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RURAL CHANGE

The Challenge for Agricultural Economists

PROCEEDINGS

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Economic Theory Needed in Studying the Economics of Getting Poorer While Redistributing

The topic on which I was invited to speak is of considerable magnitude and I have found it impossible to cover all the relevant aspects in this short paper. Instead, I shall try to identify and discuss only a few of these aspects in the hope – but without the illusion – that I have selected the issues of greatest interest and importance to agricultural economists who, at some future point in time, may find themselves studying “the economics of getting poorer while redistributing”.

Let me begin by defining the terms and establishing the boundaries of the paper. Glenn Johnson, in his invitation, states that “we (the developed countries) are commonly told that we are exhausting the world’s fossil fuel, land, water and mineral resources, while polluting the air and destroying natural beauty. This implies a reduction in total real income. We are also being told (and in some cases being forced) to redistribute to the less developed countries”. Johnson further states that this paper should not investigate the empirical truth of the above but rather suggest what conceptual and theoretical issues are important for studying the economics of getting poorer while redistributing.

In line with the above, I shall define the term “getting poorer” as a situation where non-renewable resources are being depleted and/or the quality of our environment is being reduced at such rates that overall growth rates may slow down and eventually become negative. Thus, I am defining the relative term “poorer” in terms of the non-renewable resource base and the quality of the environment rather than the existing growth rate *per se*. Defined this way, society may become poorer even though short run income growth rates are positive. However, such a situation may eventually lead to negative income growth. Thus, the critical issues become those related to the substitution of non-renewable resources, externalities related to the quality of the environment and resource allocation, and distribution of incomes between current and future generations.

I shall assume that more income (both current and future income) is preferred to less, both for developed countries as such and groups within these countries. This assumption is made to avoid dealing with the small

minorities that advocate a lower income for its own sake (the romantic view of the simple life). Thus, as the developed countries get poorer, in a resource and environmental sense as stated above, with the resulting squeeze on real incomes, the primary concerns of governments and groups within society will focus on counteracting the negative income effect by maintaining acceptable growth rates in real incomes or at least avoiding large decreases in real incomes both for current and future generations. This will naturally lead to severe conflicts among groups and the relative economic and political power may come to play an increasing role in the distribution of incomes within a given country.

The increasing importance of the relative power in determining the income distributions is likely to have severe implications for the current efforts to assist developing countries in gaining additional material well-being. While the motives for transfers from developed to developing countries are varied, a squeeze on developed countries' income growth will undoubtedly have negative effects on these transfers unless the bargaining power of the developing countries is increased.

The issues mentioned above have been singled out for further analysis in the remainder of this paper. Selected parts of the existing economic theory of most specific relevance to the issues of getting poorer – with primary emphasis on intra-national distribution – will be discussed first. Then follows a discussion of the international distribution of incomes with specific reference to transfers to developing countries in a situation of falling real incomes in developed countries. The next section deals with the economics of the use of scarce non-renewable resources and the paper terminates with a discussion of the challenge to agricultural economists.

ECONOMIC THEORY OF “GETTING POORER”

The prospects of negative economic growth and related causes and consequences have been discussed throughout the economics literature. No exhaustive review of the relevant literature will be attempted here.

Existing economic theory on the subject is logically divided into that focusing on overall reductions in real incomes due to resource scarcity, population growth, excess savings and/or political and organizational disorder and that which focuses on the deterioration of incomes by specific groups in society, i.e. the distributional aspects.

Classical economists including Smith, Ricardo, Malthus and Mill believed that the development process of industrial countries would reach a point of stagnation – a long run equilibrium – while Marx argued that the capitalist system would in fact collapse. Malthus, however, believed that the long run equilibrium would be an unhappy one.

