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## DISCUSSION

*Includes comments by R. Aaron Gordon, a member of the Board of Directors of the National Bureau of Economic Research and professor at the University of California at Berkeley, who was moderator of this session; and by Moses Abramovitz, also a member of the National Bureau's Board of Directors and professor at Stanford University, and Robin C. O. Matthews, professor at All Souls College, who acted as program discussants. The recorded oral presentations were edited by, or with the cooperation of, the speakers. Remarks made during the open discussion period are not included.*

### Introductory Remarks by R. Aaron Gordon

This is the fifth in a series of six colloquia commemorating the fiftieth anniversary of the founding of the National Bureau of Economic Research, a private, nonprofit research organization which has made an indelible mark on empirical research in the field of economics. The first of these colloquia, held much earlier this year, dealt with the subject of business cycles, with the subject of the cumulative instability of the American and other advanced economies. But short-run instability is closely related to the question of the long-run dynamics of the system, specifically to the subject of economic growth. Until very recently economists concerned themselves with the dynamics of the growth process and with the problem of how to stimulate growth further. But now the question is being asked: Why economic growth? Do the quantitative measures that economists and statisticians have created over the last quarter century or more really measure the benefits to society of steadily increasing output? By your or my criteria, what is the effect of economic growth on social welfare? This next to last of our colloquia deals with this question: What is growth, what do we get out of it, and, to quote the title of the main paper presented to us, is economic growth obsolete? Do we really want growth as much as we thought we did? This is the subject of today's colloquium.

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**Moses Abramovitz:** The very least that one needs to say about the paper by Jim Tobin and Bill Nordhaus is that it opens up almost all of the subjects that have intrigued economists for a very long period of time. Not only how to measure the growth of economic welfare, but also what the relation is between growth of economic welfare and actual resources on one side and population growth on the other side. Having had the opportunity to read the text of the paper, I was especially interested in the very opening sentences, and if I may, I would like to read them to you:

"A long decade ago economic growth was the reigning fashion of political economy. It was simultaneously the hottest subject of economic theory and research, a slogan eagerly claimed by politicians of all stripes, and the serious objective of the policies of governments. The climate of opinion has changed dramatically."

As we heard in the paper presented to us, this is followed by a series of remarks on the current disenchantment with economic growth. The feeling that I picked up in reading the paper was that the authors not only resist that disenchantment, a resistance with which I associate myself at least in a qualified way, but that they are also surprised that this feeling of disenchantment should have arisen.

I think it is of some interest to say at the very outset that a long decade ago not all economists shared in the reigning fashion. There were at least some economists who even at that time were looking skeptically at what it was that we thought we would be getting out of a high rate of growth, given the kinds of uses to which output was being put. For example, in 1958, which, I guess, qualifies as a long decade ago, the CED published a series of essays in which the question posed to the contributors was, What do you regard as the most important economic problem of the next generation? As one might have predicted, essays on a great many subjects appeared in that volume. Some six or eight of them were directed to questioning the value of economic growth, having regard to the way product was then being used. And not all of those essayists were the predictable ones. Galbraith was certainly one of them, but so was the first winner of the Nobel Prize for Economic Science, Jan Tinbergen, as well as, ironically enough, the father of modern economic growth, Roy Harrod. The complaint of these essayists was not so much that economic growth as properly measured had ceased, or even that it had become slow, but that growth was being misdirected; that private consumption was being more and more devoted to trivial uses. They saw serious reasons why a continued attempt to absorb increased amounts of income into private consumption would prove frustrating to people seeking a rise in their level of satisfaction. They worried about a neglect of the needs for public overhead in the cities and elsewhere, and about the need to regulate private activities that had important side effects. They worried about the underdevelopment of public services that had a broad significance for the country—for example, education and health. They were concerned with the neglect of the distributive aspects of our income flow, and they were disappointed and concerned about the failure to make a more vigorous effort to use American wealth for people in poorer countries. One of these essays concluded with the following sentences:

