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PROTECTION AND EMPLOYMENT
A Macroeconomic Approach

by

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Abstract

A Macroeconomic growth model is set forth to distinguish among Keynesian, Marxian and balance of payments constrained unemployment, as well as to clarify the roles of productivity growth, factor substitution and structural disequilibrium in affecting the growth of employment. The model is then used to assess the effects on employment of the typical kind of protection system found in less developed countries. Protection of this sort is found to be inimical to the growth of employment because of adverse influences on productivity, factor proportions, saving and the balance of payments.

I. INTRODUCTION

Disappointing growth of employment in the "modern" sector has been a common experience of less developed countries (LDCs) over the past two decades of more or less conscious planning for development. Most attempts to explain this phenomenon have focused on factor substitution within the framework of neoclassical production theory. While this approach has been rewarding it leaves some important questions outside the analysis. What determines, or constrains, the rate of investment for the whole economy? What is the effect of generally rising productivity on employment? How do trade and protection policies affect the demand for labor? These questions can best be answered, I think, in a macroeconomic framework of analysis. Moreover, the importance of factor substitution and its relation to other elements in the determination of employment growth can be further illuminated in such an analytical framework. A macroeconomic approach is suggested, therefore, as a complement to the essentially microeconomic analyses of employment growth that are based on production theory.

With this in mind, I will set forth a very simple macroeconomic growth model that is designed to bring out the importance of diagnosing correctly the ruling constraint on investment, as well as to clarify the roles of both productivity growth and international trade and payments policies in influencing employment creation. While the model resembles Harrod-Domar models, the focus is on the relation of capital formation to the growth of employment rather than to the growth of output; and disequilibrium rather than steady-state growth is emphasized.

II. THE CLOSED ECONOMY MODEL¹

Let the "natural stock of capital" be defined as

$$K_{n_t} = k_t L_t \quad (1)$$

where L is the labor force and k is the aggregate capital-labor ratio. The latter depends on the state of knowledge and the structure of the economy, both of which are assumed to be functions of time, as well as on factor prices, which are reserved as policy variables and, therefore, are taken as given. This last assumption is in sharp contrast to that made in so-called "neoclassical" growth models in which growth equilibrium is

¹ This model is essentially the same as that in the writer's "Economic Framework of a Theory of Growth", Economic Journal, March 1958.

assured through automatic adjustments of factor prices. The view here, which I think is more realistic, is that while factor prices do affect factor proportions, they do not adjust automatically in an equilibrating fashion. Moreover, they are very much influenced by government policies.

Differentiating equation (1) with respect to time yields the "natural rate of capital formation"

$$\dot{K}_n = \dot{k}L + k\dot{L} \quad (2)$$

where a variable with a dot over it is the derivative of that variable with respect to time, and the t subscripts have been omitted for convenience. Substituting I (investment) for \dot{K} and re-arranging, equation (2) can be rewritten as

$$I_n = k \left(\frac{\dot{k}}{k}L + \dot{L} \right) \quad (2a)$$

The expression in parentheses I call the "rate of emergence of free labor", its two components being the time rate of growth of the labor force (\dot{L}) and the time rate of laborsaving ($\frac{\dot{k}}{k}L$). Thus there is both a Malthusian and a Marxian source of the free labor supply. The affinity of the free labour supply, itself, to Marx's "reserve army of the unemployed" should be evident.

The rate of laborsaving can be interpreted in the following way. A given (value of) capital may require less labor over time as knowledge progresses and the structure of the economy changes. That is, technical progress may be biased in favor of the use of capital against labor and structural change may involve the shifting of employment toward more capital-intensive sectors. The labor "saved", together with \dot{L} , will simply swell the reserve army of unemployed unless capital formation is at a sufficiently high rate (given k) to absorb it. The natural rate of capital formation is, then, the rate that would prevent the reserve army from growing - i.e., one that implies a rate of absorption of free labor that just matches the rate of emergence of free labor.

I am passing over difficult problems of measurement and aggregation because I have nothing to contribute to their solution. I could assume that a single commodity is produced with different techniques in "traditional" and "modern" sectors; and that it is exported in exchange for

machines at given world prices. I do not think that this helps very much, however. One either believes that simple aggregative models of this sort are useful in suggesting implications for the real world or one does not. For the questions raised above in the introduction I think that this one is useful.

There is one element of additional realism that should be added, however. In general we cannot assume that the capital-labor ratio at which new investment is taking place - call it k^* - is equal to k , the average for the economy. Insofar as new machines are more laborsaving than older vintages and the modern sector is growing more rapidly than the traditional, k^* will be greater than k . Hence we should rewrite (2a) to read

$$I_n = k^* \left(\frac{\dot{k}}{k} L + \dot{L} \right) \quad (2b)$$

Up to this point the analysis is classical, or Marxian, in that deficiency of aggregate demand as a cause of unemployment has been ignored. "The demand for labor is not the demand for commodities" but is, rather, capital formation. Since Keynes' General Theory we no longer accept John Stuart Mill's famous dictum. But introducing the demand for labor via the demand for commodities does not supplant the classical demand via capital formation. Rather another equilibrium condition is added. Not only must capital formation create jobs, but it must also be at the appropriate level (given the saving function) to create an aggregate demand for goods equal to the supply of goods those jobs are capable of providing. This gives us a "warranted rate of capital formation" equal to saving at full capacity output.

$$I_w = S^* \quad (3)$$

If we let $S^* = sY^*$, where Y^* is full capacity output; and if we define p (for labor productivity) as $\frac{Y^*}{L}$, then (3) can be rewritten as

$$I_w = spL \quad (3a)$$

I am avoiding the term, "full employment", for obvious reasons. "Full capacity" is not much better, but what is meant is that point (or range) beyond which excess demand inflation becomes serious. Admittedly that is not very precise, but the lack of precision is not very important for the discussion that follows. At full capacity in LDCs there could be considerable unemployment and underemployment of labor.

