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THE EXCHANGE RATE: AN IMPORTANT POLICY TOOL FOR THE CARIBBEAN

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The importance of the exchange rate question

A great deal of attention has recently been focussed on the issue of an appropriate exchange rate regime for the English-speaking Caribbean area. The discussion has taken place in government circles as well as in the private sector, and has concerned the man in the street to the extent that he fears that changes in the existing regime will adversely affect his cost of living. Thus the current literature on the subject is to be found in sources as diverse as records of parliamentary debates, newspaper reports, editorials and letters to editors, chamber of commerce journals and communiques and confidential papers of CARICOM/CARIFTA meetings.

The question has been posed in a great variety of ways. Some protagonists are concerned with the "intervention currency" so called; that is, the foreign currency to which the currencies of CARICOM members are fixed. Others are worried about variations in the rate of currency exchange between territories within the region; they are unhappy with a situation where these rates may vary significantly because of extra-regional factors. Yet another concern is the appropriateness of existing rates of exchange, either for CARICOM territories individually or for the region as a whole.

The present essay is a first attempt to evaluate the alternative exchange rate possibilities in the light of their contribution to regional development as a whole. One proposition which clearly underlies this approach is that the whole exchange rate question will have important implication for the rate of regional development. This assumption is present, explicitly or implicitly, in all discussions of the exchange rate. There seem to be two broad reasons why this assumption is thought to be realistic. First, it might be argued that, in view of the foreign exchange constraint on the economic development of CARICOM territories,

the "correct" rate of exchange maximises the return on any given inflow of forei[illegible] point of view, one is looking only at the question of what exchange rate should be fixed. [illegible] question is intimately bound up with the second, broader, issue of exchange rate [illegible]. The rate of economic development in CARICOM will be affected, not solely by the rate of exchange set, but, more importantly perhaps, by the way in which rates are fixed, maintained a altered. Exchange management leads to consideration of joint manipulation of regional exchange rates as opposed to individual decisions, existing and desirabl exchange rates and rates of growth for regional member states, the effectiveness of joint consultative machinery, the surrender of areas of national soveriegnty and the limitations on domestic monetary and fiscal policy which joint exchange rate strategies would imply.

This essay is concerned with the link between the exchange rate and development at both levels. We begin by looking at approaches to the question of an appropriate exchange rate. In the first section we will briefly evaluate the state of knowledge on this issue dealing with the problem from a regional perspective. The second section deals briefly with the matter of setting rates of exchange between member territories of CARICOM. The third section deals with the choice of an appropriate numeraire for determining the external value of the CARICOM currency, again viewing the region as a unit. The final section looks at some alternative exchange rate regimes in the light of insights gleaned in the first three sections.

The rate of exchange and the rate of economic development

Much of the debate on exchange rate policy in the Caribbean has focussed on the need for devaluation of regional currencies. The protagonists of the view that the exchange rates are overvalued argue that devaluation will increase the growth potential of these economies.

The most elementary version of this argument is simply that a change in the exchange rate causes shifts in the schedules of foreign supply and demand. In theory these shifts should lead to increased local production, both for export and to replace imports. In practice there are a number of well-recognised qualifications to this argument. Perhaps the most crucial is the question of whether domestic production can be readily increased in response to any price signals. A country may be able to reap only a windfall gain in the local currency equivalent of given export earnings if supply is inelastic and this windfall may be eroded if there is no decrease in foreign exchange expenditure.

A second reservation lies with the price responsiveness of domestic demand for foreign goods. If the demand is inelastic, foreign exchange expenditure may rise[1]. On the assumption that scarcity of foreign resources is a growth constraint, this suggests that depreciation might hinder growth.

A third qualification has to do with marketing arrangements for exports and imports. If export prices are denominated in foreign currency there is no increase in the amount demanded as a result of devaluation and here again there is only the possibility of windfall gains. This holds also with regard to minerals and traditional agricultural products which are produced and marketed under special arrangements which pre-fix the level of production and/or the product price. On the import side, the structures of importing and distribution may limit price responsiveness.

Perhaps the most serious limitation of this approach, in terms of our current concern with the development problem, is that it is static and short-run.

[1] Insofar as the demand of imports is an excess demand derived from the difference between local consumption and production, this demand will depend on the elasticity of domestic supply. However, some argue that there is a demand for foreign goods per se, because social factors have placed a premium on foreign manufacture.

The analysis deals only with existing products, technology production structures and consumption patterns. Of greater concern to us in this essay is the way in which these factors may change in response to a change in the value of the currency.

