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RESEARCH ISSUES IN AGRICULTURAL
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by
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RESEARCH ISSUES IN AGRICULTURAL DEVELOPMENT POLICY

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Much of the economic literature identifies development with the average rate of increase in real output per capita. A wide range of research issues grow out of this conception. However, new questions arise if the concept is broadened to include the reduction of mass unemployment and poverty, and the more equal distribution of improved income earning opportunities.¹ Very little research by US agricultural economists has focused specifically on the interconnections between productivity increases and these other economic indicators.

This lack of emphasis may be a function of the way in which agriculture, and the discipline of agricultural economics, developed in the United States. In this country it was not unreasonable to assume a strong positive correlation between increased agricultural production, employment, and income earning opportunities. This linkage was assumed to be inherent in the family farm system and the relative labor-scarce conditions of US agricultural development. Furthermore, in the United States there has always been some institutional research to complement resource allocation-efficiency studies. Even without explicit evidence, researchers on US agricultural policy issues made some allowance for the institutional context which conditions the results of policies as they are implemented.

The position taken here is that present conceptions of development tend to be too narrow, that key policy questions are as a consequence ignored, and that unwarranted assumptions are often made with respect to the nature of the economic, social and political institutions. It is hypothesized that only as research concentrates on these neglected policy issues within specific institutional contexts of individual countries will more adequate theories of agricultural development emerge.

I begin with an outline of the historical roots of Agricultural Economics as a discipline. This is followed by a discussion of some critical views that have been expressed regarding the relevance of economic theory to development policy issues. Finally, several key agricultural development policy questions are explored--especially rural employment and income distribution--and assumptions underlying accepted methods of analysis are reviewed with respect to their adequacy in guiding research on these questions.

I

Within the past several decades, especially the one just ended, agricultural economists have become increasingly concerned with agricultural development policies. I underline development since this is a new emphasis.² Agricultural Economics and the related rural social sciences emerged as academic disciplines at about the turn of this century, after US agriculture was far along the road

to modernization. Initially, agricultural economists were concerned with problems of farm management and tenancy. Later, problems of marketing, credit, price and income protection, resource conservation, and aggregative characteristics of demand and supply became sub-fields of specialized interest and research. Since the discipline "grew up" after the basic economic, social, and political institutions of production and distribution were established, policy issues of concern to researchers were essentially those dealing with imperfections of the system--obstacles and barriers (to the free flow of information and resources) inhibiting the most efficient use and combination of given resources.³

A look at the "growth of government in agriculture" [41:1: 39] reveals a fairly close correspondence between policy issues in US agriculture and the development of specialized areas of research in the field of agricultural economics.⁴ This provides some ground for hypothesizing that the shape of Agricultural Economics as a discipline reflects the range of issues which arise in agricultural policy.⁵ Organized systems of thought are the result of man's efforts to cope with experienced difficulties. The configuration of such a system of thought will be different if establishment of basic institutions is a key issue in contrast to the system of thought that emerges from inquiry into policy issues that arise within an established and accepted institutional framework.⁶

At the time the United States gained its independence, there was no separate field of inquiry known as Agricultural Economics. In fact, Economics was just emerging as a recognizable, separate branch of Moral Philosophy. A major policy issue in the early 19th century was the nature of economic organization to establish for developing and managing the land resources of the nation and encouraging rapid settlement. The resulting system of family farms was rationalized more in terms of political theory (a major reaction to European feudalism) than economic theory [16]. And it was, of course, consistent with and supported by the perfect competition postulates of Adam Smith and his followers.⁷

The point is that the system of economic, social and political organization was firmly established by the time problems of agricultural policy attracted the attention of professional economists. Had our earlier policies fostered a feudal hierarchy or communal ownership of land instead of fee simple ownership and family farms; had our social organization developed around the extended family or the tribe instead of the nuclear family living in relative isolation on its farmstead; had our political system been one of centralized control and management of the economy with all transaction involving land, labor, capital and commodities regulated by central political authority instead of the local autonomy and free private enterprise of individuals in their economic activities; much of our theory of the firm, of markets, of pricing, and of equilibrium would be

irrelevant. In fact, more importantly, we most likely would not have them. They could be developed and perfected only within a particular institutional context. They do not make sense or provide analytical insight into a system whose institutions are very different.⁸

Thus there is little reason to believe that the concepts and hypotheses derived from our present theories are entirely relevant to other countries. The need, it would seem, is to understand the institutional system in these countries and the nature of their public policy issues. New theoretical constructions must emerge from such understanding.