Malthus' theory of population and production growth is well known. Since it was first published, the Malthusian theory has been cited extensively in connection with short term food shortages. Likewise, during periods of high growth rates in food production, a number of authors have

argued that the theory was not supported by empirical evidence. The Malthusian theory is, of course, focused on the longer run development and should not be "proved" or "disproved" on the basis of short term fluctuations in population growth or food production. Recent developments have shown that food production can be expanded at relatively high rates. At the same time, experience from most developed and some developing countries have shown that the population growth rates can be reduced severely and that net population growth rates close to or equal to zero are entirely possible irrespective of political system. It is equally clear that unless the high population growth rates in many developing countries are severely reduced within a reasonable time frame, growth rates in food production will not be able to keep the pace. Thus, the primary utility of the Malthusian viewpoint is that it serves as a reminder of what would happen if the relevant issues are neglected or ignored.

While Malthus was concerned with population growth and the inability of the agricultural land to meet the increases in food requirements, a somewhat similar argument regarding non-renewable resources has gained strong support during the last ten to fifteen years. The basic argument is that: (1) the amount of non-renewable resources is finite, (2) a continuation of the use trends of recent years will result in the depletion of many of these resources within the not too distant future, and (3) that such depletion will result in drastic reductions in real incomes of current as well as future generations. This argument was highlighted by the Club of Rome⁷ and has been discussed by a number of authors including^{3,16}. Closely associated with this argument is the concern that a continuation of current production and consumption trends will lead to widespread pollution and destruction of the environment, some of which being irreversible. Hirsch⁵ goes a step further and argues that increased consumption by individuals will result in externalities with a negative effect on the utility obtained from the consumption. These externalities imply that the utility associated with expanded consumption of a particular good depends on how large a proportion of society participates in the consumption expansions. As consumption increases and an increasing proportion of the population gets access to high consumption levels, externalities will impose constraints on the growth of real incomes. Highway congestions and air pollution associated with more widespread ownership and use of automobiles is but one example of what Hirsch argues will lead to what he calls "social limits to growth".

Among other theories related to "getting poorer", although not in a resource and environment sense but in the sense of stagnation and possibly negative income growth, the most widely accepted up through history has undoubtedly been that related to excess savings and the resulting demand deficits as mentioned above. The basic theory is that the capitalist development process will lead to excess savings and accumulation of capital which in turn will constrain demand and thereby make it impossible to find sufficient investment opportunities. The basics (but not necessarily the finer points) of this theory was shared by a number of

economists with very different philosophical backgrounds, e.g. Keynes, Marx and Hobson. However, the prescriptions for a cure to the problem varied greatly among these economists. Keynes' answer to the problem was to use government spending to assure the proper balance between savings and demand. Marx, on the other hand, believed that the problem could not be solved under the capitalist system while Hobson prescribed measures to equalize the distribution of incomes and thereby reduce savings. While Keynesian economics has played an important role in Western societies, it is important to remember that negative income growth induced by resource scarcity and pollution may require quite different curative or adaptive measures. I shall return to this issue at a later point in the paper.

Let us now move to the theory related to the relative or absolute deterioration of the incomes of specific groups. Here economic thought has placed the primary emphasis on the distribution between labour and capital. Classical economists including Ricardo and Mill argued that the wage ratio would decline in the course of development within capitalist societies. Furthermore, the expected decline in the wage ratio was a key element in the Marxian theory of the collapse of capitalism.

Results from empirical studies, particularly those by Bowley, Douglas and others did not support the theory of declining wage ratios but rather pointed towards a more or less constant wage ratio. Recent empirical studies for developed countries show a clear trend of increasing wage ratios.^{1,9} Thus, on the basis of data from the main OECD countries, Paldam concludes that the wage ratio in these countries has increased by an average of about 20 percentage points during the period 1947-75.⁹ The increasing wage ratios may be explained at least partially by the increasing political and economic power of labour through organized union efforts and participation in the political process. The importance of the greater power of labour is further illustrated by the reaction of the wage ratio to the price shocks for imported raw materials which occurred around 1950 and again during the period 1972-74. While the reaction in 1950 was a fall in the wage ratio such a reaction did not occur during 1972-74. On the contrary, the wage ratio increased considerably during that period in most of the OECD countries.⁹ While the comparison is somewhat crude, it nevertheless supports the hypothesis that the increasing power of labour was successful in avoiding sharing the loss associated with the worsening of the terms of trade during the period 1972-74.