To convert the static price-oriented theory of depreciation into a theory of devaluation and growth, attention has been focussed on factor price relationships. In a recent contribution to the debate[1], W. Arthur Lewis gave currency to the view that devaluation be used as a tool to reduce the cost of labour in the Caribbean. The argument may be seen as a logical evolution of the thinking which produced the famous/notorious[2] model of 'development with unlimited supplies of labour'.

A rigorous treatment of a simple model in this Lewis tradition is presented in the appendix. Here we need only outline the argument. Essentially, it is based on presumption that the price of labour is too high. Devaluation will lower the relative price of labour because labour is the domestic factor while the other major factor of production, capital, is imported. The increase in the relative price of capital is what is needed to increase the supply of capital. Hence, with unlimited supplies of co-operating labour at the new (lower) price of labour, increased output can be had with the increased supply of capital. In this way growth can be made a function of the exchange rate.

The protagonists of this view of the exchange rate problem admit that the model will not yield the desired result unless depreciation is accompanied by at least one, possibly two and perhaps three allied policies.

[1] W. Arthur Lewis, Presidential Address to Board of Governors of the Caribbean Development Bank, July 1972.

[2] Strike whichever not applicable.

The one supporting policy which is seen as essential is the so-called "incomes" policy, the term being used normally as a pseudonym for a wages policy, or, even more specifically, a policy of wage restraint. In an open economy where most of the essentials of life are imported, devaluation will lead to a significant increase in domestic prices. In most Caribbean economies, the overall increase will be as great as the amount of devaluation, and may in fact exceed it. The reason why wages are said to have risen out of line in the first place is that trade union activity has interfered with the equation of wages and marginal products of labour. Clearly, when faced with a devaluation-induced rise in the cost of living, the unions will do it again. So they must be restrained, or persuaded to exercise restraint, so that money wages rise less quickly than prices. By means of this mechanism we secure a fall in real wages, which is, after all, the whole point of the exercise.

The second supporting policy, desirable but apparently not essential, is an increase in productivity. Now it follows from what has been said so far that if you increase productivity sufficiently there is no longer any need to reduce wages. Therefore the entire argument rests on the assumption that the scope for increased productivity is limited. That this proposition should be so widely accepted is rather a reflection of careless thinking than of objective fact. One might have thought that productivity levels were a function of many variables - factor ratios, skills, choice of product, systems of education, management and organisation and research. Admittedly many of these variables cannot be altered in the medium and short run; although which variables these are, and how long it takes to change then might be questions deserving of further study. More crucial to the argument, however, is whether the short-run variables, in particular the product mix and factor ratios, are not the most important determinants of productivity levels.

The third supporting policy is optional. Trade controls may be used to restrain the growth of imports in the face of inelasticities of demand and/or to stimulate particular lines of export production. It is curious to find trade controls advocated as supplements to devaluation. They are normally used as alternatives. Trade controls however have an element of selectivity which devaluation lacks. It may be necessary, from this viewpoint, to treat industries or sectors selectively, perhaps because they do not respond to price signals, or perhaps because they need infant industry protection.

What is not often stated explicitly by protagonists of this line of argument is that it presumes a continuing commitment to a particular development strategy, a strategy which is by no means unanimously accepted as maximal. The implied strategy can be demonstrated by taking a closer look at the valuation of labour.

The marginal porduct of labour in the Caribbean is said to be low[1]. Low productivity may be a result of low efficiency, that is, a man produces relatively little per unit time with a given quantum of co-operating factors. Or low productivity may result from the use of relatively little of the required co-operating factors. These alternative ways of looking at the problem suggest very different strategies for eliminating it. The Caribbean may very well be faced with the choice, on the one hand, of low level technology, manual methods and low skill imputs or, on the other hand, sophisticated technology, highly-developed skills and innovative methods. If we are dealing with non-resource based export industries, there is no reason why we should choose the former rather than the latter.

[1] We do not go into the question of how we compare the output of one man welding x rivets a day in Detroit with the output of one woman stitching together y bits of Playtex in Barbados.

Other aspects of the implied development strategy are suggested in the appendix, but the point to be made here is that it is surely desirable to adopt an analytical framework which makes explicit the direction in which economic change is headed when devaluation is used as a means of adjusting factor prices.

