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STRATEGIES FOR AGRICULTURAL DEVELOPMENT: COMMENT

In commenting on this paper by Ruttan and Hayami, I wish, first, to make some rather general remarks. Secondly, I will consider certain aspects of their paper which I find unsatisfactory; and, thirdly, I wish to focus attention on certain critical questions which they largely ignore.

GENERAL REMARKS

Every contribution to the theory of agricultural development is to be welcomed, if only because this field of enquiry has not been ploughed sufficiently. As Ruttan and Hayami themselves indicate, the concern of economists has been more in the direction of examining the interaction of agriculture and overall economic growth (structural transformation)¹ than with the process of agricultural development *per se*. Yet we know that agricultural development is perhaps the most critical problem facing underdeveloped countries today. The bulk of the population in these countries depends on agriculture for its livelihood; so the welfare of millions of people is at stake. And, of course, we now know that overall economic advance by these countries cannot proceed without substantial expansion of agricultural output and improvements in productivity. From this general point of view, then, the Ruttan-Hayami paper can be regarded as a noteworthy contribution.

In order adequately to assess the value of this contribution, however, we need to say something about the general usefulness of models in economic analysis. All models are by definition an abstraction of what obtains in the real world. Simplifying assumptions have to be made to avoid the complexities of the real world. Ultimately, the critical factor that determines the usefulness of the model is whether or not what is left out is fundamental in understanding what goes on. We can take one of a number of approaches in assessing a particular model. One such approach is simply to check its internal consistency. Another is to see how well it explains and/or predicts what happens in the real world. This depends ultimately on whether the assumptions of the model correctly represent given situations. It is this second approach that I wish to take in the present exercise.

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¹ See 2, for a summary.

AN ASSESSMENT OF THE RUTTAN-HAYAMI CONTRIBUTION

The first point for us to note is that, contrary to the title of their paper, Ruttan and Hayami are not concerned with agricultural development at all. They are essentially concerned with the growth of agricultural output and associated improvements in agricultural productivity. Their model is, therefore, more appropriately a model of agricultural *growth* rather than of agricultural *development*. This point is, to my mind, one of very great substance. Agricultural development is essentially a study of the process by which the material welfare of the rural population of a country is improved consistently over time. In this context, the growth of agricultural output and productivity may be a necessary, though certainly not a sufficient, condition. Indeed, there are numerous instances (in the past, as well as at present) in which substantial growth of agricultural output is accompanied by no change in the material welfare of the majority of people involved in the process of that growth.² In short, we must recognize that there is always a strong possibility of the phenomenon of "growth without development."

Later, I wish to return to some questions relating to development, but for now let me proceed to look at Ruttan-Hayami on their own ground. Basically, their induced development model is the conventional resource allocation model within the general framework of the traditional theory of the firm. Critical to the model is the existence of competitive conditions along with profit-maximizing behaviour of decision makers. In such situations, the following endogenous sequence may be expected: resource availability determines relative factor prices and the choice of techniques by producers is guided by the structure of factor prices. Over time, as changes in relative prices occur, technology is adjusted to maximize the use of relatively cheap factors. A further consideration, then, is the degree of technical substitutability between factors of production.

For empirical verification of the model, the authors checked the development experiences of a number of countries where the development process was played out largely in the eighteenth and nineteenth centuries. I want to suggest that the economic and social situation of underdeveloped countries today is significantly different from those that obtained for present-day advanced countries in the nineteenth century. The social order that existed in the latter countries was of a kind that permitted the emergence of economic institutions and behavioural patterns that fit the neo-classical marginalist framework of economic analysis.

My contention is that such is not the case in underdeveloped countries today. These economies are for the most part characterized by imperfect market conditions and social institutional arrangements that create artificial rigidities in the flow of factor supplies and inflexibilities in the patterns of resource use.³ Furthermore, the openness of most underdeveloped economies exposes them to exogenous influences of a kind that serves to shatter the neat links between factor endow-

² The case of the slaves in the slave plantation economies is an outstanding historical example. And, currently, several scholars have noted that the benefits of the "Green Revolution" are concentrated among the larger, better-off farmers in underdeveloped countries.

