I. INTRODUCTION

Toward an Appropriate Theoretical Framework for Agricultural Development Planning and Policy[a]

By

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In order to be effective, development planning and policy need to be informed by relevant theory. This paper at first argues that, in many important respects, the current body of agricultural development theory inadequately represents the Caribbean situation. In so far as this hypothesis is correct, it implicitly provides a partial explanation for the failure to get agriculture moving in spite of substantial government intervention and assistance in most territories of the region. It also sets the stage for the second objective of the paper: to outline some of the steps required for developing an appropriate theoretical framework and to place this selection of papers in the perspective of these considerations.

CURRENT AGRICULTURAL DEVELOPMENT THEORIES IN RELATION TO THE CARIBBEAN

Modern contributions to agricultural development theory[1] can be separated into two broad classes: those dealing with agriculture and economic development and those dealing with agricultural development *per se*. The former includes catalogues of "agriculture's contribution to overall economic development" (e.g. Nicholls, Johnston and Mellor); "growth stage theories" (e.g. Johnston and Mellor, Perkins and Witt); and "simplified mathematical models of the development process" (e.g. Fei and Ranis, Jorgenson).[2] The second category consists almost entirely of variations of one sort or another of Schultz's hypotheses about "transforming traditional agriculture".[3] The question for consideration is how well do these contributions fit the Caribbean situation?

[a]This paper is a substantially revised version of the one presented at the Conference.

[1]Two recent books which more or less provide a synthesis of these contributions to date are John Mellor, *The Economics of Agricultural Development*, Cornell University Press, 1966; and Herman Southworth and Bruce Johnston (eds.), *Agricultural Development and Economic Growth*, Cornell University Press, 1967.

[2]John W. Mellor, "Toward a Theory of Agricultural Development," (Ch. 2 of Southworth and Johnston) *ibid.*, pp. 22-23.

[3]T. W. Schultz, *Transforming Traditional Agriculture*, Yale University Press, 1964: The term "transforming traditional agriculture" now recurs consistently in all recent contributions dealing with agricultural development *per se*. So much so that one gets the uneasy feeling that North American economists regard all underdeveloped agriculture as "traditional" (in the sense described by Schultz).

The Nature of Caribbean Agriculture[4]

Caribbean agriculture has two main component systems of resource organization: plantation and peasant. The former is characterized by large-scale units of production with a sizeable input of hired labour, a high proportion of foreign ownership and management of resources and specialized production almost exclusively for export markets. The latter is distinguished by small-scale units of production with heavy reliance on family labour, indigenously-owned resources and mixed production patterns. Although numerically peasant units are the more important, their resource endowment and capacity for development are poor in comparison with the plantation sector.

In the West Indies, resources are very unequally distributed between the plantation and peasant sectors. Land is a critical input in agriculture; and in the island sector of the regional economy, fertile arable land is a very scarce resource. For historical reasons, the plantation sector has secured almost all the flat fertile areas and the peasant sector is poorly endowed with hillside land with shallow and relatively infertile soils. For any given combination of complementary inputs, therefore, output per acre in the plantation sector will tend to exceed that in the peasant sector. This inherent disparity in physical productivities is further exaggerated in the case of value productivities for reasons discussed below.

With the possible exception of management, the plantation sector is also better endowed with other resource inputs. By far the greater share of fixed capital in West Indian agriculture is tied up in the plantation sector. The distribution of capital is most unequal in the sugar plantation economies with roads, electricity, water supplies, machine shops, laboratories, buildings and equipment geared specifically to the production of sugar. Furthermore, the plantation sector has greater access than the peasant sector to financial capital for further capital accumulation. Imperfect competition in the capital market makes for easier credit availability and plantations can also draw on retained earnings. For labour, the peasant relies heavily on the farm family while plantation production depends on hired labour. With plentiful supplies of labour, the plantation sector has greater flexibility in adjusting labour inputs. Although the peasant sector also has access to hired labour, it can scarcely compete with the plantation sector since its relatively low land productivity weakens its competitive position.