"If we must risk some reduction in our rate of growth in order to apply our expanded capacity to more worthy, meaningful uses, it is a risk well worthwhile. If we refuse to accept it we may discover that the economic progress of the next generation was an empty achievement, not only in the eyes of people in other countries, but perhaps still more in our own." [1]

I take it that this prediction of disenchantment is at least partially confirmed by the kind of public discussion with which we are all familiar. Now, in facing the present disenchantment, it seems to me that questions of two sorts arise: First of all, what was the true long-term growth rate of income, and second, what is it worth, and what kinds of risks are worth taking with growth in order to promote other goals, or to make the actual growth, whatever it is, more valuable to us? In approaching these two questions, it is perfectly clear that Nordhaus and Tobin have focused on the first of these questions. They recognize, as we all do, that conventional estimates of national product are neither completely comprehensive nor completely consistent and accurate measures of output relevant to welfare. They attempt a revision, and, in the course of doing so, take a swing at almost all the problems—you might almost call them classical problems—of national income accounting. They take a swing at all of them, or perhaps all but one of them, and they conclude that the sustainable growth rate of our output of the goods that count for welfare was, if anything, somewhat higher than the conventional measures suggest. So the general message is that the economy, though subject to improvement, has been churning out, even in its present imperfect state, final consumer goods or sources of welfare, or their equivalent in leisure, at a substantial rate of growth. And this, they say, is as far as economists can possibly carry the debate over the grounds of our present disenchantment.

Although in a sense the paper is clearly intended to be a contribu-

[1] Moses Abramovitz, "Economic Goals and Social Welfare in the Next Generation," in *Problems of U.S. Economic Development*, Committee for Economic Development, New York, 1958, pp. 191–99.

tion to the debate over the value of growth for policy, we probably ought to recognize, as Tobin and Nordhaus certainly do, that the revision of our national accounts has a complementary goal (which may be the more important goal of the paper) – to stimulate economists to renew work on the improvement of our national product estimates, to make them more useful as a basis for the study of growth and for judgments about its value. In that sense the Tobin-Nordhaus procedures are more important than their conclusions. I shall have very little to say about the sections of their paper that deal with the possible over-exploitation of national resources or population growth. In part, that's because I think I agree with those portions of their paper so far as I understand them, and in part it is because I really haven't had a chance to absorb all of those sections. I might venture one comment on what they have to say about population. Part of the reassurance that they give us with respect to the question of population growth rests on the present low level to which the standardized fertility rates have sunk during the last five or six, or perhaps eight or ten, years. Some of the best work on fertility trends in recent years, however, runs to the conclusion that these movements are themselves sensitive to economic conjunctures. In particular, it appears that marriage and birth rates depend on the economic status and prospects of young adults. When the population of young adults is growing slowly and the demand for labor is urgent, the economic fortunes of young people are favorable. They marry early, they have more children and have them sooner. In the opposing conjuncture, which seemed to rule during the decade immediately past, fertility rates fall. As many of you know, I am merely repeating the outcome of Richard Easterlin's work. The possibility arises, therefore, that just as the very high birth rates of the forties and early fifties have proved to be a transient characteristic of our economy, the lower birth rates we're witnessing today may also turn out to be transient, and we may find ourselves some years from now worrying again about higher levels of fertility.