³ I have demonstrated this in my analysis of the problem of resource allocation in plantation economies (see *I*, especially Chap. 6). A similar situation exists for the feudal-type economies of Latin America and parts of Asia, and the tribal economies of Africa.

ments and factor prices and between factor prices and technological change which are central to the induced development model.

Let me quickly list some of the problems that concern me most in the Ruttan-Hayami analysis and then briefly discuss each of them.

- (1) The profit maximization assumption,
- (2) The association between resource endowments and the structure of relative factor prices,
- (3) The aggregation problem in moving the analysis from the firm to the industry,
- (4) Resource availability in the open economy,
- (5) The assumption about public sector responses, and
- (6) The superficiality of the model of induced institutional innovation.

Farmers in underdeveloped countries do not consistently seek to maximize profits. Profits from farm production are only one element (though a major one) in the matrix of their objectives. Considerations such as family security, social status, and risk minimization, all enter into the picture, depending on the particular institutional environment.

The one-to-one association between the society's factor endowments and relative factor prices ignores two fundamental characteristics of underdeveloped agriculture. One is the marked divergencies between private and social costs and benefits that are typical of most situations; and the other is duality in the structure of some underdeveloped agricultural economies that distorts the relative factor prices faced by different producers within the same economy. The divergencies between private and social costs and benefits are very briefly organized by Ruttan and Hayami but the question of duality entirely escapes notice. We find, for example, that in plantation economies, labor may be relatively cheap to peasants but considerably more expensive to plantations while land may be relatively cheap to plantations but relatively expensive to peasants. In such a situation, it seems to me that there is no uniquely efficient path of technological change for the society as a whole unless of course some exogenous institutional reform to eliminate duality occurs.

On the aggregation problem of moving from the firm to the industry, what bothers me is that the Ruttan-Hayami model seems to imply that what is good for the firm is good for the industry. Let me be more specific. Given the inelastic demand for farm products, expansion of output for the individual farm-firm produces different results from the expansion of output for *all* farm firms. What this implies is that there are obviously leads and lags which the induced development model does not account for in its one-to-one firm industry adjustment process.

In the modern world economy, trade is only one aspect of the characteristic of openness. Much more important is the dependence of underdeveloped countries on the capital, technology, and management resources of the economically advanced countries. In this connection, I cannot accept the cavalier manner in which Ruttan and Hayami dismiss the influence of "forces associated with the international transfer of agricultural technology." Let me take a futuristic example. Desalination of sea water is technically feasible. I suggest that its economic feasibility

is likely to emerge from the research efforts of the more advanced countries. The effect of this will be to drastically alter the resource endowments of arid areas of underdeveloped countries. In order to be fair to Ruttan-Hayami, they admit this kind of event by saying that they do not rule out exogenous technical change. The question is whether exogenous technical change will be more important for underdeveloped agriculture in the 1970s than endogenous change. I think that, given the present institutional arrangement of the world economy, exogenous factors will be more important than the endogenous for agriculture in underdeveloped countries.

A highly decentralized system of agricultural administration and the existence of strong farmers' organizations are critical for generating effective public response. But in most underdeveloped countries, local government is poorly developed and farmers' organizations are either absent or weak. In the circumstances, the kind of public sector response predicted by the induced development model will hardly be in evidence.

I am most concerned with the superficiality of the model of induced institutional innovation. It is *totally* impossible to explain institutional reform in purely economic terms, as Ruttan-Hayami have tried to do. They admit themselves that institutional change is not neutral. If that is so, as indeed it is, then we need to examine the social and political (not to mention the psychological and cultural) dimensions of the process of institutional change. And, of course, the exogenous factors are of critical importance here. We need only call to witness the "American Revolution" vs. the problem of the United States South and of black people in the United States today. Any model of induced institutional reform must explain how the existing institutional arrangements affect different groups in the society, how change will affect these groups, and the balance of power between the groups. This calls for a political, social, and psychological analysis. The simplistic Ruttan-Hayami model cannot possibly cope with these problems. A further consideration is the obvious relationship between institutional structure and technological change. Certain patterns of social organization simply do not contribute to the kind of social inputs (education and research, for example) that are critical to the process of change envisaged in the induced development model (e.g., see 5).