On some problems our theories are serving us reasonably well in the United States and in other industrialized countries. The relevant questions are being asked and data needed for analyses are being generated. But the categories in our census and other statistical series are not accidental. They too are products of the policy issues and the theoretical formulations developed through the interaction of problems and ideas. Yet our very measures of development may yield faulty comparisons if the nature of political and economic organization in another country is widely different from our own.⁹

On other important policy questions, however, present theories provide little insight even on US issues: environmental quality, poverty, race relations, a more equal distribution of economic and

political power, congested cities, rural development, automation, and basic changes in the industrial ownership structure. Present theories do not seem to encompass these issues, they do not help us formulate the right questions, appropriate data are not available, and the issues tend to fall outside the foci of traditional university departments.¹⁰

II

A fundamental question is whether economics, or any other social science, can have anything significant to say on matters of development policy. More fundamentally, the question is whether social science is capable of generating guidelines for public policy that are in some sense "better" than those formulated by other means and criteria. Or are the value questions of public policy subject only to the dictates of dogma, coercion, and personal tastes?

This depends, it seems, on one's view of the role of theory, how it is developed, and the manner in which it is tested. If one assumes that economic theory develops in some pure form independent of policy issues existing within a specific institutional matrix, it follows that theory can have an "independent career" and be set apart in a separate domain.¹¹ This view may not be too harmful with respect to those aspects referred to by Kuhn as "normal science" or the "mop-up work" growing out of established theory [22, p. 24].¹²

Another position, the one taken in this paper, is that as major changes occur in society the existing body of theory (having been developed in the process of study and eventual resolution of major policy issues in the past) becomes inadequate and fails to comprehend the new policy issues which confront society. The major breakthroughs and theoretical syntheses in economics have come about through attempts to deal with major policy crises. Smith, Ricardo, Marx, and Keynes were all deeply immersed in the policy issues of their time, and their theoretical advances resulted from their inquiry into possible resolution of questions central to economic policy.¹³ Advances in theory have, of course, always been constructed on the basis of much detailed and specific research into the very issues that could not be forced "into the preformed and relatively inflexible" boxes available from existing theory [22, p. 24].

In emphasizing the need for research on policy issues, I do not mean that the goals of policy are set by politicians, bureaucrats, or pressure groups and that the role of research is merely to seek the most efficient means of arriving at such pre-determined goals. Rather, I mean that the investigator must be concerned with both ends (goals) and means as variables in the inquiry.¹⁴

I recognize that this view of the development of economic (and other social science) theories holds certain dangers. For example, it raises the question of objectivity in research.¹⁵ This is perhaps why many social scientists deny that they are working on policy questions

and maintain that--as scientists--their only concern is establishing value-neutral relationships within their subject matter of inquiry. This latter function is of great social significance, and most social scientists will always be engaged in such studies. Indeed, new theoretical breakthroughs are impossible without them [22] . But without direct attention to relationships not prescribed by present theories, some of the most pressing public policy questions are ignored.

It may be helpful, at this point, to note a fundamental difference between the physical and the social sciences. Both physical and social scientists can carry on much of their "normal science" under laboratory conditions. Social scientists, however, will always be conducting some of their research within the context of human society. But when a crisis in policy emerges, when accepted theories fail to offer insights into phenomena readily observed, when these anomalies become so obvious that they can no longer be ignored, new theories cannot be validated except as they are tested out in practice. In physical science this can still frequently be done under laboratory conditions. But in economics it requires new directions in policy. Its measured consequences must then serve as the experimental test. The Keynesian reformulation of the 1930's is perhaps the best and most recent example in the field of economics. Today, many economists are indeed engaged in the "normal science" that is not directly concerned with ends or values. But this is made possible

by the new Keynesian paradigm which has once again (for the industrialized, capitalist countries) relegated many evaluative or "normative" issues to the level of assumption, removing them for the time being from the immediate field of inquiry. This makes possible the common practice of reading prescriptions for public policy directly from the refined Keynesian models (a practice which Keynes himself did not recommend).¹⁶ But such prescriptions could not command the respect they do if the new theoretical constructions had not been tested out over the years--tested in the only meaningful terms possible--through their practical influence in shaping public policy and resulting in measured and anticipated consequences.

In the United States in recent years, we have begun to accept as a measure of progress the number of people lifted from the misfortune of being poor. There is a growing recognition that development problems are not confined to some far-off "less developed country". And more people are beginning to realize that development is more than capital, investment, and markets. It is a complicated process of institutional change, redistribution of political power, human development, and concerted, deliberate public policy efforts for redistributing the gains and losses inherent in economic growth [7, p. 291].