Another weakness of most analyses of depreciation is the absence of any calculation of the marginal returns from devaluation. There is no indication of the extent to which the country needs to go on reducing the external value of the currency before the associated rate of growth stops increasing. If the model is specified appropriately, as depreciation increases the rate of return on capital, new capital flows in from abroad until the opportunity cost to the foreign capitalist rises to equate the new level of return. It is then possible to accelerate capital inflows (and hence, presumably, the growth rate) by continuous devaluation to the point where the marginal rate of return on new inflows is exactly equal to the marginal opportunity cost. As of now, we have little insight as to where this equilibruim point lies. It may require considerable devaluation to achieve equilibrium if wage restraint has to be applied with a delicate hand, if labour costs are not the most substantial part of total costs, and if domestic inflation cannot be contained within the limits of depreciation.

It is a commonplace among economists that growth and development are not the same, and that development may be jeopardised if maximum growth is set as the objective. Here we may have a case in point. Depreciation and wages restraint may reduce real income of workers below what is considered basi for a reasonable standard of life. Caribbean peoples, by and large, are no longer satisfied with a subsistence level of living. Any real wage which could not guarantee the required standard of living for all the employed would generate social and political tensions which could be taken as an index of frustrated

development. In fact, the whole mechanism of a devaluation induced reduction in worker remuneration would be anti- developmental in a society committed to reducing income inequalities.

The terms "depreciation" and "devaluation" have so far been used interchangably because we have not yet addressed the problem of whether exchange rates should be altered all at once or allowed to depreciate over time, or whether a rate should be set and then revised periodically. Essentially, the question is whether a single rate can be set which is appropriate for a particular rate of growth over a given planning period (say 5 years) or whether the rate must be changed progressively over the period to meet the foreign balance requirement for each year separately.

The foregoing analysis is meant to suggest that the present state of our knowledge provides a very unsure foundation for exchange rate policy, if the object of such policy is to promote regional development. The relative underdevelopment of the theory is one factor, but perhaps the more important constraint is the fact that the exchange rate theory is not built into a specific strategy for regional economic development. In one sense, the underdevelopment exchange rate theory is an aspect of the underdevelopment of development strategy. Economists of the region have argued persuasively that the early industrialisation strategy, with which Arthur Lewis has rightly or wrongly been identified[1], has not lived up to the aspirations of Caribbean peoples and is in fact socially and economically disruptive in the long run. However, regional governments have, by and large, not yet committed themselves to any of the alternatives which are proposed. Regional development strategy

[1] Largely as a result of his early work on the industrialisation of the Caribbean. See, for example his "Industrial Development in the Caribbean" reprinted from Caribbean Economic Review 1950, Guardian Commercial Printery, Port-of-Spain.

therefore stands in a kind of no-man's land, with emphasis still placed on capital inflows, tax and other incentives, footloose industries and a tendency to accept whatever turns up. At the same time, there is a verbal commitment to many aspects of the alternative strategy which stresses maximisation of regional resource use, reducing the degree of external dependence and industrial concentration in selected areas. The policies which are appropriate for the first strategy (in particular the exchange rate policies) are not necessarily compatible with the second.

One way of putting the exchange rate into its proper context as a development instrument would be to use an input-output model for the region as a whole. The cells in the input-output matrix could be filled in with the incremental inputs and outputs over the chosen planning horizon, say five years. These incremental data might be so fixed as to secure a given target growth rate over the period, and the structure of the production segment would reflect the particular strategy of development chosen. The matrix would specify all transactions with the rest of the world - imports of all kinds, exports, foreign capital requirements. All projections would be based on a fixed predetermined rate of exchange. An estimate of the capital inflow expected at this rate of exchange would then be made, and the foreign position would then be examined for equilibruim between the demand and supply of foreign exchange. If there is foreign exchange disequilibrium, we would then either revise the projected growth rate until exchange equilibruim were achieved, or determine what alternative rate of exchange would secure external balance. A series of iterations would produce a schedule of paired values of the growth rate and the rate of exchange.

The advantage of such an accounting framework is that many underlying

assumptions of the analysis would now become explicit. It may be possible, for example, to specify production techniques (and hence input coefficients) and the industrial mix so that there is only one feasible solution to the exchange rate, or so that the growth rate is maximised within a certain range of rates. In either case, the underlying economic structures are readily apparent.

It will be said that the development of an inputloutput model for the region is still some way off, and that in the interim some decisions must be made about exchange rate levels. In response to this it is reasonable to enquire whether, in light of comments so far, any alternative rate structure would be superior to the existing one. The answer will depend on one's concept of the desirable development strategy. If you espouse the strategy of maximising and rationalising regional resource use then your answer is likely to be no. If you believe in the existing "passive" unco-ordinated strategy, then you may answer 'maybe'. It does however require some courage (which presumably comes with age and status) to give a firm 'yes'. A more cautious view would be that the case for using the exchange rate as a development tool is by no means established, and one is therefore on very uncertain ground in recommending more than marginal adjustments in the present rates of CARICOM countries vis-a-vis the rest of the world.