Let me make just a few points about the new measure of economic welfare which Tobin and Nordhaus are proposing to us. I must say, right off, that I agree almost entirely with the spirit of the revisions they are proposing. When viewed as a set of challenges to take the first steps toward including in our national accounts things we have unjustifiably omitted in the past and excluding from the accounts matters that, we've always recognized, ought to be excluded from a long-term point of view, the paper is, I think, going to leave a very important mark on the statistical and economic work of the next years. With many of their proposals I'm wholly in agreement. I agree, of course, that for almost all purposes we want to have per capita measures, not aggregates, and I agree that our basic concern ought to be with the levels and growth of consumption or its equivalent. I agree also that, if possible, we ought to measure growth not from the observed values but from estimates of the sustainable levels of consumption. This means that we're entitled to add what one may call the true net capital formation to consumption. But, that true net capital formation must be measured after accounting for all capital stock obligations, and that means, in particular, one capital stock obligation on which Tobin and Nordhaus put stress, namely, the obligation to take care, in some sense, of additions to the population. We have to include not only enough capital to make good conventional depreciation but also to outfit new workers with the same level of capital equipment as old workers. In addition, and here's the rub, we must fit them with enough capital to keep technological progress going forward at established rates. But there is, of course, a murky area, as Bill Nordhaus described it to us. The position they have adopted is that the additional capital that must be set aside before, so to speak, we feel entitled to consume anything is one which they compute on an assumption consistent with the requirements for constant growth in a steady state. This is that no technological progress be of a sort that economizes on capital. It's all, as the phrase goes, labor-augmenting. I must say, I find it hard at first blush to feel that many people are going to be comfortable about the proposition that we must make a commitment to some specified but unverified quality of technological change in setting up our national accounts. The other implication of this new concept of depreciation, or capital obligations, is that it's our duty to endow our children, not with the same level of economic welfare that we enjoy, but with the same rate of growth in economic welfare. If, as appears to be the case, the level of economic welfare now seems to be doubling every thirty years, we have the obligation to insure that our children should be twice as well off as we are.

Turning to another subject, let me say a word about their treatment of the hoary and touchy question of regrettable necessities. In arriving at the consumption that is relevant to welfare, Tobin and Nordhaus would exclude both the output of intermediate goods and the provision for what they call regrettable necessities, particularly for defense expenditures. Now, I'm not absolutely sure whether we have a difference in principle here or not. I would not view measures of output relevant to economic welfare as intended to answer the question, "Are we better off than in the past, and by how much?" but to answer the question, "What is the contribution of our economic activity to making us better off than we were in the past?" And if, therefore, needs arise from conditions which are not themselves tied to our economic activity and if we have to divert resources to satisfying those needs, one ought not to say that the contribution of our economic activity to welfare has been less than it was if those needs had not arisen. With respect to the treatment of defense expenditures, we need to ask ourselves why such expenditures have increased. Has the need the country seems to feel for diverting resources to that purpose arisen as a result of the economic activity in which we're engaged or has it arisen for other reasons? If one concludes, as I think one must, that the need has other reasons, there would be little excuse for excluding defense expenditures from a measure of output relevant to welfare.

Bill Nordhaus has told us that a major reason why their new revision indicates that the growth rate of economic welfare has been, if anything, somewhat higher than conventional measures suggest, is that the value of leisure has been growing very rapidly. Looking at these figures, my first instinct was to think that the growth rate of leisure for purposes of national income accounting was greatly exaggerated. The more I thought about it, however, the more confused I became over the subject, and it wasn't until Robin Matthews arrived a couple of days ago that I was able to get straightened out. I now believe that those figures are greatly exaggerated, but that, in a sense, is his story and I'm going to leave it to him to tell it to you.

Finally, a word on this question of disamenities. I think it ought to be clear that the measure of the burden of disamenities, up to the point to which Nordhaus and Tobin are able to take it in the present paper, is necessarily incomplete. It takes into account only the results of the structural shift of the population toward higher levels of concentration and leaves out of account the possible increase in the burden which has arisen in communities of all sizes. We know that the population in the central cities of the country has not been growing in the last twenty years. Yet we all have the strong feeling that life in those cities has become more difficult. If that's so, and if the earnings differentials between cities of different sizes have remained stable, the clear suggestion is that the difficulties of life, of communal life if you like, have been increasing for reasons other than the shift of population to larger urban communities. That's one reason for the incompleteness of their measure. The other is that sources of disamenities that are unrelated to the size of the communities in which people reside are not included in their estimates.

Mr. Chairman, the subject invites extended discussion. I think the only way to conclude what I have to say while this audience is still here is to sit down.

**Robin C. O. Matthews:** What Tobin and Nordhaus have done in their impressive paper is to put into the context of modern growth theory and to clothe with statistical apparel concepts most of which had been the subject of discussion by economists long before growth became one of our central concepts.