Growth equilibrium requires, then, that the actual rate of capital formation (I_a) be equal both to the natural rate and to the warranted rate.

$$I_a = k * \left(\frac{\dot{k}}{k} L + \dot{L} \right) = spL \quad (4)$$

The parallel to the Harrod-Domar model is obvious. There investment plays a dual role as a critical element in aggregate demand and as a creator of productive capacity. Here, similarly, it is a critical element of demand and a creator of jobs. This way of looking at it emphasizes that employment requires two conditions to be met: (1) that the job has been created, and (2) that there is a demand for the job. The distinction between the classical (and Marxian) demand for labor and the Keynesian demand for labor is important, as we shall see shortly, in distinguishing the problem of unemployment in LDCs from that in industrialized countries.

Finally, the close relation of my natural and warranted rates of capital formation to Harrod's natural and warranted rates of output growth is also obvious. However, the model set forth here has, I think, three advantages for the purpose at hand. First, the focus is on employment. Second, it is more convenient for differentiating various disequilibrium cases. Third, it helps to clarify the role of productivity growth. In the Harrod model the latter is a proxy for laborsaving, which is legitimate only if the capital-output ratio is, in fact, constant.

Returning to equation (4), if we divide through by L, we can state the same condition for a given labor force and also show the relationships conveniently in Figure 1.

$$\frac{I_a}{L} = k * \left(\frac{\dot{k}}{k} + \frac{\dot{L}}{L} \right) = sp \quad (4a)$$

Let g represent the expression in parentheses - the proportional time rate of emergence of free labor (the flow into the reserve army) - so that the natural rate of capital formation is simply $k * g$. The parameters $k * g$, s and p are represented in Figure 1 by the slopes of the lines so identified.

The particular case represented in the diagram has $I_n > I_w$. If the actual rate of investment, I_a , were held at I_w , the Keynesian criterion would be satisfied (aggregate demand would equal full capacity