The increasing power of labour together with expanded unemployment compensation schemes and related social programmes in developed countries may have severe implications for the distribution of incomes in a situation of potential or actual decreases in real incomes in general. Without the threat of severe reductions in personal incomes of members who might become unemployed, organized labour is likely to use its power to avoid decreases in real incomes in situations of general real income decreases, even if it implies increasing unemployment and further reductions in production and incomes in general. Likewise, capital own-

ers will use their power to avoid taking part in the income decreases through adjustments in production, employment and investment. The public sector, on the other hand, will be faced with increasing demands for unemployment compensation and larger social programme outlays, demands that in the final analysis must be met mainly through taxes.

In countries where a considerable proportion of the production must compete in international markets, whether through export or competition from imported goods, such a development may be self-perpetuating. In such cases the increasing unemployment and the resulting reductions in production and expansions in the demand for public funds may lead to direct public subsidy to production or public ownership of production facilities. Indications of such a development are seen in some countries, e.g. Sweden, where industrial facilities, although as yet to a very limited extent, are being taken over by the public to maintain employment opportunities.

Distortions in the labour market caused by excessive wage demands as discussed above, may result in large and increasing gaps between social and private costs of labour. This, in turn, will bias the path of technological innovation in favour of labour saving technology in societies where resource allocation decisions are made on the basis of relative private costs of resources. Examples of such biases are plentiful both for agricultural and industrial technology. In fact, the majority of publicly as well as privately funded research and development aimed at technological progress in market oriented developed countries is likely to suffer from this bias. The paradox is that public as well as private funds are spent to promote labour saving technology which in turn increases the demand for public funds for unemployment compensation and related social programmes. In situations of large and increasing gaps between social and private labour costs, the costs to society of ignoring the social labour cost in planning the future technology development path may be high.

Another critical question regarding the distribution of incomes within countries experiencing economic slowdown or negative growth rates is how the poor will be affected. Reduction of poverty in most industrial societies has come about primarily through proportional or differential growth. Actual redistribution of existing wealth and incomes has not played a major role. However, in order to continue to reduce poverty in a situation of constant or falling real incomes, such redistribution must occur. Unless the poor possess considerably more political power than what is presently apparent, actual redistribution will probably not occur to any significant extent. Hence, the poor will most likely have to carry their share of the burden of falling real incomes.

Up to this point we have discussed the implications for the distribution of income within the individual developed country. Let us now turn to the implications for transfers from developed to developing countries.

TRANSFERS TO DEVELOPING COUNTRIES

Existing inequalities in the international distribution of incomes have resulted in demands for transfers from developed to developing countries. The legitimacy of such demands is recognized by many national governments and international institutions. The motives of developed countries behind current transfers are varied and covers a large spectrum from purely military and security motives through economic motives to purely moral desires to diminish human suffering.

Depletion of non-renewable resources influences the magnitude of transfers in two ways. First, to the extent that developing countries control the critical resources, the potential power of these countries to increase resource prices and thus expand the transfers will increase. Whether such potential power is actually used will depend on a number of factors including the geographical and political concentration of the individual resource, the ability of the resource owners to agree on price and supply control, their wishes to actually exploit the power and the availability of substitutes. Recent experience regarding oil prices illustrates the potential for transferring resources from developed to developing countries. Even if complete compensation were given to oil importing developing countries, the additional oil revenues obtained by the OPEC countries would be very large indeed.

Secondly, the negative impact on real incomes in developed countries brought about by the depletion of non-renewable resources or contamination of the environment will tend to reduce transfers to developing countries *ceteris paribus*. Such reductions will come about as a direct result of the earlier mentioned attempts by the various internal groups to avoid reduced real incomes. The classical argument that it is easier to redistribute through growth than through transfers of existing incomes and wealth is, of course, as valid among countries as among groups within a given country. The perceived sacrifice of foreign assistance is likely to be considerably greater in a situation of negative than in a situation of positive growth in real income.