The exchange rate problem of a common market

The discussion so far has treated the region as a single unit, without reference to the fact that any grouping of independent nations will face specific exchange rate questions which a unitary state does not have. This is the issue we now address ourselves to.

A single overall rate of growth for the CARICOM region is compatible with several combinations of growth rates in the member territories.

An overall growth rate of 5% may result from a growth rate in Jamaica of 10%, or 5% or 2%, depending on what happens elsewhere. It is important to determine what these growth rates are expected to be, since the rate of exchange between member territories must be fixed with this in mind. Moreover, any chosen rate of exchange vis-a-vis the rest of the world will have different implications for each regional territory, and it must be clear that these implications are not at variance with the growth targets for each member. It follows that the input-output matrix for the region must be disaggregated by territory as well as by activity. In this way intra-regional exchange rates may be determined by imposing the condition that the sum of intra-regional surpluses and deficits equate to zero.

However, in order to carry out the disaggregation exercise we need to specify a number of other regional policies. Disparities in regional growth rates may be adjusted and/or compensated for by means of regional policies on factor movements, financial flows, money supply and credit allocation, public finance and special development programs for some sub-regions. Any of these may be seen as an alternative to exchange rate policy for adjusting growth rates between territories, or as a means of compensating for the effects of a change in the rate of growth vis-a-vis the rest of the world. In fact, such a change may not be possible unless the compensating mechanisms are available.

Each of the policies noted can be incorporated into the input-output model, modifying the net balance which must be eliminated by means of exchange rate adjustment. Alternatively, net surpluses and deficits may be made to sum to zero with a chosen set of rates within the region by means of the appropriate combination of co-operating policies.

The choice of a numeraire for the CARICOM currency rate

A crucial problem of exchange rate policy in a world of changing rates is what numeraire should be chosen in setting the value of the CARICOM currency (currencies). Among the choices open are (a) to fix in terms of the currency of a metropolitan country (which in effect means either the U.S. dollar or the pound sterling); (b) to fix in terms of a composite "currency" or basket of currencies; and (c) to sidestep the issue by using flexible exchange rates. The fourth alternative, fixing in terms of an international currency, is neglected because the valuation of the international currency is itself still a matter of dispute. In any case, it will become clear as the analysis proceeds that this alternative would raise no new conceptual issues.

A day-to-day float of the value of a CARICOM currency would eliminate the numeraire problem. The CARICOM currency need not be a unitary currency; it may equally well consist of the existing currencies, linked in fixed relationship to each other. Each day central banks would agree on a rate which was expected to clear foreign exchange markets (for the region as a whole) on that day. Deficits and surpluses of member countries would be accommodated by interregional payments mechanisms including credit facilities among central banks along existing lines. Limits could be set on the amount by which the rate would be allowed to move each day, and some formula worked out so that tomorrow's price would react to trends over the last few days, for example.

One difficulty with this system is that the movement of rates might be such that one or more members might have a persistent surplus or deficit with other members. Corrective action would then have to be taken by adjusting exchange rates within CARICOM or by using monetary and fiscal

policies and industrial location policies. Looked at another way, what this means is that the floating CARICOM rate does not coincide with the rate required by the regional development program.

To some degree the fact that the actual rate varies from the target results from factors which are not inherent in the floating rate regime. For example, a change in the value of the pound with respect to the dollar may affect overall foreign currency transactions irrespective of how the rate is set. However, there are other areas in which the floating rate regime represents a sacrifice of a policy instrument which might have been used, together with others previously mentioned, to promote a particular development program. Take, for example, the hypothesis (examined earlier) that exchange rate policy can be used to stimulate capital inflow. This suggests that if the rate is allowed to deviate from the target, there may be a loss of real foreign resources.

A floating rate would require very close integration of economic policies within CARICOM, since the monetary, fiscal and industrial policies of one of the larger territories could influence the rate independently of policies being pursued elsewhere. If the rate is allowed to vary constantly as a result of short-term policy adjustments in member countries we could have adverse effects on the stability of the foreign exchange markets and the overall goals of the development program.