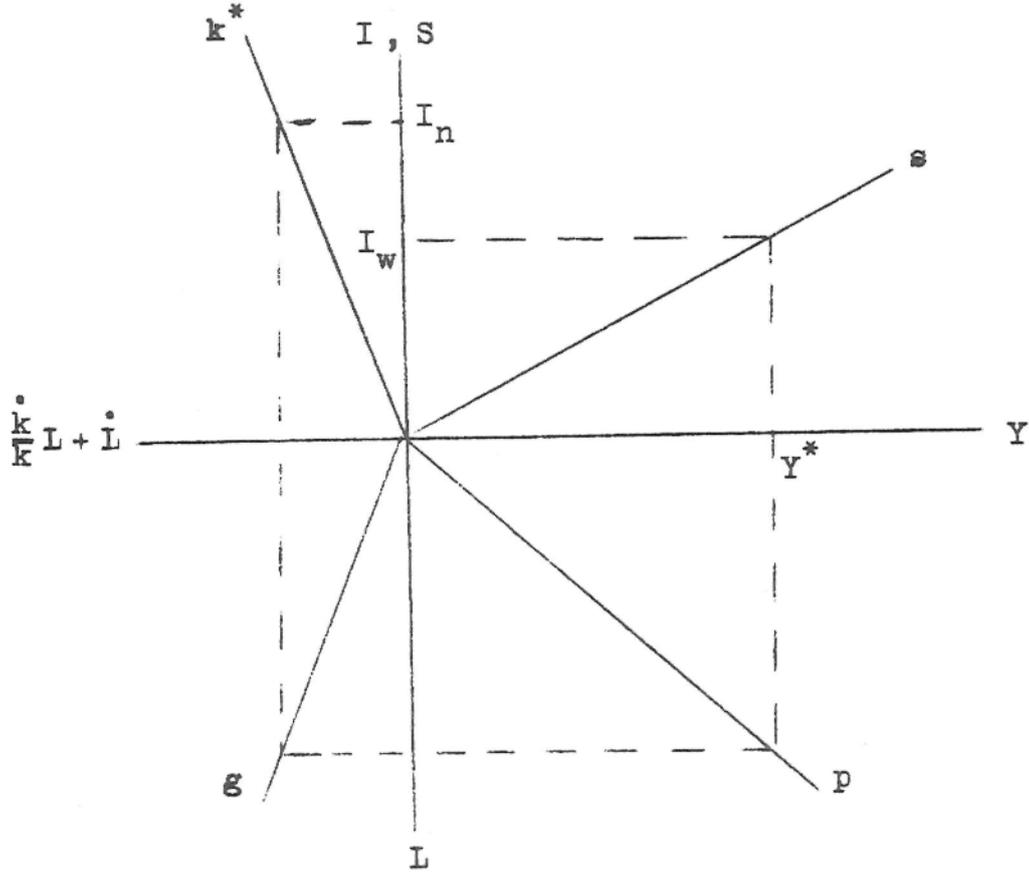


Figure 1

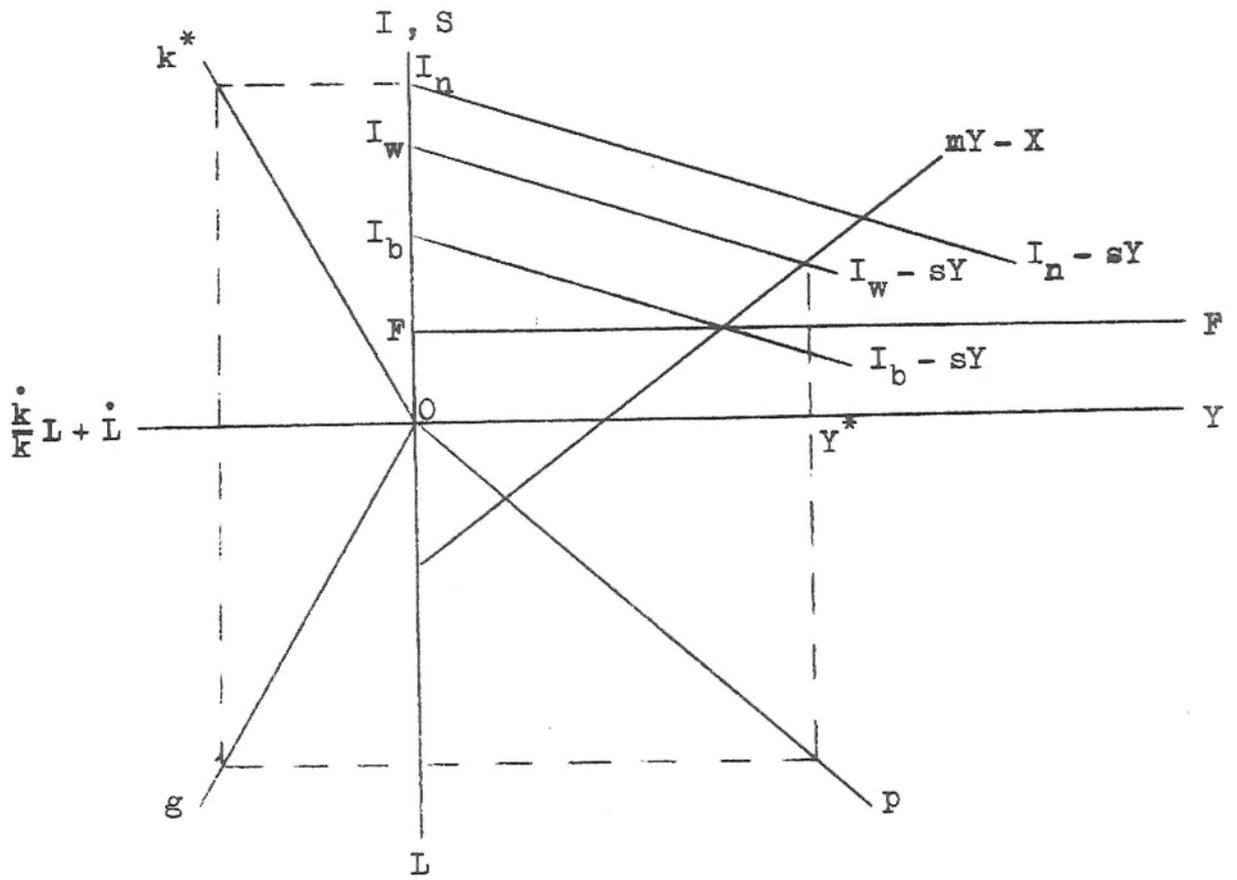


Figure 2

aggregate supply); but I_a would fall short of I_n , implying that the rate of job creation was inadequate for the rate of emergence of free labor. The reserve army of unemployed would grow. On the other hand, to raise I_a in an attempt to speed up the creation of jobs would open an inflationary gap between aggregate supply and demand.

This makes very explicit Joan Robinson's distinction between Marxian and Keynesian unemployment. When $I_a = I_w \leq I_n$, the former is growing while the latter is absent. This is the typical LDC case, where population growth is relatively rapid, opportunities for laborsaving through structural change are seemingly endless, and a vast backlog of laborsaving techniques is still largely untapped. More developed countries, in contrast, are nearer to the frontiers of technology, generally have slower rates of population growth, and have largely completed the transformation from a traditional agricultural economy to a modern industrial one. This means that the parameter g , the rate of emergence of free labor, will vary greatly between less and more developed countries. On the other hand, one does not find capital-output ratios (k/p) greatly lower nor saving ratios (s) greatly higher in LDCs. Yet it is one or both of these that is required to offset the difference in g if the two sets of countries were to be in similar positions relative to growth equilibrium.

If this is right it provides a very good reason for not using equilibrium growth models. I have already indicated my belief that LDCs typically fall in the Marxian case of disequilibrium. I believe also that most developed countries, at least when they are not spending great sums on armaments, fall in the Keynesian case - though that judgement has no relevance for the present discussion. The distinction between the two kinds of unemployment is very relevant, however, and its importance becomes evident when one considers remedies. When $I_n > I_w$, what is needed are higher values for s and p , or lower values for k^* and g . That is, a higher saving propensity, greater productivity, slower population growth, and lower capital intensity, represent ways of curing Marxian unemployment. When $I_w > I_n$, exactly opposite changes are called for (though faster population growth and lower productivity would represent particularly bad remedies on virtually all other grounds).

Note particularly the role of p - labor productivity. In the LDC case a rise in p , per se, is helpful in solving the problem of unemployment. The reason is that it means increased output and saving. Of course, this holds only if the other parameters do not simultaneously move adversely to offset the favorable effect. In particular what we assume about k is important; for we often think of a rise in k as being responsible for a rise in p . When this is the case (assuming "well-behaved production functions") the change is adverse to employment, since p will rise. It is these cases that are usually assumed when p is used as a proxy for k to measure laborsaving. There are, however, many opportunities for raising p without raising k in the same proportion and it is unfortunate, therefore, that productivity increase is sometimes equated with laborsaving. Indeed, this could tend to bias employment policies against the idea of raising labor productivity when some productivity-increasing measures might be very helpful to employment creation.

Yet another implicit assumption that often lies behind the bias against productivity increase is that there is a demand limit on output. Then higher productivity automatically means less employment. The model shows clearly, however, that a demand limitation should not prevail for countries with Marxian unemployment. A rise in productivity, cet. par., raises the level of the constraining warranted rate of investment, permitting a rise in actual investment just to the level needed to maintain aggregate demand equal to full capacity aggregate supply. So Keynesian equilibrium is preserved while the growth of Marxian unemployment is reduced. In contrast, when the natural rate of investment is the constraint (Keynesian case) a rise in productivity does nothing to ease the constraint, but simply puts the warranted rate further out of reach. (Of course there are ideal measures that could be implemented to take advantage of the productivity increase, but these are the same measures that were inadequately implemented before to consign the country to the Keynesian case of disequilibrium.) Having said all of this, I recognize, nonetheless, that LDCs often appear to face a pseudo-Keynesian situation where deficiency of aggregate demand limits employment and output. Analysis of this situation requires extending the model to the case of an open economy.

It is assumed in what follows that countries are typically in some kind of disequilibrium rather than in golden age equilibrium; and it is further assumed that LDCs tend to fall on the side of Marxian unemployment and excess demand inflation.

III. THE OPEN ECONOMY MODEL

The model cannot begin to be useful for our purposes, however, until we extend it to the open economy case. The natural rate of capital formation remains unchanged, but the warranted rate must be modified and a new rate added - the balance of payments constrained rate of capital formation, I_b .