The magnitude of transfers will depend on the bargaining power of the developing countries. Strong desires on the part of the developed countries to maintain security, peaceful coexistence and markets for their products may be exploited by developing countries as bargaining power. The composition of the transfers is also likely to be altered. More aid tying can be expected for the purpose of assisting domestic production. Transfer of surplus labour (in the form of commodities and to a much lesser extent as technical assistance), excess productive capacity and surplus commodities will be attempted. Such tendencies are not new. The tendency has traditionally been to use surplus commodities and resources in foreign assistance where possible. However, there will be a much stronger desire to do so in a situation of economic slowdown. Pressure from groups and segments in economic distress for tying of aid and orientation of trade in such a way as to assist these groups and segments

will be increasingly powerful as the economic slowdown becomes more severe.

The question as to who are the actual beneficiaries of transfers is likely to be much more carefully scrutinized. Due to the greater perceived sacrifice of foreign assistance in times of economic slowdown, transfers believed primarily to benefit high income groups are likely to be rejected unless they meet urgent security or economic goals. This might imply that voluntary concessions in trade relationships with developing countries and other types of transfers where the impact on the low income groups is not readily shown may be even more limited than in the past, while direct welfare type assistance programmes may take over a larger proportion of the total assistance. Voluntary trade concessions may also be reduced as a means to protect domestic production. Assistance measures with a clear benefit to the donor countries, particularly in the short run, will be promoted more than currently.

NON-RENEWABLE RESOURCES AND INTERTEMPORAL DISTRIBUTION

Some of the implications of getting poorer for (1) the distribution of income between labour and capital and (2) transfers to developing countries were discussed in the previous sections. This section focuses on some of the issues related to the depletion of non-renewable resources with primary emphasis on the intertemporal distribution. As in previous sections, the analysis will be very brief.

As a result of the drastic price increases for oil and certain other non-renewable resources, the interest for economic analysis related to the optimal depletion of scarce non-renewable resources has increased considerably. Some of the key issues dealt with in these analyses are (1) how to specify optimal distribution of income between generations, (2) the most efficient allocative mechanisms for the depletion of non-renewable resources including the obvious question: Will free market conditions lead to depletion rates that will meet the requirements of an optimal intertemporal income distribution? and (3) uncertainties regarding (a) the magnitudes of the stocks of non-renewable resources, and (b) the economic and technical feasibility of developing substitutes.

The interest for intertemporal income distribution is not new. It is an integral part of the theory of optimal capital accumulation. It does, however, take on new dimensions in the light of planning for the depletion of scarce non-renewable resources.

Traditional growth theory was, at least implicitly, concerned with the question of how the burden of capital accumulation and of raising the standard of civilization was to be shared between generations. The depletion of non-renewable resources, on the other hand, must face the question of what proportion of the foundation for future generations' incomes can justifiably be used by the current generation. Rawls¹¹ concludes that a

classical utilitarian approach “leads in the wrong direction for questions of justice between generations. The utilitarian doctrine may direct us to demand heavy sacrifices of the poorer generations for the sake of greater advantages for later ones that are far better off”. Instead, in questions of equity and savings among generations, Rawls proposes a principle “given by the balance between what a typical person feels it is reasonable to ask of his parents and what this same person is prepared to do for his children”.¹¹

While Rawls proposes the max-min principle (improving the position of the poorest) for intragenerational income distribution he concludes that this principle is inapplicable to intergenerational distribution because it would imply no saving at all. The max-min principle requires that consumption per person be constant through time. Therefore, the principle can only be applied after a certain capital stock has been developed that is big enough to support a decent standard of living.¹⁴ In fact, the principle implies economic stagnation, i.e. zero growth, at whatever level it is initially applied. Solow concludes that the principle “seems to be a reasonable criterion for intertemporal planning decisions” if the above mentioned capital stock has been developed and technical progress is limited.¹⁴

