased policy that takes into account the gradual growth of the short run into the long run. This would imply activation incentives which are different from investment incentives, for example. The stark choice of achieving short run gain at the cost of long run loss can thus be avoided with appropriate policy design. Should such a desirable policy not be feasible for some reason, then, of course, the short run/long run trade-off has to be faced. Given the size of the potential GNP lost both from cyclical as well as from secular underutilization of capacity and any reasonable discount rate, the gains from long term improved allocation must be very large to outweigh the short term losses. However, since these are magnitudes that can be estimated,<sup>1/</sup> a priori conviction should yield to empirical research.

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1/ Some estimates can be found in Schydrowsky (1980)..

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