To keep the model as simple as possible, I simply add exogenously determined levels of exports (X) and foreign capital inflow (F), as well as an import propensity (m). Then I_w , which is still the rate of investment that meets the Keynesian condition of aggregate demand equal to full-capacity aggregate supply, becomes

$$I_w = (s + m) pL - X \quad (5)$$

That is, the warranted rate of investment is equal to the sum of saving and imports at full capacity less exports. The balance of payments constrained rate of investment, in turn, is

$$I_b = s \frac{X + F}{m} + F \quad (6)$$

Since $\frac{X + F}{m}$ is the balance of payments constrained level of output, I_b is simply domestic saving at that level of output plus the foreign capital inflow. These can easily be interpreted also with the aid of a familiar diagram which is incorporated in Figure 2 (p.5) in the upper right-hand quadrant. I_w is seen as that level of investment which, given s, will determine a line, $I_w - sY$, which will intersect $mY - X$ at $Y = Y^*$. I_b is that level of investment which, given s, will determine a line, $I_b - sY$, which will intersect $mY - X$ where the latter (the trade deficit) just equals F, the given foreign capital inflow.

Note particularly that F influences only I_b while a change in the trade balance (via a change in m or X) will affect both I_b and I_w , but in opposite directions. An improvement in the trade balance, for example, will lower I_w and raise I_b ; and the two will coincide if $mY - X$ intersects FF where $Y = Y^*$.

The case depicted in the diagram is one where $I_b < I_w$. To put investment at the warranted rate would mean a balance of payments deficit. To avoid the deficit, investment must be held below the Keynesian equilibrium level. This implies unemployment due to deficiency of demand. I prefer not to call this Keynesian unemployment, however, because it is not amenable to Keynesian remedies (taking the balance of payments as a constraint). It is I_b , not I_n , that constrains I_a below I_w . Hence I call this "balance of payments (BOP) unemployment".

There is another kind of balance of payments unemployment that is very common. This occurs when, instead of reducing investment, the government tightens import controls and a shortage of imported inputs reduces output capacity and employment by a supply multiplier. This could be shown by a shift to the left of Y^* .

To complete the picture in Figure 2 for the LDC case, I have shown $I_n > I_w$. The implication is that a balance of payments constraint means LDCs can suffer simultaneously from Marxian unemployment and unemployment that is due to deficiency of demand - in this case, BOP unemployment.

With no change in the other parameters, I_b could be raised to I_w by increasing F . This would permit a rise in I_a to reduce both Marxian and BOP unemployment. Beyond that a further increase in F could raise I_b to I_n . A rise in actual investment to I_n would no longer be constrained by balance of payments considerations, but now only by the inflation barrier. To remove the latter, $mY - X$ must be shifted upward - i.e., some combination of reduced exports and increased imports is required. (I rule out an increase in s as an alternative since, if that were possible, the country would not properly fall in the LDC category for the purpose of the discussion here).

In contrast, an improvement in the trade balance (downward shift of $mY - X$) can bring I_b to equality with I_w only at a lower level of the latter. As noted above, the two will coincide when $mY - X$ intersects FF at $Y = Y^*$. Beyond that an improvement in the trade balance is simply inflationary. The difference in the two cases is, of course, that the only additional real resources made available for investment by improving the trade balance are represented by the additional domestic saving from the expansion of output to full capacity, while the increased F adds to this the availability of more resources from abroad. In this context it is evident that trade is not a substitute for aid. But, of course, in this context the other parameters are fixed. In fairness to the proponents of trade as a substitute for aid, it must be noted that this is just what they do not assume.

I will refrain from pursuing this case any further at this point since the main purpose here is to establish an analytical framework. There are, indeed, 75 cases of different relationships among I_a , I_w , I_n and I_p , only one of which represents equilibrium. Thus there are 74 cases of growth disequilibrium involving different combinations of BOP deficit or surplus, three kinds of unemployment (BOP, Keynesian and Marxian) and three kinds of inflation (BOP, wage-price and excess demand). (For precise definitions of these, see Appendix I.) This is clearly unmanageable, but fortunately the number can be reduced substantially by omitting cases where remedies are relatively simple (such as pure inflation and deflation cases similar to those omitted in the closed economy context). This, plus the fact that less than half of the cases are relevant to LDCs and the assumption that LDCs find it easy to avoid BOP inflation by raising imports (at least in the long run), makes it possible to narrow down to six cases that are of primary interest here. (See Appendix II.) I should add, perhaps, that the number of interesting developed country cases cannot be reduced so easily. I should add also that many of the LDC cases that I have suggested could be omitted would be of great interest for other purposes.

In any case, my aim here is not to present a number of cases but, first, to emphasize the variety of kinds of structural disequilibria that are possible and the contrasting remedies they require; and, second, to provide a theoretical framework that can be applied on an ad hoc basis to questions about the relation of protection to employment. For that the diagram in Figure 2 is useful. It is the same, of course, as that in Figure I except that the upper right-hand quadrant has been modified to allow for the influences of exports, imports and the inflow of foreign capital.

IV. PROTECTION IN THEORY AND PRACTICE

Protection should encompass all of those measures that favor domestic industries at the expense of rival foreign suppliers in both home and world markets. Japan stands out among the countries that appear to give as much attention to protecting their industries in export markets as at home. The typical LDC, in contrast, protects its industries only in the home market through tariffs and import restrictions without balancing subsidies to exports. Accordingly LDC protection is usually associated with an import substitution bias in industrialization strategy. It is this typical kind of protection that is considered here.

Since I have described this kind of protection and discussed its shortcomings at some length elsewhere,³ I shall not dwell on that here. Before turning to the application of the model described above to the question of the effects of protection on employment, however, I would like to comment briefly on the meaning of protection and on the origins and character of typical LDC protection systems.