In addition to the desired intertemporal income distribution, the optimal rate of depletion depends on the elasticity of substitution between non-renewable resources and other capital resources. This elasticity, in turn, depends on the nature of technical change and the possibilities of substitution of man-made factors of production (capital) for non-renewable resources. A number of attempts have been made to determine the optimal rate of depletion and the optimal growth path under various assumptions regarding the market structure and the elasticity of substitution. One of the more serious problems noted in some of these studies, e.g.,¹⁵ is that reliance on the competitive market price formation may lead to long run instability because the time horizon influencing the price formation is too short. Inability to foresee sufficiently far into the future may result in too high depletion rates and too low prices. This, in turn, might imply underinvestment in the development of substitutes, too slow technical change and severe interruptions in the development process.

THE CHALLENGE TO THE AGRICULTURAL ECONOMIST

A situation of “getting poorer while redistributing” poses some interesting and difficult challenges to economists and agricultural economists. A few of the areas of research where such challenges appear to exist are mentioned below.

The increasing importance of the power of individual groups in society and the related social conflicts in a situation of “getting poorer” is an area where innovative theoretical and empirical work could have a high pay-

off. The increasing power of labour in the face of economic slowdown caused by severe scarcity of non-renewable resources and pollution of the environment may lead to self-perpetuating decrease in employment and real incomes and unacceptable expansions in the demand for public expenditures. The final result may be increasing public ownership of productive resources. There is an urgent need for economic analysis related to the increasing gap between private and social costs of labour to assist public policy aimed at the reduction of private labour costs to equate social labour costs through subsidies, regulation of the power of labour or in some other way. Work is needed to determine the implications of the gap for the technological development path and technical change. Severe distortions in the labour market leading to biased technological development may be excessively costly to society. My hypothesis is that the distortions will increase in importance under falling real incomes.

Economic analysis is also required to guide the technological development path on the basis of long run social costs of non-renewable resources and pollution of the environment. To the extent that future effects of externalities are ignored or underestimated, long run social costs may greatly exceed short run private costs. To the extent that the latter are used for allocative decisions, significant misallocation may occur. Furthermore, the magnitude of investment in efforts to develop viable substitutes for non-renewable resources at any given time may not be optimal. This relates closely to the need for more work on the optimal depletion rate of non-renewable resources. This issue is too important to be left to sensation and doomsday writers. However, unless we get a better foundation for intertemporal distributional issues, efforts to determine optimal depletion rates for resources for which no acceptable substitutes seem to be available will continue to be very subjective exercises.

The question of negative externalities for the individual, associated with economic growth – the “social limits to growth” – deserves some additional theoretical and empirical work. In the context of this paper such work might focus on the magnitude of change in the external effects associated with falling real incomes. If the negative external effect at the margin is large, it might be expected that the net effect of marginal reductions in the incomes of individuals on their utility would be small. Part of the postulated drop in real incomes, such as additional pollution, will, of course, show up through external effects.

Regarding transfers to developing countries there may be a need for additional work to show how trade concessions and other elements of the “new economic order” affect low income groups in developing countries.

Let me conclude by restating that, in line with the request, this paper was based on the premise that developed countries would “get poorer” due to increasing scarcity of non-renewable resources and negative externalities such as pollution of the environment. No attempts were made to assess whether in fact the premise is likely to be true.

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DISCUSSION OPENING – SECONDO TARDITI

Many issues have already been raised by Pinstруп-Andersen on "the theory needed to study the economics of getting poorer while redistributing" so that only two more points will be raised in this opening discussion: the first adds one dimension to the paper's approach on the "redistributing" side, while the second point deals with a somewhat wider dimension on the concept of "getting poorer".

"Redistributing", as a consequence of getting poorer, has been deeply analysed in its intertemporal, international and intranational dimension, the latter mainly focused on income distribution between labour and capital, following the major emphasis given to this problem in economic thought.