The disparities in productivity following from the nature of resource distribution result in disparities in the returns to factors of production in a way that encourages a flow of incremental resource inputs into the plantation sector. In addition, a number of institutional factors create a dynamic bias in favour of plantation (export) output. Metropolitan preferences produce

[4]Cuba is excluded from consideration in this discussion because the organization of agriculture there is no longer the same as in the rest of the region, as was the case before 1959. Part of the discussion here draws from an earlier paper by the author. See G. L. Beckford, "Toward Rationalization of West Indian Agriculture", *Papers Presented at the Regional Conference on Devaluation*, I.S.E.R., University of the West Indies, February 2-4, 1968, mimeo.

artificially high prices and help to reduce uncertainty about future prices; technical knowledge is relatively well advanced; and marketing arrangements and infrastructure are more highly developed for plantation than for peasant production.

The foregoing considerations suggest that the plantation system of resource organization is the dominant type in the Caribbean region. The overall pattern of agricultural development is chiefly a reflection of the process of adjustment of resource use in the plantation sector. Consequently, theories of agricultural development which do not take into account the institutional characteristics of plantation-type economies can hardly be expected to fit the social reality of the Caribbean.

Agriculture and Economic Development

The literature on this topic emphasizes four main "contributions of agriculture to economic development": the supply of food and raw materials, the supply of factors to the non-agricultural sector, the earning of foreign exchange and the provision of a market for non-agricultural output.[5] The logic of the argument in such theoretical statements is based on the implicit assumption of a "closed economy" in which there are naturally strong intersectoral relationships. Since an outstanding feature of plantation economies is a high degree of "open-ness", the inter-relationships between agricultural and non-agricultural development are not very significant in such cases.

In plantation economies market inter-relationships are more important in trade with the rest of the world[6] than within the economy. Since plantation agriculture is characterized by its export orientation, the agricultural sector in such economies is geared to supplying food and raw materials to other countries and not to the non-agricultural sector. And, in turn, the plantation economy depends on other countries for its supplies of manufactures and even basic foodstuffs. This difference is important because the factors governing the terms of trade with the rest of the world do not coincide with those governing changes in the internal terms of trade.[7] There is, for example, easier mobility of labour internally than internationally.

As concerns the supply of capital for non-agricultural expansion, foreign ownership implies that this flow is depleted in plantation economies by the repatriation of dividend and interest payments. Thus the capital transfer from agriculture serves to promote non-agricultural expansion in the metropolis rather than at home. And, finally, agriculture's capacity to earn foreign exchange in plantation economies is reduced by a characteristic high import content of both production and consumption.

[5]See, for example, the chapters by Johnston and Southworth and Mellor in Southworth and Johnston (eds.), *op. cit.* and Mellor, *op. cit.*

[6]Usually the main trading partner of these countries is a metropolitan country which provides protective shelter in the form of special preferential arrangements for plantation output.

[7]Indeed, discussions in the literature suggest that in the closed models changes in the domestic terms of trade will be toward agriculture whereas the international terms of trade tend to move against plantation output.

Agricultural Development

Current development theory has so far been concerned almost exclusively with what has come to be known as "traditional agriculture". In this type of agriculture, all resources of the traditional type are said to be efficiently allocated and the rate of return to increased investment with the existing state of the arts is too low to induce further saving and investment. Consequently, development depends on breaking the established equilibrium by changes in technology involving the introduction of new "modern" inputs. The description of traditional agriculture could conceivably fit either or both sectors of Caribbean agriculture. Whether or not the description fits individual sectors, the model is of limited use in understanding the development problem because it ignores the problem of resource allocation between sectors. As Adams recently pointed out in another connection, the traditional agriculture model does not account for the fact that efficient resource allocation on individual production units can co-exist with inefficient resource allocation for the sector as a whole.[8]

In the Caribbean, peasant operators seem to allocate resources *at their command* quite efficiently.[9] And plantation owners allocate resources efciently *from the point of view of private accounting.* But peasant operators have insufficient resources at their command because institutional factors limit the supplies of land, capital and technical knowledge available to them. At the same time, resources tend to be under-utilized in the plantation sector. For example, available data indicate that land is seriously under-utilized in this sector. While this could represent a rational pattern of allocation and efficient resource use *for plantation owners,* it points to inefficiency for the agricultural sector as a whole. Transfer of such land to peasant operators would expand output if only because of a change in the product/factor price ratio resulting from the change in ownership – the inputs of plantation owners are likely to have a much higher opportunity cost than those of peasant operators.[10]

Particularly in the sugar plantation economies of the region, there is the further consideration that foreign ownership of resources by multi-national corporations creates certain sectoral inefficiencies and rigidities in the adjustment of resource use. The main problems involved are first that product choice is restricted and second that economic activity is of the "enclave" type. The major raw sugar producer in the region is the West Indies Sugar Co. (W.I.S.Co.), a

[8]See Dale Adams, "Resource Allocation in Traditional Agriculture: Comment" and "Reply" by Schultz in *Journal of Farm Economics,* November, 1967, as well as earlier exchanges; E. Feder, "The Latifundia Puzzle of Professor Schultz: Comment" and "Reply" by Schultz in *Journal of Farm Economics,* May, 1967; and G. L. Beckford, "Transforming Traditional Agriculture: Comment" and "Reply" by Schultz in *Journal of Farm Economics,* November, 1966.