Despite such recognition, these issues are still treated as "fringe problems", outside the mainstream of economic policy.

And development economics, so far as I can determine, does not incorporate these issues into its analysis. As a result the relevancy of development economics to development is being questioned [36; 4]. In viewing the core economic theory requirements at major Ph.D. granting universities, and the content of preliminary examinations, one would hardly suspect that such problems exist or that theory has any bearing on research related thereto.¹⁷ While development questions in the United States are becoming more critical with each passing year, they are at the heart of public policy issues in non-industrialized countries. Yet US universities are presuming to educate many Ph.D. candidates from these countries.¹⁸

There is, it would appear, a crisis situation developing in economics (and perhaps in the social sciences generally) in the sense defined by Kuhn--"Crisis and the Emergence of Scientific Theories" [22, pp. 66-76]. Unless some key development issues, which are ignored at present, are directly addressed in research, such a crisis may result in a challenge to the very legitimacy of economics [2, pp. 299-307].¹⁹

III

Given the rapid population growth in most of the developing countries, the large proportion of the people in agriculture, and the continuing growth of absolute numbers dependent on agriculture [9] it is surprising to see how little analytical attention has been given to the need for creating employment and improved income

earning opportunities in rural areas. There is a vague hope that programs designed to increase production will result in agricultural development irrespective of the short-run employment and distributional consequences of such programs. However, experience over the past decade indicates that the questions of increased agricultural production and a more equitable distribution of the fruits of that production must be viewed as parts of the same problem. Policies designed to cope with one of these issues to the exclusion of the other have not succeeded.

These two aspects of development (increased production and a more equitable distribution) are often viewed as being totally independent. The first is looked upon as the key to development while the second is seen as a peripheral problem of welfare or social justice. Achieving these two widely differing objectives, it is held, requires separate policies. Economists, it is assumed, have the analytical tools which permit them to make policy recommendations for increasing production, but the problem of a more equitable distribution is assumed to be a political or cultural matter [3; 17].

This separation of production and distribution for policy purposes may be valid in some contexts. For example, there is merit in this view for evaluating US agricultural price and income policies. Farm price support policies in the United States have frequently been justified in terms of protecting the income of

the small farmer, yet all evidence shows that the large bulk of the payments have gone to the large commercial farmers. Here indeed we need a separation of policy objectives. In the United States, less than 5 percent of the people live on farms, only a minority of the nation's poor are on farms, and the industrial-urban sectors dominate the economy so that employment opportunities must be sought in these sectors. But in most of the non-industrialized countries a large majority of the people depend on the land for employment, most of the poor are concentrated there, employment in manufacturing is growing much less rapidly than manufacturing output (due to capital intensive production processes), and the number of people dependent on farming for a livelihood is increasing.

These countries may eventually achieve a dual economy within a developed agriculture--a "commercial sector" and a "welfare sector." However, to achieve the benefits that may accrue from what Wyn Owen has called "farm-financed social welfare" requires that opportunities--even subsistence opportunities--be provided to begin with [27, p. 61; 28]. The US agricultural system has in the past served as a refuge for millions. In the deep depression of the 1930's, there was a movement back to the farm, and even in the milder recessions of the 1950's, migration to the cities diminished. Today the agricultural sector in the US still holds labor far beyond its productive needs.

Policies which emphasize modernization and increased production from the commercial, large farm sector without explicit attention to the creation of employment opportunities will yield increased output of certain farm commodities and growing labor productivity for a selected group of skilled workers. But they will reduce farm employment opportunities and throw the burden of adjustment on the disadvantaged who join the ranks of the landless, become migrant seasonal workers, continue to crowd into existing small farm areas, move out to rapidly shrinking frontiers, or join the underemployed in the cities. There is no evidence that the increased volume of commodities moving through commercial channels as a result of such increased production creates sufficient jobs for workers displaced by modernization, or for the continuing new additions to the rural labor force.

Poverty (the massive poverty among the majority of people in the less developed countries) is not only or primarily a welfare and humanitarian problem. It is a problem that has direct and important implications for increased productivity. Supply does not create its own demand under conditions of a highly skewed income distribution. To focus primarily on production widens the income gap between rich and poor. It is impossible in many circumstances of development to separate the issues of production and distribution, since distributional measures may be the key to achieving increases in production.