Quoting Professor Michael Lipton of the Institute of Development Studies at Sussex: "The most important class conflict in the poorest countries in the world today is not between labour and capital, nor is it between foreign and national interests. It is between the rural classes and the urban classes". As agricultural economists we cannot miss the opportunity of looking at the problem by this approach. Under conditions of low and negative rates of development in real income, the rural population will be affected in contrasting ways. From one side the low income

elasticity of demand for food will reduce the negative effects on agricultural prices, supply and employment, while on the other side, lower development rates will reduce non-agricultural and urban absorption of rural manpower, fostering labour pressure on agricultural land and worsening the income distribution in the country between land owners and landless workers. Existing social tensions in rural areas will increase, particularly where land property is unevenly distributed and landless workers earn very low incomes, determining forced changes in income distribution and in institutional organisation.

A much larger demand for agricultural land, water and fertilizers will explode if we really are compelled to shift from a non-renewable resource system to a renewable resource system, for example producing automotive fuel from alcoholic fermentation of sugar or starchy roots. In such conditions a strong movement back to the land from urban areas is much more probable and the urban-rural power relations could be deeply affected. Obviously agricultural economists are deeply involved in the analysis of such consequences.

A second point which could be usefully brought into discussion deals with the definition of "getting poorer" which has been specified in the paper in the dimensions of real income, of environment, and of non-renewable resources. The "social welfare" parameter in a certain way summarises these three dimensions and moreover adds some aspects of the concept of utility which help to explore a wider range of the meaning of "getting poorer". Through this parameter we could try to examine the subject of this paper in the opposite direction: how redistributing could improve or worsen the process of "getting poorer", coming perhaps to the conclusion that income redistribution very often fosters social welfare and could be a major tool for fighting the "getting poorer" trend, as may seem evident in the field of food and agriculture.

Agricultural resources on earth are far from being fully exploited. The Wageningen members of the team which built up the "Model of International Relations in Agriculture" estimated for 1965 that on the basis of a detailed inventory of soil characteristics, rainfall, temperature and sunshine, according to natural restrictions to the growth of agricultural crops, the earth is capable of producing thirty times the amount of food actually produced. Obviously it is not so easy to increase agricultural production to the theoretical maximum, but hunger and malnutrition which affect such a large share of mankind is mainly attributable to a lack of purchasing power, which would be largely increased by a more equitable international and intranational income distribution, bringing a swift increase in social welfare. On a welfare basis, redistributing in most cases will then involve "getting richer" or "getting less poor".

Theoretical problems arise in quantifying the broad range of variables included in the social welfare function concept, starting with the interpersonal comparability of utility functions, which could be solved as Pigou's work demonstrates or could sterilize economists' effort through useless quibbles.

One major point is that real income is only one dimension of welfare

and a measure of other basic human needs should be worked out. To integrate the usual parameters of real income per caput, the Overseas Development Department Council has devised a new indicator, "The Physical Quality of Life Index", weighting three social indicators: infant mortality, life expectancy and literacy; but more comprehensive and effectual parameters could be worked out for specific economic policy purposes.

To what extent a decreasing marginal utility function is in the short run a sufficient condition to guarantee that income redistribution will increase social welfare and to what extent income redistribution will hinder sufficient savings so as to threaten future economic development, are open problems for discussion and work.

The outcome of such theoretical work could improve our knowledge of different facets of human welfare, beyond that of material acquisitiveness, and help policy makers to prevent forced income redistributions both international and intranational through economic blackmailing or through open revolutions.

GENERAL DISCUSSION – RAPPORTEUR: GARY CARLSON

The assumption of "getting poorer" as non-renewable resources were depleted was questioned as being an incorrect assumption to begin with. The paper was criticized for linking together several humanitarian issues – perhaps it is more a question of reallocation of resources among countries. Much more economic research was needed on this topic.

The point was made that redistribution of wealth from rich to poor countries and labour's struggle for higher wages were not only separate topics, but problem areas irrespective of depleting non-renewable resources – there were more fundamental constraints affecting these matters.

Finally the question was posed: what effect could the existence of domestic and/or international reserve funds have on income distribution, given the assumptions used in the paper?

Participants in the discussion included P.J. van Blokland, H.L. Chawla and Ulf Renborg.