The most important point to emphasize about protection is that it is relative. It is impossible to protect every activity equally. To attempt to do so would result in no protection at all. Suppose, for example, that a ten per cent duty were imposed on all imports (in a situation of initial free trade equilibrium), and a matching ten per cent subsidy is awarded to all exports. Even invisibles would be included so that there is equal protection for each activity. Immediately prices and values added would be higher for all traded goods. There would be an incentive for them to expand vis à vis non-traded goods, but as they did so a surplus would arise in the balance of payments. Assuming that the country does not want to provide unrequited exports to the world, the value of its currency must rise. Equilibrium would be attained only when the appreciation reached ten per cent - i.e., when it has nullified the effects of the tariffs and subsidies. "Net protection", defined as the rate of protection less the proportion by which the equilibrium value of the currency is raised by the whole protection system, would be zero for all activities, just as in the case of free trade.

Consider now the case where the ten per cent tariff is not matched by equivalent subsidies to exports. Again the currency must appreciate, but in this case the appreciation will normally fall short of the tariff percentage, leaving a residual of net protection. The reason is that export earnings will normally decline as the currency appreciates so that the appreciation need not fully erase the incentive to import substitution.

Looking at this under less normal circumstances, suppose that the elasticity of supply of exports were zero, or the elasticity of demand for exports were unity. Then the currency would have to appreciate by the full percentage of the tariff rate, erasing completely any protective effect. Under these circumstances net protection for import substitutes would be zero for any

3 "Import Substitution as an Industrialization Strategy", Philippine Economic Journal, 1966; and "The Role of Protection in Industrialization Policy: with Particular Reference to Kenya," Eastern Africa Economic Review, June 1972.

level of tariffs! And if the elasticity of demand for exports were less than unity, net protection for import substitutes would be negative no matter how high the (uniform) tariff was set. In general, the proportion by which the appreciation reduces protection is greater the less responsive are export earnings, since more of the adjustment is left to imports. Ironically, however, a low export response is sometimes used as an argument for protection.

In the normal case, however, there would be some positive net protection for import substitutes. If we now consider, more realistically, that we do not usually have uniform tariffs - that rates range from very high to zero - we can discover cases of negative net protection without regard to penalties from protection on inputs. An export good, for example, or duty-free materials or machinery, would have negative net protection (both nominal and effective) just to the extent of the undervaluation of foreign exchange.

I have devoted a little to this point, first, because it dramatizes the penalty on exports, or on potential domestic substitutes for low-duty imports that protection systems usually impose. Moreover, it helps to explain why protection systems often give greater encouragement to the processing of foreign primary and intermediate inputs than to the processing of domestic materials. It is common, indeed, for foreign supplies to enter at less than free-trade equilibrium prices, owing to the combination of low duty plus (more than matching) undervaluation of foreign exchange that the higher duties on finished products defend. Finally, it is especially important to note that, for the same reason, capital equipment typically also enters at prices that are kept artificially below free trade levels by the system of protection.

Another important implication of this is that it is not possible to treat the whole economy as deserving protection on the ground that every industry is an "infant" vis à vis the developed world. The more broadly (equal) protection is extended, the more it is diluted for each activity. In practice this means that, if it is decided to accord protection for infant industry reasons, the policy will be more effective if selectively applied to a few most deserving of the status, rather than broadly extended to every "pioneer" industry.

Turning from protection in theory to protection in practice, we should note that it is very common for an LDC protection system to have had its genesis in a balance of payments crisis. Typically import or exchange controls were first adopted as a temporary expedient on the reasonable assumption that these would have an immediate effect on foreign exchange use, while

other more fundamental remedies could be expected to take longer to be effective. These temporary measures very often have evolved into a strategy for industrialization, however, for at least three reasons. First, they tend to be highly effective in controlling the balance of payments in the short run, their deficiencies becoming apparent only after the system has become well entrenched. Second, even if the government had every intention of employing import controls solely as an emergency measure until more fundamental remedies could be implemented, the disappearance of the crisis makes it easy to neglect long-run solutions in favor of more immediately pressing problems in other areas of policy. Third, vested interests soon develop behind the protection offered by the controls.

The pattern of industrialization that follows carries the stamp of the priorities determined in the balance of payments crisis. It is natural, in such an emergency, to ration foreign exchange in accordance with use priorities. "Essentials" are liberally imported and "non-essentials" are restricted without regard for the protective effect. Increasingly, as domestic manufacture of consumption goods expands, the essential category comes to mean largely the components, materials and equipment needed as inputs in the consumption goods industries. So there develops the familiar pattern of "escalating rates of protection", highest on consumption goods (especially high on the least essential ones), lower on intermediate goods, and usually lowest on raw materials and capital equipment. The result is that consumption goods may enjoy extremely high rates of effective protection, while exports, capital goods and raw materials suffer negative protection. The pattern of use priorities is exactly reversed so far as protection of domestic production is concerned.

V. PROTECTION AND EMPLOYMENT

We should not, of course, expect protection systems of the kind described above to be designed to favor employment. What is ironic, however, is that unemployment can be a long continuing problem and nothing drastic is done - no drastic population policy, no drastic factor proportions policy. But a balance of payments problem gets immediate attention and often decisive - if crude - action. The emergency balance of payments policies then eventually become rationalized as industrialization and employment policies with consequences that are often detrimental to employment growth.

To see why this might be so, let us return to the growth model that was described in section III above. Consider first just the effect of a balance of payments constraint, as pictured in Figure 2. Suppose that the remedy adopted is to hold I_a to the level of I_0 - the classical medicine of

restricting aggregate demand. The result would be BOP unemployment from the deficiency of aggregate demand plus growing Marxian unemployment owing to the gap between I_n and I_b . This means that, because of the foreign exchange constraint, some jobs already created must remain unfilled; and, in addition, saving potential must be underutilized so that the rate of creation of new jobs is also below potential. (Even without a balance of payments constraint, of course, the potential for new job creation would be only I_w , which is below I_n , the rate needed to keep the reserve army from growing.)

A better alternative might appear to be a reduction of consumption - i.e., a rise in s . While this would not eliminate BOP unemployment, conceivably I_b could be raised to the level of I_n , eliminating the growth of Marxian unemployment. (The slope of the line, $I_b - sY$, would be increased until I_b coincided with I_n .) Of course this would simultaneously raise I_w above I_n , taking the country out of the defined realm of LDC cases. While this might be possible in a poor country with an extremely powerful authoritarian regime, I prefer to rule it out as a practical option here.