And the trickle down theory of distribution has never worked out in practice, especially under conditions of concentrated economic and political power.²⁰

Why are policies not formulated to accomodate both of these requirements--increased production and increased employment with a more equitable distribution? The distributional questions, of course, raise many tough issues in the realm of national politics. However, professional analysts using highly sophisticated models frequently recommended policies that have production increases as their primary goal. Why should this be so for production but not for distribution? Several possible answers to this question are suggested below.

1. There is what may be called the "war on hunger" position which assumes that if there are hungry people, food should be produced by the cheapest, most efficient means possible in order to feed them. Yet frequently, and especially when viewed from the private interests of an individual firm, this solution includes displacing people with machines. And professional analysts, viewing the problem with decision making criteria appropriate to the private firm, and ignoring the possible lack of correspondence between private and social costs and benefits, can reach conclusions such as the following: "One reason for the high cost [of corn in Guatemala] is the amount of hand labor required. Hence, my desire to try out the corn picker" [29, p. 716] . However, from the standpoint of more general criteria of economic development of the nation,

this may not be a solution at all once the need for employment creation is taken into account. Even if means could be found to tax away or otherwise confiscate the increased production "...a nation cannot put most of itself on the dole, even if money and food are available for distribution " [26, p. 224].

Land must be viewed as a vehicle for human development as well as a resource for food production. As Raup has put it, "Wherever there is surplus agricultural labor and shortage of working capital, the task of the tenure system is to put people to work" [33, p. 274].

It has become an article of faith, at least among professionals from the industrialized countries, that mechanization (mechanical technology and automation generally) always creates as many jobs as it eliminates, sometimes more. According to this faith, there may indeed be some short run problems of labor displacement and some structural unemployment. But given time, the new technology creates demand for labor in many areas of the economy through its various linkages, and eventually employment will return to a higher level with the new machines than it would have been without them.²¹

It is assumed that labor displaced by mechanical technology will find new job opportunities as a result of the chain reaction of various linkages in the production and servicing of this technology. This assumption may be justified in a highly industrialized nation. But does the same assumption apply to a country that does not produce its own technology? In the United States, for example, the mechanical

cotton picker displaced workers by the tens and hundreds of thousands [5]. Many of the workers displaced (though certainly not all) and especially the sons of these workers did find employment among the vast complex of industries interrelated with the production, sale, and servicing of cotton pickers--steel, rubber, oil, machinery manufacture, transport, farm implement sales and service, etc. But take another example, Nicaragua, which imports cotton pickers from the United States.²² Most of the employment in the vast complex of industries associated with the cotton picker in the United States does not exist in Nicaragua--it remains in the United States.²³

This case illustrates the general principle involved; it does not argue against all modern, imported technology. It depends on what the machines will be used for. In an agriculture with an over abundant and growing labor supply, it is unlikely that one can make a general case for importation of labor saving machinery if the problem is viewed from the standpoint of national policy rather than from the standpoint of profit maximization of the individual firm [19]. If the agricultural sector is to make its most effective contribution to economic development, it must not only improve labor productivity for a select group but must also expand employment opportunities [20; 40].

In certain cases mechanical power and equipment can be justified in terms of increased yields due to better tillage or timeliness of operations. But even where this is the case, there is sufficient

experience in the world to show that the required machine services can be made available to an agriculture based essentially on labor intensive production practices. To argue for capital intensive production in a capital scarce-labor abundant economy is wholly unconvincing.

On the basis of his model of rural outmigration and urban unemployment, Todaro concludes that:

Perhaps the most significant policy implication emerging from the model is the great difficulty of substantially reducing the size of the urban traditional sector without a concentrated effort at making rural life more attractive [40, p. 147].

But how is rural life to be made more attractive? Presumably public investments in rural education and health services, making them more widely available to the poor, would help. Funds used to accommodate rural migrants in the cities might be diverted to rural areas. Yet, such services cannot be built throughout the country except over a long period because of both capital and professional manpower shortages. Raising minimum wages for farm workers could be counterproductive so long as investment decisions in the farm sector are made by private entrepreneurs. A higher minimum wage might lead to a shift to labor extensive enterprises or to an acceleration of the substitution of machines for labor. Even with low

wages there is a strong incentive on large farms to mechanize and simplify labor supervision. It is almost impossible to find farms of, say, 1,000 hectares in rice or cotton being planted, tended and harvested mainly by hand labor. Such farms either mechanize or operate with a share-cropper system. To get at the crux of the matter, "making rural life more attractive" in most cases means providing the farm family with a secure opportunity on the land. Land tenure arrangements and size of holdings must be included as variables in the analysis. But the basic assumptions underlying production and distribution theories take these as givens [24].²⁴

2. Another reason why the employment issue gets little attention is the fact that in the less developed countries, the most abundant potential resource is usually labor. I say potential since in many cases people need training and work experience to transform raw labor power into the manpower resource (with skills, experience and discipline) required for more rapid development. An abundance of people does not necessarily rule out labor shortages in selected occupations. The scarcest resource generally is capital. Given the great abundance of labor, there has been a tendency to ignore the need for investment in and development of the labor potential. Instead of viewing land as a vehicle for employing people and for developing the skills and experience required of the rural labor force, land has been viewed primarily as a resource to be efficiently combined with scarce capital so as to maximize agricultural output.