[9]This is implicit in the findings of D. T. Edwards in his *Report on an Economic Study of Small Farming in Jamaica,* I.S.E.R., University of the West Indies, 1961.

[10]In addition to the possible expansion of output, it should be noted that the *national* income contribution per acre is likely to be higher in peasant production because there is no foreign ownership there.

wholly-owned subsidiary of Tate and Lyle which has complementary investments in shipping, sugar refining and distribution in the metropolitan markets. Adverse movements in raw sugar prices do not therefore induce changes in sugar cane production on W.I.S.Co. estates since the firm is simultaneously increasing profits on the refining end. Efficient resource use for such firms can create sectoral inefficiencies. Finally, the enclave character of the sugar plantation creates a certain artificial specificity of resource use. Thus we find plantations serviced with roads, electricity and water supplies while surrounding agricultural and rural areas are without such facilities even where there is excess capacity for plantation use.

The theoretical framework provided by the model of traditional agriculture is inappropriate for the Caribbean because structural factors create sectoral inefficiencies in resource allocation. The real danger with the traditional agriculture model is that it may provide "decision makers in developing countries . . . [with] a pseudo-sophisticated justification for overlooking possible structural changes in the agricultural sector and . . . [they] may end up placing major emphasis on politically palatable programs for bringing in new inputs from outside the sector".[11] This warning seems most appropriate for the Caribbean.

Steps Toward an Appropriate Framework

The weakness of existing theory may apply as well to other underdeveloped agriculture as to the Caribbean region. This weakness derives from a tendency to generalize from the experiences of the advanced industrialized countries and to treat underdeveloped agriculture as a more or less homogeneous class. But there are significant differences in the institutional environment as between different types of underdeveloped agriculture as well as between present day underdeveloped agriculture and that of the advanced countries at earlier periods in history. Theories which abstract from these differences must fail to reflect the realities of particular situations. What is required to begin with is a typology of world agriculture which will classify structural characteristics in some systematic way. Subsequently, theories of development relating to particular types of agriculture could be developed.[12]

Some General Considerations

Very few economists (in metropolitan countries at least) today seem to appreciate the need for the approach suggested here. One notable contribution in this direction was recently made by Phillips Foster who presented a framework for "identification of the institutional dimensions of the classical factors of production associated with any particular system of agricultural

11Dale Adams, *op. cit.*, p. 932.

12Our predecessors, the "political economists" of the more distant past saw the need for this approach and made considerable progress for particular types of agriculture. See, for example, the recently translated works of the Russian agricultural economist, Chayanov, *The Theory of Peasant Economy* (ed. Thorner, Kerblay and Smith), Irwin Inc. for the American Economic Association, 1966.

resource organization". Foster's awareness of the problem is evident from the following:

> It seems obvious that if we are going to try to transform a present-day primitive agricultural economy, we ought to know just what kind of thing we are transforming. It is *not* the same primitive agriculture which has already been transformed in the process of producing the highly industrialized western democracies. The cultural milieu which produced "the West" included strong elements of Puritan protestantism, a north-European land tenure system, a philosophy that hard work is good *per se*, a respect for the scientific method of investigation, etc. The non-Western world today is certainly not a carbon copy of the Western world in A.D. 1500, nor of the Western world in any other period of its history. Unfortunately, we don't really know much about the structure of the agricultural systems which we are trying to transform now in the late twentieth century.[13]

Foster's framework will provide useful insights at the micro level. But it requires parallel research on macro problems that derive from particular socio-economic and political situations.