It seems, in any case, that there should be a strong incentive to seek alternatives to depressing investment or forcing down consumption. A rise in F , as was indicated earlier, would permit investment to rise to I_n and beyond to I_n ; but such an amount of foreign capital may not be available on acceptable terms.

What is left are trade policies. Shifting $mY - X$ sufficiently downward could eliminate BOP unemployment and somewhat reduce the growth of Marxian unemployment, given the other parameters. But there are many ways to influence $mY - X$ and the other parameters are not likely to remain fixed. Rather they are likely to respond in different ways to alternative trade policies.

The evaluation of a particular form of trade policy, such as typical LDC protection with its import substitution bias, should accordingly be made in terms of its effects on saving, productivity and capital intensity, as well as its effect on the balance of payments. The common argument that, while tariffs or import restrictions involve loss of allocative efficiency, they are at least employment-creating is, therefore, not necessarily correct. It is not simply a matter of trading efficiency for employment. What happens to the parameters, p , s and k^* , will determine the growth of Marxian unemployment even if the trade balance is improved enough to permit the elimination of BOP unemployment. Moreover, there is a question whether such protection policies are effective in the long run even in improving the trade balance. Accordingly,

I shall try to assess some of the implications for employment of typical LDC protection under four headings: the effect on p , the effect on s , the effect on k^* and the effect on the balance of payments constraint. The model indicates that favorable to employment for LDCs would be higher values for p and s , a lower value for k^* and a level of I_b at least equal to I_w .

The effect on p is straight-forward, I think. Empirical studies of LDC protection systems almost invariably indicate a very wide range of effective rates of protection, implying that some import substitution industries require far more resources to save a unit of foreign exchange at the margin than do others, or than do exports to earn a unit of foreign exchange even when terms of trade effects are counted. The resource cost of balancing the foreign exchange budget is likely, therefore, to be much greater than it need be and this waste of resources means a lower p .

It is likely that p is lower also as a result of the blunting of the forces of competition that protection allows. In most LDCs the size of markets is not sufficient to support a number of firms of economical size great enough to ensure vigorous domestic competition. Hence, without foreign competition, the drive for efficiency and progress is likely to be weaker.

Moreover, the bias toward many small consumption goods industries, horizontally balanced in relation to consumer demand, rather than more specialized, more vertically integrated, larger-scale industries that would be producing for both domestic and world markets, means that potential gains from economies of scale and from learning-by-doing in the context of more rapid and more concentrated growth have been sacrificed.

Since all of these adverse effects on p are independent of k , there is no labor-using element in them to compensate for the loss in output and, therefore, in saving. Hence they mean simply a reduction in I_w and an intensification of the problem of Marxian unemployment. I stress this because inefficiency is sometimes thought to imply "make-work". Here again the importance of a correct diagnosis of the ruling constraint on investment is emphasized. In the Keynesian case ($I_w > I_n$), a lower p would mean more employment; in the Marxian case, it would mean more rapidly growing unemployment. As I have suggested above, when there is a balance of payments constraint we have a "pseudo-Keynesian" case. BOP unemployment, like Keynesian unemployment, can be reduced through lower productivity. It is true, then, that if typical LDC protection were indeed successful in removing the balance of payments constraint, the combination of import substitution and reduced efficiency would diminish BOP unemployment. (The slope of p would become steeper, while the slope of $mY - X$

would become less steep.) The lower p , by itself, however, would worsen the problem of Marxian unemployment. Any method of improving the trade balance which does not involve a reduction (or as great a reduction) in productivity would be just as effective in curing BOP unemployment and would be superior with respect to Marxian unemployment. In this case, then, less efficiency from trade policies does not "make work".

I turn now to saving. A few years ago it was popular to argue that creating profits through protection was a means of raising saving. By turning the terms of trade against the non-protected sectors, income would be shifted to profits in manufacturing where there was alleged to be a higher propensity to save. This theory is little heard of today because of the dearth of evidence to support it. Instead it seems that protection often means inefficiency, high wages and salaries in the protected sector, and a rapid rise in urban consumption rather than higher saving. Inefficiency has meant that, although income was transferred from agriculture and other less protected sectors, much of it was dissipated in higher costs. Workers, at all levels, have been able to capture a substantial portion of the transfer to support high urban consumption standards. The emphasis on consumption goods production - especially of non-essentials - that is induced by the structure of protection has meant that the government is unable to take strong measures to curb non-essential consumption without creating unemployment and excess capacity. Finally, the saving propensity in the model, s , may be a function of p (where p serves as a proxy for per capita income). If this is so, adverse effects on p would have a double effect in reducing saving.

In some LDCs a considerable portion of saving must come from foreign private companies. Here the typical system of protection has an especially unfortunate effect. For the system invites foreign companies to invest for profits that come from the protection offered, not from using local resources efficiently enough to compete with the world. This purely import substitution kind of investment is likely to be a one-shot affair, with initial invest just enough to meet local market demand. The natural avenues for reinvestment would be backward integration and exports; but since these have low or negative effective protection it is not surprising that profits are repatriated instead. This could have a very substantial effect on the amount of saving that remains in the country. An obvious implication is that foreign investment that promises exports should be strongly favored.

I should add that the bias in protection systems against backward integration and exports tends to create a poor investment climate (at some stage) for all - domestic and foreign capital alike. The implication is that I_a , the actual rate of investment, may be held below any of the other constrained rates by the constraint of the investment climate.

Turning now to factor proportions, we can identify a number of ways in which protection adversely affects k^* . First, and perhaps most obvious is the effect of the structure of protection on the domestic prices of imported capital goods. Typically they enter, even with modest duties, at below free trade equilibrium prices because of the undervaluation of foreign exchange that the system of protection defends.

In addition there is the discouragement to the development of a local capital goods industry. This may be adverse to employment in two respects. First, many capital goods industries are economical at small scale with labor-intensive methods (though the skill requirements may be relatively high). Second, there is some evidence to suggest that a local machinery industry may produce machines that are less labor-saving in use, i.e., more in tune with local factor proportions.