Capital flows will also affect the floating rate. Much of the debate among metropolitan economists on the flexible rate question centred on the possible destablising effects of short-term capital movements. The fact that the banking system in all CARICOM territories still consists largely of subsidiaries of metropolitan banking firms means that this con-

sideration is also relevant to the region. However, exchange control provisions may provide a measure of insurance against unwarranted short-term flows. What is perhaps more important for CARICOM, is the impact of large-scale foreign long-term capital flows. These flows tend to be lumpy, being usually for specific industries or products, and they may cause abrupt movements in the rate if they are on a large enough scale. For example, although the capital may be intended for the purchase of imported inputs, during the interim period before these import payments can be made, there may be a temporary increase in foreign exchange acquisition, leading to a strengthening of the exchange rate for the time being. This would not be a problem but for the fact that in some areas such funds may be quite substantial in relation to overall foreign exchange earnings.

It seems from the foregoing that some degree of management is desirable in setting exchange rates. If the exchange rate is to be used as a tool for development then the rate must be programmed in the light of goals and expectations. However, some of the disturbances we have just looked into may alter the premises on which predictations were originally made. Changes in rates between extra-regional countries would be a case in point. It would seem reasonable to revise the development program periodically in the light of such developments and determine the new exchange rate which would be appropriate. Thus the rate would be pre-determined subject to revision in the light of current developments, rather than being adjusted daily. An alternative way of looking at this managed rate would be to set a long equilibruim period for the floating rate. Thus, instead of setting a market clearing rate for each day, the rate would be set to equate aggregated supply and demand over an extended period, say six months.

A decision to manage the exchange rate leads us back to the choice of a numeraire, a consideration which is relevant for any fixed rate or managed float. A problem arises because of the need to predict the relationships between the currencies of countries outside the region as an essential input into regional programming.

If predictions about these extra-regional rates are accurate, the choice of a numeraire is immaterial. Irrespective of the way in which the CARICOM rate is fixed, the expected relationship between CARICOM currency and each other currency will be in accordance with the development program and presumably the net foreign exchange balances would sum to zero as programmed, all provided things turn out exactly as predicted.

A problem arises when the predicted values of world currencies are inaccurate because then net foreign earnings can no longer be expected to cancel net foreign expenditure. Since there is always uncertainty in prediction, we must take account specifically of possible costs which result from CARICOM'S unplanned overall payments imbalance.

The cost of inaccurate prediction will vary with the numeraire chosen. Let us assume that the predicted US dollar/pound sterling rate was 2.40 : 1.00, and that the rate actually turned out to be 2.20 : 1.00 on average over the relevant period. If the CARICOM currency is fixed to the pound there is an effective devaluation with respect to the US dollar, which would be expected to alter the expected supply and demand for US dollars and the prices of US factors of production relative to domestic (CARICOM) factors of production. There may then be substitution between US and UK sources of supply and markets for CARICOM products, but even if no substitution takes place, the overall balance is disturbed because the demand and supply of

US dollars has changed.

In this case, where the value of CARICOM currency remains unchanged with respect to one metropolitan currency and is devalued against the other, conventional analysis would suggest that net foreign balances would now be positive and not zero, as was expected. Conversely, had the CARICOM currency been fixed to the US dollar under the same circumstances, a revaluation would have occured with respect to sterling and net foreign balances might turn out negative. Similar results would obtain if the CARICOM currency were fixed to some other currency or basket of currencies.

What this means in every case is that the projected development strategy will have to be modified. Assuming that this strategy was considered optimal, the extent of modification will give a measure of the cost of prediction error. The probility of any given prediction error is not affected by the choice of numeraire, so the numeraire should be chosen to minimise the cost of the error itself for each magnitude of error.

The considerations relevant here are the distribution of foreign transactions of CARICOM between the metropolitan currencies, the degree of substitutability between the services, products and markets of these countries, and whether costs are symmetrical for unexpected deficits and unexpected surpluses. A high degree of substitutability will reduce costs irrespective of the numeraire, but in general the numeraire should be the currency with the greater weight in foreign transactions. On the other hand, if surpluses are less damaging to development than deficits, then a currency whose value is expected to rise sharply should not be chosen. The difficulty which then arises is how to choose when these two criteria conflict.

The choice of exchange rate regime

When one takes account of choices of intervention currencies, fixed versus floating rates and unified rates for CARICOM vs separate rate determination for each member, the list of alternative exchange rate regimes is a long one. The possibilities may be grouped for convenience under three heads: single rate regimes, managed rates and the existing system of independent rate setting by each state.

The characteristic of the exchange rate systems which come under the heading of 'single rate regime' is that CARICOM is treated as a unit in determining exchange rates with the rest of the world. This rate may be fixed or floating and, if fixed, there is a choice of intervention currencies to use as numeraire. Combined with this there must be a decision rule for fixing rates among CARICOM members. These rates may be fixed in accordance with programmed rates of growth for each member, possibly with a formula for review and adjustment; in the case where the "external" rate is fixed, the "internal" rates may be allowed to float; there is also the possibility of currency unification.