This brings me, now, to the question of what the model has ignored in relation to agricultural development strategies for underdeveloped countries in the 1970s.

TOWARD APPROPRIATE STRATEGIES FOR AGRICULTURAL DEVELOPMENT

Starting with the recognition that Ruttan and Hayami are not concerned with agricultural development as I have defined it earlier, I wish in conclusion to pose two basic questions.

The first is whether it is sufficient for us to concentrate simply on output growth and productivity changes in the agricultural sector. The second is whether or not our attention should be directed to institutionally-specific analyses and models of agricultural development instead of seeking for a general theory. Let me say a little about each of these basic questions.

To my mind, the process of productivity change and growth of output may well be important in explaining agricultural *development* in countries like the

United States. It is grossly insufficient in explaining economic adjustments in places like the United States South, the Caribbean, and elsewhere (i.e., the persistence of *underdevelopment*). At least two factors need to be considered in this connection. One is the existence of duality in the agricultural sectors of underdeveloped economies and the associated question of the kind of output change. The other is the backwash effects of terms of trade adjustments in the expansion of output in *export* agriculture.

Duality assumes major proportions in the case of plantation-peasant agricultural economies. In such situations, plantations produce export output and peasants domestic output. It is the latter that is critical for the development process, for several reasons, notably its effects on structural transformation and rural welfare. Duality is an index of institutional distortions in the economic framework. So it is the institutional environment that is critical for the process of agricultural development (and underdevelopment).

The importance of the terms of trade backwash has been recently elaborated by W. A. Lewis in his 1969 Wicksell Lectures. According to Lewis, the extent to which underdeveloped countries benefit from improvements in productivity in export production depends on the relationship between export production and food production in the underdeveloped countries on the one hand; and between production of manufactures and food in the advanced countries on the other (3, pp. 17-27). In an earlier presentation, Lewis verifies the point in a manner directly relevant to my reservations about the Ruttan-Hayami model of "development." It is worthwhile quoting Lewis at length on this score (4, p. 281):

Cane sugar production is an industry in which productivity is extremely high by any biological standard. It is also an industry in which output per acre has about trebled over the past seventy years, a rate of growth unparalleled by any other major agricultural industry in the world—certainly not by the wheat industry. Nevertheless, workers in the cane sugar industry continue to walk barefooted, and to live in shacks, while workers in wheat enjoy among the highest living standards in the world. However vastly productive the sugar industry may become, the benefit accrues chiefly to consumers.

I come, finally, to my own contribution to the evolution of thought on agricultural development. To my mind, the induced development model of Ruttan and Hayami exposes the fundamental limitations of contemporary theorizing on the nature of the process of agricultural development. If we are concerned, as I am, with the material welfare of rural people, then the problem must be approached differently from the way the authors have attempted. Basically, Ruttan and Hayami have started from the body of economic theory that we have at our disposal. That body of theory is based on the observation of economists of real situations that existed in the past. I suggest that we need to analyze the process of agricultural development from the perspective of the present. In terms of agricultural development this means developing models appropriate to the contemporary situation in Third World countries.

If we are to do this, it seems to me that we need, first, to develop a typology of underdeveloped agriculture reflecting different institutional arrangements in

particular situations; and, secondly, to develop models appropriate to each type identified. For the most obvious lesson to be gained from the evolution of thought on this subject is that useful theories of agricultural development have been based on analyses of specific situations. It is the specific social order that determines the institutional arrangements that influence the interplay of the proximate economic variables which are central to the Ruttan-Hayami model. So if we are to understand the development process we need to probe far beyond the proximate economic variables. And I am afraid that, as economists, we are not well equipped for that!

CITATIONS

1 G. L. Beckford, *Persistent Poverty; Underdevelopment in Plantation Economies of the Third World* (New York, 1972).

2 B. F. Johnston, "Agriculture and Structural Transformation in Developing Countries: A Survey of Research," *J. Econ. Lit.*, June 1970.

3 W. A. Lewis, *Aspects of Tropical Trade, 1883-1965* (Stockholm, 1969).

4 ———, *The Theory of Economic Growth* (Homewood, Ill., 1955).

5 W. H. Nicholls, *Southern Tradition and Regional Progress* (Chapel Hill, N.C., 1960).