At a very rudimentary level, we can identify five major types of agriculture which have existed in various parts of the world and which reflect different socio-economic and political situations: (1) the "feudal" system which existed in Europe before the Industrial Revolution and which still exists in certain areas of the world; (2) the "commercial family-farm" system which characterized the settler-homestead agricultural economies of North America, Australia, New Zealand and Europe after the Industrial Revolution and which is still the dominant system in these countries; (3) the "plantation" system which, with colonization, came to dominate the economies of the Caribbean, much of Central and South America, southern United States and South-east Asia; (4) the "peasant" system of which there are two sub-types: one relating to subsistence production and the other to market-oriented production, as in parts of Africa (exports) and Japan (for the domestic market); and (5) the "state-controlled" systems of contemporary China and Eastern Europe.

Historical evidence indicates that the rate of agricultural progress and overall economic growth has, on the whole, been considerably higher in Western Europe, North America, Australia, New Zealand and Japan than in other regions of the world.[14] And it is perhaps of some significance that the agricultural sectors of these countries are, with one exception, dominated by the commercial family-farm system. The exception is Japan which was placed in the category of peasant production for the domestic market. These two categories are in fact quite similar to each other – the only major structural difference being in respect of the size of units of production.

The commercial family-farm system has a number of features which are

[13]Phillips Foster, "Analyzing Systems of Agricultural Resource Organization", *Journal of Farm Economics*, May 1966, p. 272.

[14]It is perhaps too early to judge the relative performance of those economies which are dominated by export-based peasant systems and state-controlled systems. Both systems are of relatively recent vintage.

conducive to sustained development.[15] First, it involves a more equitable distribution of land and of income than any of the other systems. As a result, the effective demand for the output of other domestic industries is relatively great and this provides inducement for the development of non-agricultural activities. In addition, savings and investment are widely dispersed throughout the economy. Second, the heavy reliance on family labour limits the supply of available labour and thereby induces technological change of a kind in which modern inputs are continuously substituted for labour. Third, the infrastructure (including economic institutions) tends to be well developed *spatially* and therefore encourages widespread development of other activities. Fourth, the social and political environment is geared to the well-being of the *whole* population.

None of the other systems listed above has this combination of characteristics. In general, the relatively retarded nature of those systems can be *partly* related to (a) the "open-ness" of the system (plantation and export-based peasant) which weakens intersectoral links within those economies and/or (b) gross inequalities in the distribution of wealth and income (feudal and plantation) which keeps effective demand at a low level and restricts savings and domestic investment. These are only superficial and partial explanations. There are many other economic factors which need to be considered. In addition the social, cultural, political and other non-economic elements that influence human behaviour must be integrated into the analysis of development performance. The intention here is simply to provide a brief insight in order to justify the analytical approach being suggested. So far most of the research effort on the development process has been directed to the commercial family farm system and the peasant system. But even in these cases our understanding of the processes at work is limited because of the failure to forge inter-disciplinary studies of the problems. On account of this heritage, it is now impossible to analyse in any depth how institutional factors influence the pattern of development of different types of agriculture.

The Development Problem in Plantation Economies

In any typology of world agriculture, the plantation system of resource organization would have a distinct place. Its combination of metropolitan export orientation, foreign ownership and the particular technological nature of the production function create conditions which *determine* a particular pattern of development.[16] Furthermore, the social stratification, class differences and distribution of political power which characterize plantation societies influence the development process in particular ways.[17]

[15]For further discussion of some of these considerations, see Robert Baldwin, "Patterns of Development in Newly Settled Regions", *The Manchester School of Economic and Social Studies*, May 1956.

[16]Baldwin, *op. cit.*, has demonstrated that the nature of the production function *alone* is decisive.

[17]For elaboration on this point see, for example, R. T. Smith, "Social Stratification, Cultural Pluralism and Integration in West Indian Societies" in S. Lewis and T. G. Mathews, *Caribbean Integration*, Rio Piedras, Puerto Rico, 1967.

Some important characteristics of plantation agricultural economies are as follows:

(i) production is based on large-scale units utilizing a sizeable resident labour force performing routine tasks for close to subsistence wages;
(ii) production is oriented to metropolitan export markets in which protective shelter is provided;
(iii) foreign capital, entrepreneurship and management govern economic activity;
(iv) export production consists of a narrow range of primary commodities; and
(v) a small planter class (and/or their metropolitan connections) have great political power and high social status involving a certain social antipathy towards the bulk of the population.