Protection tends to bias k^* in the wrong direction also by, in effect, underwriting - or even intensifying - factor price disequilibrium. Permitting via protection a rise in the price of the manufactured product to offset high urban wages may only invite further wage increases. These, in turn, provide a rationale for more, or at least continuing, protection, and so on. Therefore, while protection may neutralize the effect of a dualistic wage structure insofar as competition in the domestic market is concerned, it may at the same time intensify the bias against the use of labor in manufacturing.

Another adverse effect on employment through capital intensity may come from the bias protection creates in favor of manufacturing based on imported inputs over the processing of domestic materials.⁴ This bias stems from one or both of two important consequences of typical LDC protection systems. First, there is the general penalty on exports that protection of import substitution creates. Because of wage dualism this is especially harmful to manufactured exports. Primary exports, in contrast, often survive the effects of the penalty because of lower wages and more flexibility in factor prices generally. Thus many LDCs can successfully export primary products at an exchange rate that precludes the export of manufactures and permits manufac-

4 The following argument is based on the writer's "A Note on Protection and the Processing of Primary Commodities," Working Paper No. 60, Institute for Development Studies, University of Nairobi, August 1972.

turing for the domestic market only behind substantial protection - this despite the fact that correction for wage dualism might indicate a real comparative advantage in some manufacturing industries.

The second source of bias against processing is the effect of the undervaluation of foreign exchange that protection depends on the relative prices of imported inputs and domestic materials. With zero or low duties the former can enter below free trade equilibrium prices. This bias depends on the assumption that the domestic materials are not exported, however, since if they were they would also be undervalued to the same extent.

To generalize the analysis of the bias against processing, let us consider two goods, a primary commodity and the product resulting from processing it. The primary commodity might be exported or not, while the processed product might also be exported or substituted for imports behind protection. We have, then, four possible combinations, each of which can be compared to an import substitution industry that is processing imported inputs behind protection.

First, if the primary commodity is not exported, industries that use it as an input will be at a disadvantage vis à vis import substitution industries that use imported inputs because of the undervaluation of foreign exchange. This would be true even if the processed product were also a protected import substitute. If, however, the processed product is an export, there is a double disadvantage owing to the negative protection of exporting activities. (Note that even if there were fully effective drawbacks of duties on protected inputs, exporting activities would still have negative net effective protection because of the undervaluation of foreign exchange.) On the other hand, if the primary commodity is exported, its price also will be lower because of the undervaluation of foreign exchange, so that its processing is at a disadvantage only if, and because, it produces a product for export. These results are summarized in Table I, where the nature of the bias, if any, is shown in the appropriate cell.

Table I

Biases Against Processing of Domestic Commodities

		<u>Processed Good</u>	
		<u>Export</u>	<u>Import Substitute</u>
<u>Primary</u>	Export	negative protection of exports	no bias
<u>Commodity</u>	No Export	both biases	undervaluation of imported inputs

The most important case might be that in the upper left-hand corner, since if a country has a surplus for export of a primary commodity it is likely also to have a potential surplus of the processed product. One can imagine, however, cases where both biases are present - e.g., a raw material supply that would remain underdeveloped without an export market for a manufacturing industry that used it. In any case, however, the bias against exports that is inherent in protection of import substitutes is likely to inhibit the development of manufacturing based on domestic raw materials. Too often this point is missed because attention is focused on the choice between exporting the raw material and exporting the processed product. The raw material will be exported, however, in either form. The important choice is whether to allocate labor and capital to the processing of imported inputs in protected import substitution industries or to the processing of domestic raw products for export.

It is ironic that many LDCs are adding this discrimination against the processing of their own primary products to that which comes from the heavy protection of processing in the developed countries. When we add wage dualism we see that there is a triple bias against processing and in favor of continued dependence on primary exports.

What are the implications for employment from this bias against processing? In general we cannot be sure since they turn on the relative factor intensities of the alternative industrial mixes.⁵ Nevertheless, it seems likely that, from the standpoint of both type of industry and location, the processing industries might tend to be more labor-intensive than the import-dependent import substitution industries. The latter tend to concentrate in large urban centers with convenient access to ocean transport. It is in these "import enclaves" (as Hirschman has called them) that wage rates are highest and imported capital equipment cheapest. Moreover, since these are predominantly industries producing locally the same manufactured goods that were formerly imported, often by foreign capital or under foreign licensing, there may be a strong bias toward the capital-intensive techniques of the developed countries. In contrast, the processing industries would tend to be more dispersed in a supply-influenced pattern throughout rural and semi-rural areas where wage rates are lower and where there would be more participation of local entrepreneurship in the various stages from primary production to finished manufacture.

⁵ Differences in productivity and saving are also relevant, of course, but perhaps less predictable.

Still another adverse influence on k^* may come from the context within which firms make their investment decisions under protection. If a firm feels constrained by the size of the market, rather than by the amount of capital at its disposal, it will maximize profits with greater capital intensity than it would under an assumed capital constraint. A bias toward import substitution behind protection is certainly more likely to create a market constraint bias in investment decisions than is an outward-looking industrialization strategy. Therefore, this may be another reason to expect slower growth of employment under protection.

I turn, finally, to the balance of payments constraint, itself. It was noted above that protection is an inefficient means of attempting to improve the trade balance. Indeed, it may turn out in the long run merely to prolong the balance of payments constraint. One could simply point to the many countries that have had this experience as evidence. In addition, however, I think one could argue that it is not really surprising. What the system does is to raise steadily the domestic resource cost of saving foreign exchange through import substitution. Because of the biases against exports and backward integration, the system must move on to less and less comparatively advantageous consumption goods industries. It should not surprise us, then, if the process ends in both chronic balance of payments difficulties and industrial stagnation. It would take a complete reform of the system to open the way for industrial exports and backward integration; and yet, at some point, it is only these that can both solve the balance of payments problem and permit continuing growth in industrial output and employment.

VI. TOWARD MORE RATIONAL PROTECTION

Among LDCs there is a general commitment to industrial protection as a means of stimulating economic development. Yet the preceding analysis of protection and employment suggests a very pessimistic conclusion: protection, as it is commonly practiced in many LDCs, appears to be strongly biased against the growth of employment. Does this imply that the commitment to protection is mistaken - that free trade would represent a better development policy? Or does it mean that employment growth must be sacrificed to output growth?