T. W. Schultz has written a good deal on the issue of investment in human capital [34] but he places primary emphasis on formal schooling. I do not, of course, deny this need. Nevertheless, formal schooling is not the only and not always the most significant demension of education. Furthermore, despite massive efforts, many poor countries have not yet been able to supply even elementary schooling for large numbers of their people. Under these circumstances, economic activity should be designed to produce educational effects. Productive work can offer educational experience and discipline as valid as that gained in the classroom. It is of a different kind, to be sure, and neither type of education is sufficient unto itself. Work experience can be directed and enriched by learning that can come only from school situations. Likewise schoolroom education can be enhanced by work experience.

The manner in which increased production is achieved, and the number of people who participate and reap some benefits from the experience, may be as important as the production increase itself. One gets a different perspective with respect to the role of land if (in addition to its accepted function in the production of farm products) it is viewed as a vehicle both for creating economic opportunities and upgrading the human skills and capacities required for their exploitation [8, p. 12].

Man is a unique resource and economic theory has no position with respect to this uniqueness. Man is both a resource to be used

(along with land and capital) as well as the user of resources. An individual plays a dual role--that of the user and of the used, of the interested and the object of interest, of the exploiter and the exploited.²⁵

The common formulation in resource allocation-efficiency models is to view man as labor power--as the object of use. This view, far from being value-neutral, accepts the status quo power positions and ownership patterns of land and capital. In fact it places the weight of authority of "scientific analysis" in the camp of present owners. Under conditions of vast and increasing inequality, policy prescriptions based on such efficiency models are consistent with the poor man's view of the world--"Them that has--gets."

3. Economic literature tends to de-emphasize the income distribution consequences of the development process. Since land tenure arrangements are most directly associated with the creation of and access to income earning opportunities and their distribution, these arrangements receive only passing mention in much of the economic literature on agricultural development policies.

If the task of development is conceptualized to include income distribution as a variable (rather than a fixed parameter taken as given), then some of the economists' most powerful ideas and tools lose some of their analytical leverage. For example, marginal analysis and the accompanying planning, programming and budgeting tools implicitly assume certain non-changing structural parameters.

Yet once a sophisticated measurement emerges, as from benefit-cost analysis, a strong faith is placed in it and the implicit assumptions are usually forgotten. The higher the benefit-cost ratio, for example, the "better" the project.

However, the results of these calculations are directly conditioned by the pattern of income distribution.²⁶ Investments in the increased production of chickens and beans rather than of airlines and television sets may give a higher benefit-cost ratio if the pattern of income distribution is changed. Poor people, lacking the money votes, cannot register their needs or desires through the market mechanism. But change the income distribution and you change the structure of demand, thus changing the benefit-cost ratios of various projects in turn altering investment priorities.²⁷

Assumptions such as those described in these examples allow certain strategic developmental questions to fall between the analytical slats: productive employment for the growing rural labor force: creation of opportunities which permit men to develop their abilities and capacities; and the ownership distribution of land and other resources. An agricultural economist, using a farm management approach, may ignore the displacement of workers or their need to find viable opportunities on the land. He is concerned with profit maximization from the resources available to the firm. Even an agricultural economist dealing with farm policy for the agricultural sector could ignore these questions on the assumption (well founded

or not) that industrial and other non-agricultural activities are available for the absorption of excess rural labor. Nor does a macro-economic approach assure that these strategic questions will be addressed in the analysis. While Keynes may have had a deliberate disregard for the supply side of investments (and focussed only on their demand creating consequences) [23], post-Keynesian development economists seem to have over-emphasized the supply consequences.

There is indeed an implicit assumption that somewhere policies are being implemented to maintain full employment, and that when a laborer moves from one job to another it always results in increased productivity. But these are unwarranted assumptions in most cases of less developed countries. Indeed, these assumptions point to some of the critical problems of development.²⁸

IV

What conclusions are to be drawn from the arguments set forth in this paper? First, we need broader criteria by which to assess development. This means inclusion of presently less measurable and quantifiable variables than the commonly accepted ratios in use today. Second, on key policy issues both ends and means must be incorporated as variables in the analysis rather than accepting certain ends implicit in standard economic theories. Finally, distributional questions must be given higher priority on the research agenda.