Systematic treatment of the relation between economic welfare and national income measures began with Pigou and was revived in the debates on welfare economics in the 1940s. Those debates were concerned with two types of issues, both of them relevant to the discussion of today's paper. The first type of issue was of a broad philosophical kind, about the dimensions of economic welfare (or welfare in general) and about the propriety of using any variant of national income measure to gauge it. The second type of issue was more technical, largely about index numbers. I will come back to the philosophical aspect presently.

The index number problem is apparent most acutely in connection with the valuation of time devoted to nonmarket activity. The essence of the index number problem is that we don't know the appropriate weights (prices) to give to the different elements entering into an aggregate. For the evaluation of nonmarket time, Tobin and Nordhaus offer two extreme alternatives, together with a preferred compromise. The pessimistic alternative is to treat an hour of nonworking time as a final good and value it at its price, the hourly wage rate. This has the effect of causing MEW to rise less rapidly than consumption, so long as nonmarket time rises less rapidly than consumption, as it does. The optimistic alternative is to treat an hour of nonworking time as a means of producing final goods, and to assume that the rise in the marginal product of working time, as measured by the rise in the hourly wage rate, has been matched by an equal rise in the marginal product of the multifarious activities to which nonmarket time can be devoted. These activities range from do-it-yourself in the production of final goods that could alternatively be bought in the market at the one extreme to activities that you *have* to do yourself, like sleeping, on the other. The effect of the optimistic procedure is, broadly speaking, to solve the problem of how to weight changes in working time and changes in consumption by substituting the hourly real wage for the more usual measure of the annual real wage (with appropriate allowance for profits, etc.).

Since much more of life is spent in nonmarket activities than in market activities, the valuation of nonmarket time comes out as by far the largest constituent of total MEW. The way it is handled dominates the result and completely swamps refinements made elsewhere in the measure. I imagine Tobin and Nordhaus intended this part of their exercise as an illustration of possible results rather than as something they would actually recommend for statistical practice. The choice of valuation to be placed both on leisure and on nonmarket work is bound to be largely arbitrary, as is the division of nonmarket time between these two categories. This is surely a case, therefore, where it is best to recognize that a basis of valuation is so completely lacking that the attempt at aggregation should be abandoned. Fortunately, we know that hours of work have fallen over time, so making an allowance for them is not going to alter the *direction* of change of MEW; and we are not going to be able to put any faith in measures of their effect on the *extent* of change in MEW. So we do best to fall back on a vector—as is done by the compilers of social indicators. We can just say that over a given period there has been such and such an increase in consumption and such and such a change in the number of working hours. And we can usefully supplement this by saying that the change in the number of working hours has been due to such and such an extent to changes in the normal working week, to changes in holidays, and to changes in participation rates of students, old people, and married women, all of which may obviously have quite different welfare implications.

Similar issues, in some ways more intractable, arise in an element of economic welfare hardly touched on by Tobin and Nordhaus, namely, conditions of work. Over time there has clearly been a major improvement in conditions of work. Whether the improvement has been proportionately greater or less than in consumption per head we don't know. Good conditions of work are something on which workers set a high valuation, as evidenced by the prominent place it occupies in claims made by labor unions. The failure to take account of changes in conditions of work in conventional national income measures is particularly gross, because some of the goods and services that enter into conditions of work are actually the same as those that are included in ordinary consumption measures, such as space heating and the use of furniture. It is obviously ridiculous to maintain that warmth or a comfortable chair contributes to economic welfare if it is enjoyed at home but not if it is enjoyed in the office. I admit it is not clear what one should do about this. One possibility would be to take a few clearly defined items like those I have just mentioned and put them into measures of national product. This would leave out of account the more intangible, and possibly more important, things affecting the conditions of work, such as its arduousness, its social environment, and so on. One could imagine, in theory at least, a calculation rather like the one done by Tobin and Nordhaus about the disamenities of urbanization. One could compare different occupations on the principle of equal net advantages, note that these different occupations have attached to them different amounts of the various elements that constitute good conditions of work, and thereby calculate a hedonic price index for each of the elements, finally using these prices to give a measure of the value over time of the increase in welfare contributed by the improvement in the various elements. This would obviously be a difficult undertaking for many reasons. But it is quite an important matter, and in some ways it is really worse than the problem of hours of work, because with hours of work there is a single measure you can fall back on—the number of hours worked—whereas in the case of conditions of work there is no single measure available, let alone any means of combining it with consumption in an aggregate measure of MEW.