The answer is, I think, that neither of these implications should be drawn. With the right kinds of policies there should be no serious conflict between output and employment goals. And there are certainly valid reasons for including protection as an element of development policy. What is at fault is the typical form that LDC protection systems have taken. In particular, an almost exclusive concern with protection of the home market has tended to promote

what, years ago in his first report as Director General of UNCTAD, Raul Prebisch indicted as "inward-looking industrialization".⁶ Since then an accumulation of evidence from the experiences of LDCs with protection of the home market has underlined Prebisch's indictment.

What is the alternative? Prebisch urged preferences in the rich countries' markets for the manufactures of the poor countries. Others have urged trade preferences among LDCs, themselves. While both are desirable, both also require difficult international political agreements. It is not surprising that such arrangements have been slow to materialize. What an individual country might accomplish more quickly is the reform of its own protection system. While it is not possible here to give more than a very brief indication of what I would suggest as guidelines for such reform, these have been spelled out in greater detail in an article cited above.⁷

Principally what is required is to find ways of meeting the legitimate aims of protection - such as encouraging infant industries, rewarding for external economies, offsetting wage dualism and correcting for terms of trade effects - that avoid the biases against exports, backward integration, and the use of labor, that are inherent in the protection systems typically found in LDCs. The key to accomplishing this is the use of subsidies to provide protection, in place of tariffs or other import restriction. This is not a new argument, of course. It has long been recognized that subsidies could provide protection superior to tariff protection if some relatively neutral means of financing the subsidies could be found. However, given the weaknesses of tax systems in LDCs and their heavy dependence on tariffs for revenue, it has seemed easy to defend tariff protection on practical grounds.

I should admit that this was my own view some years ago. There are two reasons why I am no longer willing to accept this defense of tariff protection. First, I have become convinced from the recent studies in many countries of protection in relation to development that the disadvantages of tariff protection have been greatly underestimated in the past. Second, I now think that there is a relatively simple means open to LDCs of financing the subsidies required for more effective protection. It depends on using tariffs for revenue, but not for protection. This is accomplished by neutralizing the protective effect with domestic sales taxes - ideally a value added tax. The

6 Towards a New Trade Policy for Developing Countries (U.N., 1964).

7 "The Role of Protection in Industrialization Policy", op. cit.

latter, in turn, would augment the generation of revenue and help to avoid the common problem of a low income elasticity of tax revenue that plagues LDCs heavily dependent on tariffs. Protection, then, comes not from tariffs, but from subsidies.

A capsule description of such a scheme would be something like the following. First, there should be a uniform tariff, partly offset by a uniform value added tax. The difference between the two would represent a level of protection justified by general terms of trade considerations. These exclude the effects from major exports, which would be subject to export taxes to remedy such disparities between world prices and marginal revenue as are judged to exist. The absolute levels of tariff and value added tax would depend on the revenue needs of the government, though another consideration is enforcement. An exception to the uniformity rule could be higher duties and domestic taxes on luxury consumption goods. Exports would be exempt from the value added tax and, therefore, treated on a par with import substitutes, except for the slight terms of trade differential. Subsidies would be used to protect "infants" for a terminal period, as well as to reward for external economies where they could be clearly diagnosed. Subsidies to employment would be used to correct the effects of wage dualism. A single exchange rate would be adjusted to provide balance of payments equilibrium.

The above is a very simple system, much easier to manage than most present systems in LDCs. The combination of uniform tariff with uniform value added tax would not only be easy to administer it could also raise the revenue needed to provide for the various subsidies without any of the distorting effects of tariff protection. In particular, it would eliminate the various biases against employment that were identified above.

APPENDIX I

Some Definitions

Natural rate of capital formation is $I_n = k (\dot{L} + \frac{\dot{K}}{K}L) = kgL$

Warranted rate of capital formation is $I_w = (s + m) pL - X$

BOP constrained rate of capital formation is $I_b = s \left(\frac{X + F}{m} \right) + F$

Marxian unemployment occurs when $I_a < I_n$

Wage-price inflation occurs when $I_a > I_n$

BOP unemployment occurs when $I_w, I_n > I_a \equiv I_b$

Keynesian unemployment occurs when $I_w, I_b > I_a \equiv I_n$

Both Keynesian and BOP unemployment when $I_w > I_a \equiv I_n, I_b$

BOP inflation occurs when $I_b \equiv I_a > I_n, I_w$

Excess demand inflation occurs when $I_n \equiv I_a > I_b, I_w$

Both BOP and excess demand inflation when $I_n, I_b \equiv I_a > I_w$

Pure deflation occurs when $I_a < I_w, I_n, I_b$

Pure inflation occurs when $I_a > I_w, I_n, I_b$

BOP surplus occurs when $I_a < I_b$

BOP deficit occurs when $I_a > I_b$

APPENDIX II

Six Interesting LDC Cases

Since these are all LDC cases, all are characterized by $I_n > I_w$. But this is ambiguous unless we specify the trade balance at full capacity output. So I define LDC cases as those where $I_n > I_w$ when the trade balance is zero at full capacity. This avoids the anomaly of treating as "developed" a poor country that could achieve full capacity output only with a large trade deficit.

There are 31 such cases of growth disequilibrium characterized by $I_n > I_w$. Ten of these, however, are cases of pure inflation or pure deflation (as defined in Appendix I). Of the 21 remaining, 13 have $I_b > I_w$. While these would be interesting for some studies - e.g., the effects of short-run fluctuations in exports - they have been omitted here on the ground that, at least in the long run, LDCs have an adequate appetite for imports. Finally, I have merged cases where symptoms are identical, reducing the remaining eight to the six identified below.

$I_a = I_b = I_w < I_n$	Marxian unemployment
$I_a = I_b < I_w < I_n$	Marxian and BOP unemployment
$I_b < I_a < I_w < I_n$	Marxian and BOP unemployment plus BOP deficit
$I_b < I_a = I_w < I_n$	Marxian unemployment plus BOP deficit
$I_b \leq I_w < I_a < I_n$	Marxian unemployment, excess demand inflation, BOP deficit
$I_b \leq I_w < I_a = I_n$	Excess demand inflation plus BOP deficit