Present theories may have much more relevance once we understand better the institutional context of specific country development problems and the "special case" out of which our own theories were constructed. If new theoretical extensions can accommodate the enlarged context, present theories may become more useful in guiding research in the very situations in which they are at present unsuccessful.²⁹

New developments in theory are not simply willed into existence. The hypothesis suggested in this paper is that only as research concentrates on presently neglected policy issues within specific institutional contexts of individual countries can more adequate theories of agricultural development be constructed. It is obviously asking a great deal of a man to be guided by present theories and pre-conceptions and yet to be continuously suspicious and question them at every stage in his research. Yet such would seem to be the nature of the present challenge.

FOOTNOTES

* Professor of Agricultural Economics and Director of the Land Tenure Center, University of Wisconsin, Madison. I gratefully acknowledge the many helpful comments received from colleagues at the Land Tenure Center on earlier drafts, especially those of Marion Brown, William Thiesenhusen, Don Kanel, Herman Felstehausen, Elsa Chaney, Kenna Jarvis and John Bielefeldt. Some of the basic formulations developed in this paper originated in many discussions over the years with Professors Ken Parsons, Carl Bogholt and Ray Penn. I acknowledge my indebtedness to all the above, but I alone assume full responsibility for statements made in the present article.

1. As Seers points out "The questions to ask about a country's development are therefore: What has been happening to poverty? What has been happening to unemployment? What has been happening to inequality? If all three of these have declined from high levels, then beyond a doubt this has been a period of development for the country concerned. If one or two of these central problems have been growing worse, especially if all three have, it would be strange to call the result 'development,' even if per capita income doubled" [36, p. 3].

2. Development is here viewed in the broad sense of expanding opportunities and the human capacities needed to exploit them along with a general reduction of mass poverty, unemployment and inequality [36: 31].

3. Technology, which alters the conceptions of what constitutes resources has always been troublesome to a scheme of analysis which essentially takes resources at any particular time as given [24, pp. 725-729]. "A system--any system, economic or other--that at every given point of time fully utilizes its possibilities to the best advantage may yet in the long run be inferior to a system that does so at no given point of time, because the latter's failure to do so may be a condition for the level or speed of long-run performance" [35, p. 83].

4. Note also current policy issues (poverty, resource and environmental management, population, urban congestion, agricultural development, etc.), and the corresponding growing interest and research specialization (including new institutes and professional journals) in all these areas.

5. I am indebted to my colleague Professor K. H. Parsons for this formulation.

6. On this point, it is interesting to compare and contrast the issues dealt with by the classical economists and those of concern to the neo-classicists. "Classical economics is, of course, a theory of economic development. In this respect it is quite unlike at least some of the economic theories that came into vogue in the last decades of the nineteenth century " [14, p. 4]

7. Given the magnitude of the task, there were perhaps few alternatives.

8. N. Georgescu-Roegen has observed, "As soon as we realize that for economic theory an economic system is characterized exclusively by institutional traits, it becomes obvious that neither Marxist nor Standard theory is valid as a whole for the analysis of a non-capitalist economy, i.e., of the economy of a society in which part or all of the capitalist institutions are absent. A proposition of either theory may eventually be valid for a non-capitalist economy, but its validity must be established de novo in each case...Even the analytical concepts developed by these theories cannot be used indiscriminately in the description of other economies. Among the few that are of general applicability there is the concept of a production function together with all its derived notions. But this is due to the purely physical nature of the concept. Most economic concepts, on the contrary, are hard to transplant...All this may seem exceedingly elementary. Yet this is not what Standard and (especially) Marxist theorists have generally done when confronted with the problem of formulating policies for the agrarian overpopulated countries. And, as the saying goes, 'economics is what economists do' " [13, pp. 147-148].

9. Seers has noted that "...national income figures published for most 'developing' countries have very little meaning. This is partly because of lack of data, especially on farm output, but also because, when income distributions are so unequal, prices have very little meaning as weights in 'real' income comparisons. ...lack of

data on poverty, unemployment and inequality reflects the priorities of statistical offices rather than the difficulties of data collection. The conceptual problems of these measures do not seem to be more formidable than those of the national income. We have just grown accustomed to ignoring the latter " [36, p. 3].