What we have termed 'managed rate' regimes may be modifications either of the single rate regime or of the existing system where each member sets a rate which it considers appropriate. The "external" rate might, for example, be allowed to float, but only within stated limits. Or each member might be allowed to determine its own rate, provided it did not revalue or devalue more than a given amount against some predetermined standard. There are a large number of such possibilities, all lying somewhere between a single rate and a system of independent rate setting. For the most part, managed rates are an attempt either to co-ordinate to some extent disparate systems of rate setting, or to modify some of the provisions of the single rate regime.

The analysis of the foregoing sections suggests that the optimal regime is a single rate regime with the "external" rate set in accordance with the foreign exchange requirements of a specific development program. The program is disaggregated by territory so that "internal" rates of exchange can be derived, and the system is revised from time to time in the light of external development. The intervention currency chosen for fixing the external rate is the one which carries the smallest cost of prediction error, whether measured in terms of growth sacrifice, size of deficit/surplus or some other proxy.

We may now attempt to evaluate the current system in the light of this norm.

In the first place, the development goals of the CARICOM region, insofar as they are explicitly stated at all, are put forward in qualitative terms only. Furthermore, they are probably not mutually consistent, so they provide no basis for deducing exchange rate policy. Very little can therefore be said about the implications for development of the present exchange regime, apart from the rather straightforward critique that independent rate setting creates the prospect of conflicts within an integration movement.

Even if the regional development strategy were properly articulated, independent exchange rate policies and different intervention currencies would inhibit the use of the exchange rate as a development tool. It is of course possible to dispense with this particular instrument. Other policies, used in accordance with predetermined regional development goals, could, in theory, generate external balance conditions which would cause independently set rates to be no different from jointly determined rates. The conditions are however extremely stringent, involving policy co-ordination in areas where integrated action is far more difficult to come by than with respect to the exchange rate.

The full range of alternative policies required, would include monetary and fiscal policies, factor mobility and sub-regional development programs for specially chosen areas within CARICOM.

The development program may be structured to include the availability and use of financial resources in such a way that the monetary implications - a distribution of credit, cost of credit, mobilisation of additional funds, etc. - may be deduced. Similarly, the government sector can be incorporated and the role of fiscal policy stipulated in a way consistent with the overall pattern. It is then possible to use the instruments of monetary and fiscal policy in a co-ordinated way to direct real and financial resources in accordance with the program. However, the practical possibilities of monetary and fiscal policy are strictly limited. There is, in any case, some question as to the effectiveness of such policies even within each individual member country. When, in addition, these policies must be applied consistently among a number of different monetary authorities and governments it seems unrealistic to expect the desired results.

Factor mobility constitutes an alternative mechanism for achieving overall development goals under certain assumptions. The crucial assumption is that the geographical dispersion of gains from development is immaterial. It is an improbable assumption but if it did hold, then free movement of factors of production could, in theory, allow for the required development without exchange rate co-ordination. However, again this degree of factor mobility is much harder to come by than exchange rate unification.

The other alternative, the encouragement of special development areas, is more likely - in fact the process has already started - but it offers

at best only a partial solution to the intra-regional distribution of gains, since only selected areas are affected.

Conclusion

Exchange rate unification seems to be at once the most readily available and the least efficacious policy for implementing a strategy of regional development within CARICOM. The analysis of the earlier section of this paper left many questions about the program's efficiency; in the last section we concluded, that of the alternative policies available, it was probably the most accessible. What is clear, however is that neither exchange rate policy - or any other - is very meaningful until regional development goals are more clearly specified. While it is possible to make decisions about intervention currencies for individual countries on a short-term, ad-hoc basis, no one knows what an exchange rate for CARICOM as a whole would look like, and no one will have the basis for arriving at that knowledge until quantitative decisions are made on what economic targets and structures are to be pursued. Furthermore, because the desirable exchange rate is unknown, the cost of any regime which exists or is contemplated is also unknown.

This is not to say that steps should not be taken towards exchange rate unification even if it is not clear what the rate ought to be. But we should recognise this move more as a token of common commitment and a potential tool for future use than as a measure for affecting current development policies. What this short study highlights more than anything else, is the need to devote resources - human resources, essentially - to the urgent task of working out an internally consistent program (or set of alternative programs) to give positive direction to regional development policy.