A number of economic consequences flow directly from these characteristics. First, resource availability is not simply determined by the factor endowments of the particular country because the system itself is defined as being dependent on factors of production which, with the exception of land, are all drawn from abroad. Second, resource use is determined by the economic interests of the foreign owners. Where these are multi-national corporations with complementary investments in processing and marketing the plantation output, resources are directed to the specific needs of the corporation for raw material inputs.[18] And this creates a built-in rigidity in the pattern of resource adjustment. Third, the level of aggregate effective demand will always tend to be low since the bulk of the population have low incomes which are not allowed to rise significantly. Fourth, the plantation system is likely to generate chronic underemployment over time because of fluctuations in export prices and the fixed nature of the labour supply. Fifth, foreign ownership implies that much of the saving and investment potential is depleted by the outflow of factor payments in the form of interest and dividends; while retained foreign earnings "tend to be employed for further expansion of the export industry, since foreign investors prefer investments which are directly linked with the foreign exchange earning ability of the economy".[19] Sixth, the external orientation of economic activity dampens internal intersectoral relationships; and investment does not provide any significant multiplier effects. Seventh, the termination of production at the primary stage prevents the development of significant forward and backward linkages and this results in weak spread effects from agricultural development.

Over time, the prospects for development both within and outside of agriculture are limited for a number of reasons. To begin with, the small size of the market – a consequence of the low level of effective demand – limits the development of large-scale industries. Market demand for non-export

[18]Tate and Lyle sugar operations in the West Indies and United Fruit Company banana operations in Central America are outstanding examples of this situation.

[19]Robert E. Baldwin, *op. cit.*

agricultural production is therefore low; the small high-income land-owning class satisfy their requirements with imports. On the supply side also, there are several factors which impede agricultural progress. Technological change is slow because additional resource inputs are continuously secured from abroad. When land (the only resource input supplied by the economy) becomes scarce in a particular country, the multi-national corporation solves the scarcity problem by expanding production in some new country. Periods of adverse export prices may induce technological change only if this places an excessive burden on profits.

Diversification of farm output is restricted partly because of the specific raw material needs of the plantation corporation and partly because the structure of output prices favours the sheltered export crop. In addition, very little technical knowledge concerning production of other crops is acquired because agricultural research is export biased. Marketing and credit are geared mainly to export crops and where land is scarce resident farmers have relatively little access to fertile land and other resources. Because of low incomes, they do not have the wherewithal to acquire additional resources; and the ruling class use their political power to maintain the *status quo*.

Scraps of evidence lend some support to the foregoing propositions. Furtado's celebrated study of the economic growth of Brazil provides much insight into the processes which have accounted for stagnation in the plantation economy of the North-east.[20] The relatively poor performance of the U.S. South can no doubt be also explained in similar terms.[21] And the economic histories of the Caribbean, Central and parts of South America seem to follow closely the pattern described by Furtado. For South-east Asia, Myrdal has recently provided us with partial explanations for what he describes as the "weak spread effects from the development spurts in (plantation) agriculture".[22] But so far we have only fleeting glimpses of the problem and there is as yet no systematic formulation of ideas which could provide even a sketch of an appropriate theory.

The present collection of papers is intended to help fill the existing gap. The collection is largely Caribbean in orientation, historical in scope, empirical in method, and to some extent inter-disciplinary in approach. Such a combination is warranted for the purpose at hand. The general picture that emerges substantiates the view that there are numerous elements in the social

20His analysis of the mechanism of the slave plantation economy during the 16th and 17th centuries is particularly illuminating. The analysis concludes as follows: "the sugar economy . . . managed to resist the most protracted of depressions for more than three centuries, achieving some degree of recuperation whenever conditions in the external market permitted, without being compelled to undergo any significant structural changes." See Celso Furtado, *The Economic Growth of Brazil*, Berkeley and Los Angeles, pp. 43-58.

21See Douglass North, *The Economic Growth of the United States: 1790-1860*, Prentice Hall, Englewood Cliffs, N.J., 1961.

22Gunnar Myrdal, *Asian Drama: An Inquiry into the Poverty of Nations*, Pantheon, New York, 1968, pp. 447-452. This monumental three-volume work provides a great deal of insight into the more general problem of the relevance of existing social science theory for underdeveloped countries.

and institutional structure of plantation-type economies which impede general economic development. The "case study" of development performance in Barbados suggests that conventional policies tend to induce little or no change in economies of this type.

The concluding hypothesis, then, is that underdevelopment in the Caribbean emanates directly from the particular social and institutional character of the plantation system of resource organization. And the problem of development is one that must involve changes in that structure.