10. "Nowhere," says John Gardner, "can the operation of vested interests be more clearly seen than in the functioning of university departments...[the department] assesses the significance of intellectual questions by the extent to which they can be answered without going outside the sacred territory" [12, p. 98].

11. A highly significant critique on this point is found in Professor Parsons' "The Logical Foundations of Economic Research." "To accept the distinction between 'pure' and 'applied' economics as generally valid and fundamental is not only to accept the view that 'theory' in its pure form can have an independent career but that it can be validated in some way other than by 'application'...The crux of the issue is simply this: that the only alternative which we have to the validation of inquiry by problem solving is a reliance either upon self evidence of fact or principle as the foundations of knowledge--or upon revelation. Both of the latter alternatives are incompatible with a genuinely scientific viewpoint" [30, pp. 664 and 674; see also 6].

12. "Mopping-up operations are what engage most scientists throughout their careers. They constitute what I am here calling

normal science. Closely examined, whether historically or in the contemporary laboratory, that enterprise seems to attempt to force nature into the preformed and relatively inflexible box that the paradigm supplies. No part of the aim of normal science is to call forth new sets of phenomena; indeed those that will not fit the box are often not seen at all. Nor do scientists normally aim to invent new theories, and they are often intolerant of those invented by others.* Instead, normal scientific research is directed to the articulation of those phenomena and theories that the paradigm already supplies" [22, p. 24]. * Here Kuhn cites Bernard Barber, "Resistance by Scientists to Scientific Discovery," Science 134:596-602, 1961.

13. "One of the results of any survey of the development of economic doctrines is to show that in large measure the important departures of economic theory have been intellectual responses to changing current problems " [25, p. 13].

14. "Since development is far from being achieved at present, the need is not, as is generally imagined, to accelerate economic growth--which could even be dangerous--but to change the nature of the development process" [36, p. 3].

15. The problem-solving approach to inquiry "...easily and naturally frays out into a mere servicing of practical judgements. In fact, it requires strenuous intellectual effort to avoid this very outcome. Under such circumstances we gradually drift into an

acceptance of the 'problems' as formulated by our constituency. The next step is simply that of making 'investigators' the mere tools of various interests...Yet the issue must be faced. The argument seems inexorable, that there is no other alternative in genuinely scientific inquiry to having both the roots of inquiry and the final tests of validity in practical problem solving " [30, pp. 675-676].

16. "The object of our analysis is, not to provide a machine, or method of blind manipulation, which will furnish an infallible answer, but to provide ourselves with an organized and orderly method of thinking out particular problems; and, after we have reached a provisional conclusion by isolating the complicating factors one by one, we then have to go back on ourselves and allow, as well as we can, for the probable interactions of the factors amongst themselves. This is the nature of economic thinking " [21, p. 297].

17. "Workshop on Core Economies" sponsored by the Agricultural Development Council, October 10-11, 1967, held at ADC office in New York.

18. "If a student's formal course training is limited to two years of graduate study and he expects to work on development problems, he is, I'm afraid, in danger of finding that he has acquired a lot of mental luggage of dubious utility while he has not been expected to think very deeply on questions basic to an effective

attack on the problems of development. It is not really an answer to say that you are giving him his analytical tools, and that his thinking can come later. If he has not been made aware of the basic issues in his university training, he may well pass through life unaware of their very existence" [4, p. 20].

19. "The teaching of every profession produces a certain amount of what Veblen called 'trained incapacity' and we should certainly look with a critical eye at economics to see if we are not doing this. If the training of the economist leads to his neglecting certain important aspects of the world about him, once he is in a position to give advice and to have his advice taken, disasters might easily ensue....When one is giving advice, therefore, about a system that involves the total society, it is extremely dangerous to be overtrained in a certain abstract element of the total process. If we run into enough of this we may find indeed a widespread reaction against economics and a withdrawal of legitimacy from it. It is my own view frankly, at this point, that we must move toward a more integrated and perhaps even a rearranged social science, that the existing departmental and disciplinary lines often mask real problems..." [2, pp. 306-307].

20. The Economist makes the following comments on FAO's "Indicative World Plan": "As long as incomes are so unevenly distributed within the developing countries themselves, and so little inroad

is made with their traumatic unemployment problems, the people who are starving will not have the money to buy the food, even if it is there. This is where the planners of Asia, Africa and South America would like FAO guidance, but so far they only get alarming figures and some general advice" [15, p. 75].