R. DeLisle Worrell
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APPENDIX

A simple model of growth and the exchange rate

The model deals with a country producing a single commodity by means of two homogeneous factors, capital and labour. The commodity is partly consumed at home and partly exported. All labour is available from local sources, but all capital must be imported. The country's share of the world market for the commodity is small, and demand is perfectly elastic so long as there is any export (See diagram 1).

Let us deal with the effects of devaluation. Because capital is exclusively foreign-owned and labour locally-owned, devaluation will reduce the relative price of labour. With the same total outlay it is now possible to employ relatively more labour, and under the usual assumption smooth production functions output can be increased (diagram 2).

Capital is the scarce factor of production in this model. We can increase the supply of capital by increasing its rate of return, and this is the effect devaluation is expected to have. The increased output which devaluation makes possible is secured, in the "standard" model, by an increase in the employment of both labour and capital, though the increase in labour is relatively larger. Because there is an increase in capital use, the marginal physical productivity of capital may not increase (diagram 3), but the increase in export prices should ensure an increase in the value of the marginal product of capital (diagram 4).

It is presumed that, with rates of return equated to marginal products, higher marginal productivity will attract more capital from abroad. The total outlay rises, more labour is employed and there are further increases in output. In the absence of further increases in product price (no further devaluation), it is not now so certain that the marginal product of capital (in value terms) will rise. Eventually the stage is reached when that marginal product is equal to the marginal opportunity cost of capital.

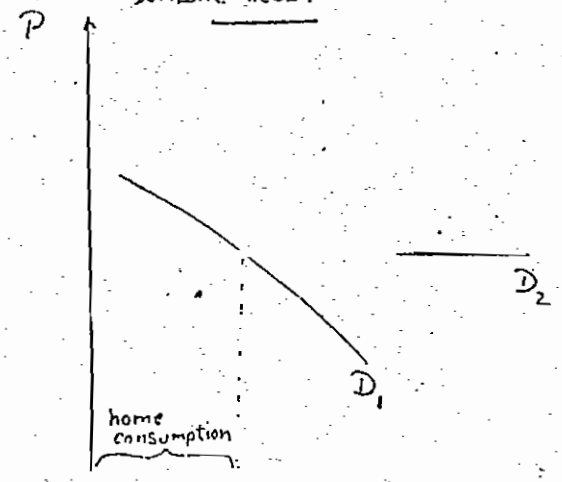
At this point capital inflow stabilises and the level of output is appropriate to the new exchange rate. If the country devalues further no new capital is forthcoming and the change in factor prices and factor proportions will cause a definite decline in the marginal product of capital. It is therefore likely that the return to capital will fall off rapidly once the equilibrium point is passed.

This kind of analysis suffers from some serious limitations, not least of which is the fact that it is an exercise in comparative statics. There is a unique equilibrium level of capital inflow which is compatible with a given exchange rate and the task is to identify that equilibrium. This task cannot be meaningfully undertaken until the basic model is amplified to give greater realism, for example by including more products and domestic capital formation. Even then, it will yield no insight into the process of adjustment.

The model is unconventional in that it makes growth a function of the exchange rate (up to the equilibrium point). Its peculiarity is a result of the assumptions. The relative price of labour depends only on the exchange rate and no allowance is made for productivity changes which result from improved technology. The model has not so far taken account of national income and expenditure. National income (equal to wage income in the model) is spent on the domestic goods and on imports. The earnings from domestic exports and capital inflows must be just sufficient to meet import payments and factor payments to capital. The model does not incorporate any insights into the system's adjustment to external imbalance.

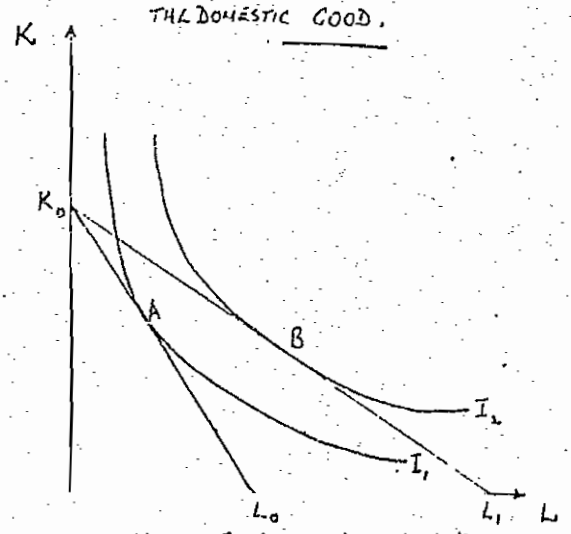
Also ignored is the effect of devaluation on the real income of labour. The increased price of imports will reduce real incomes and could lead to an increase in the supply price of labour. The extent to which this will be so depends on the importance of imports in domestic consumption, and the size of the devaluation.