21. Economists have analyzed the general factor proportions problem--formulated in terms of the production function and the elasticity of substitution among factors[1]. "Eckaus' famous factor proportions model represents the most notable attempt to come to grips in a rigorous fashion with the problem of labor absorption in the modern sector. However, his model is concerned primarily with the demand side of the employment problem, and as such does not consider in an equally rigorous fashion the determinants of rural-urban labor supply. As a result, the model cannot be used to estimate the magnitude of urban unemployment nor can it be used to evaluate unemployment implications of alternative policies" [40, p. 138]. However, the point I am raising is a still different one.

22. The entrepreneur of a large farm enterprise may find the importation of labor-displacing machines highly profitable due to a variety of circumstances, most of them related to government policies: overvalued exchange rates, subsidized credit, rising minimum wages and fringe benefits, etc. Reasoning from analogy, US and European experience of farm enlargement and mechanization is sometimes cited to support this type of development. But such an analogy is

inappropriate given the widely different situation with respect to factor proportions and real factor costs to society (in contrast to existing factor prices which are often controlled and distorted by some of the above policies).

23. The problem is compounded if, as Singer has pointed out, the investments and the production processes are actually controlled by foreigners. "The main secondary multiplier effects, which the textbooks tell us to expect from investment, took place not where the investment was physically or geographically located but (to the extent that the results of these investments returned directly home) they took place where the investments came from. I would suggest that if the proper economic test of investment is the multiplier effect in the form of cumulative additions to income, employment, capital, technical knowledge, and growth of external economies, then a good deal of the investment in underdeveloped countries which we used to consider as 'foreign' should in fact be considered as domestic investment on the part of the industrialized countries " [37, p. 475].

24. "Distribution theory today concerns itself, in essence, with tracing out the effects of various policies in distributing economic fruits among persons who own or otherwise command control over resources....In current theory, distribution of ownership or other control of resources among people is 'given'.... In terms of the dynamics of economic development, however, the real problem of distribution is: 'How does ownership or other control over resources

come to be distributed in the manner it is?'....The question is not, for example, whether a landlord and a tenant each receives the appropriate return for the resources he controls; but rather, is it appropriate, from the standpoint of the economic development of the country in question, for the landlord and the tenant to have these particular proportions of the nation's resources under his control" [24, pp. 729-730].

25. In a society where economic and political power are widely shared, there is a continuous attempt at modifying institutional structures and norms to keep this process of "rising others" mutually beneficial. Procedures are designed so that individuals and groups, in pursuing their private interests, are not injuring (and preferably are furthering) the interests of other individuals and groups. When mutuality in the process breaks down and conflicts intensify, zones of discretionary behavior (rights, liberties, obligations, restraints) of the individuals and groups involved in the conflict must be re-defined in order to re-establish mutuality in the processes of associated living.

26. "...Cost-benefit analysis as generally understood is only a technique for taking decisions within a framework which has to be decided upon in advance and which involves a wide range of considerations, many of them of a political or social character" [32, p. 685].

27. Hirschman speaks of the centrality of side-effects in judging investment projects, and notes the reason for opposition to this concept by "hard-boiled, no-nonsense" economists. "The quest for a unique ranking device probably accounts for the hostility of economists toward side-effect and secondary benefits. Yet this quest is clearly futile. How could it be expected that it is possible to rank development projects along a single scale by amalgamating all their varied dimensions into a single index when far simpler, everyday choices require the use of individual or collective judgement in the weighing of alternative objectives and in the trade-off between them? There is much to be said, it is true, for facilitating decision making by reducing the many aspects of a project to a few crucial characteristics, one of which would of course be the rate of return. It is one thing to permit, in this way, the decision maker to use informed judgement in making critical choices and trade-offs; it is quite another, however, for the technician to aim at dispensing with such judgements altogether" [18, pp. 162 and 179].

28. "...[the] process of labor transfer is typically viewed analytically as a one-stage phenomenon, that is, a worker migrates from a low productivity rural job directly to a higher productivity urban industrial job. The question is rarely asked whether or not the typical unskilled rural migrant can indeed find higher-paying regular urban employment. The empirical fact of widespread and chronic

urban unemployment and underemployment attests to the implausibility of such a simple view of the migration process" [40, p. 139].

29. The theorist can be of help to the politician, the practitioner, "...if he refrains from trying to adapt uncritically models and measures designed in and for industrial countries, where priorities are different, but helps instead to develop policies, national and international, to mitigate the great social problems of the Third World...above all, the aim must be to change international attitudes so that it becomes impossible for the political leaders and social scientists of Europe and North America to continue overlooking, and aggravating, often inadvertently, the obscene inequalities that disfigure the world" [36, p. 6].

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