DIA. 1. DEMAND FOR THE DOMESTIC GOOD.



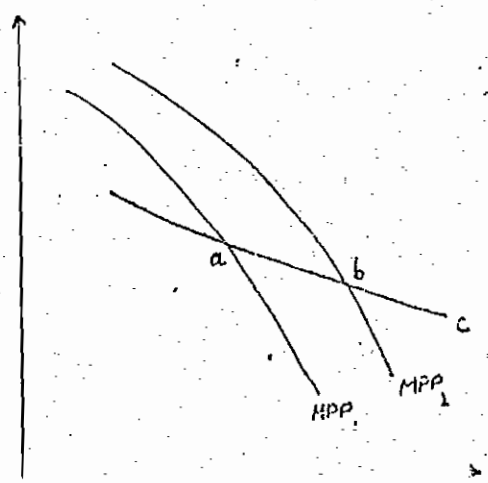
D_1: domestic demand
D_2: export demand
P: price (local currency)
Q: quantity

DIA. 2. ISOQUANT MAP FOR THE DOMESTIC GOOD.



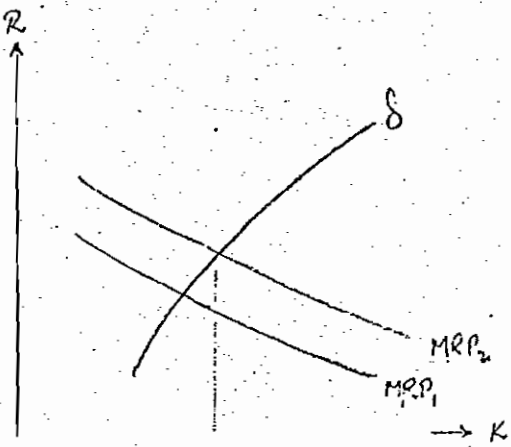
K: capital
L: labour
I_1, I_2: equal product lines
K_0L_0, K_0L_1: total outlay
A, B: production points

DIA. 3. PHYSICAL PRODUCT OF CAPITAL



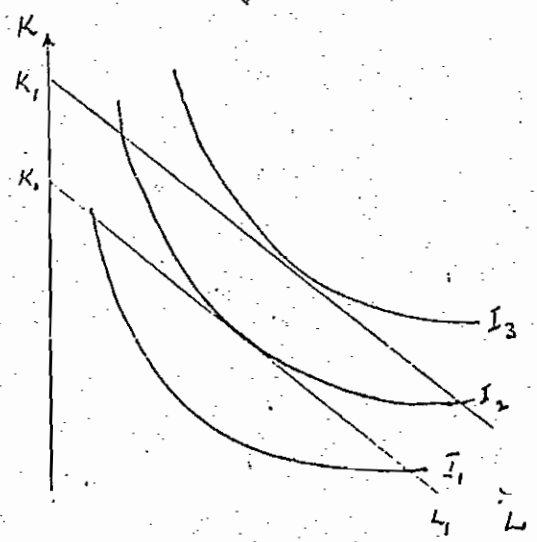
q: output per unit
MPP: marginal physical product
abc: locus of production points corresponding to A, B ...

DIA. 4. VALUE OF MARGINAL PRODUCT

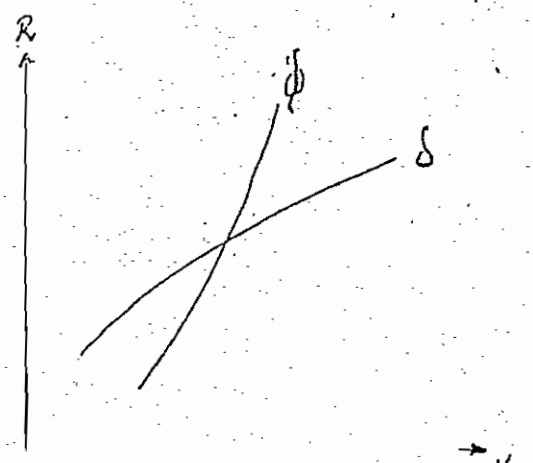


R: value of output per unit
MRP: marginal revenue product
δ: locus of production points

DIA. 5. INDUCED INCREASE IN CAPITAL INFLOW



K_0K_1: new (induced) capital inflow



ϕ: opportunity cost of capital.