I pass now to a different point. The subject chosen by Tobin and Nordhaus gives their paper inevitably a different orientation from the mainstream of work on economic growth. Most of this work is about the causes of growth rather than its measurement or desirability. To what extent are these fields of study connected? Moses Abramovitz has called attention to one connection between the two in his remarks about the model of technical change implicit in the treatment of widening investment in the paper before us. Let me mention a couple of other connections.

The first concerns population growth. The neoclassical model says that if you compare two countries with different rates of population growth, the country with a 1 per cent faster rate of population growth will have a 1 per cent faster rate of growth of output in the steady state. This is what is assumed in the part of the paper of Tobin and Nordhaus where they are discussing the consequences of alternative rates of population growth. It seems to be broadly confirmed by the statistical studies of Kuznets and Deborah Paige, who found no particular relationship between the rate of growth of population and the rate of growth of income per head in the long run in a comparison between different countries. It is curious, however, that within the postwar period a comparison of countries leads to a different result. Very little correlation is found between the rate of growth of population in different countries and the rate of growth of their *total* national income. It is not sensible to expect to find one-to-one correlations all the time, and this finding may be no more than accidental. But if it persisted for a long period one might perhaps have to reconsider some of the fundamentals of this sort of model and, in particular, its almost total emphasis on supply considerations as opposed to demand considerations in the determination of the rate of growth. We have not yet established a satisfactory reconciliation between the theory underlying the two classic topics of National Bureau research, growth and business cycles.

There is also a connection between the desirability of growth and the causes of growth. In discussing possible ways in which growth may be undesirable, Tobin and Nordhaus direct their attention mainly to the various *consequences* of growth. But economic growth itself is the result of many different forces, and it is extremely plausible to suppose that some of these forces involve disamenities to a greater extent than others. All economic growth admittedly involves change, and change is disturbing, but some kinds of change are more disturbing than others. So understanding the causes of economic growth, in different countries and different periods, is relevant to assessing its desirability.

My final point about the relation between the causes of economic growth and the subject of the present paper is this. As a British guest at this colloquium, I am conscious that Tobin and Nordhaus are concerned with *American* economic growth and what they say is not necessarily intended for export. There are indeed certain points where the paper seems to me to have a distinctively American orientation. I am not thinking simply of the point that developing countries are not on any reckoning threatened with overly rapid growth—although that does perhaps require to be said in the context of this sort of discussion from time to time. A more special form of American orientation in the paper seems to me to come in the authors' statement that policy for fast growth, insofar as it isn't just stabilization policy dressed up, amounts to a policy of high saving in one form or another. This may be true the way growth policy has been understood here. But in Europe and also in developing countries it has commonly been supposed that the promotion of growth includes as a major element in policy the inducement of changes in attitudes and changes in social relationships. It would be artificial to describe these as changes in saving. Their effects on welfare are obviously very difficult for economists to measure. But insofar as the promotion of such changes is a part of growth policy, the evaluation of their consequences is part of the evaluation of the policy.

In conclusion I revert to the philosophical class of questions that were raised in the discussions of the new welfare economics in the 1940s. A key point in welfare theory established in that debate—reaffirming what had been said by Pigou—was that the concept of income (or consumption) is to be distinguished from the concept of economic welfare. Economic welfare depends not only on the size of the national income but on its distribution. So I think MEW is not the right description of what Tobin and Nordhaus are measuring—it is a measure of consumption, not a measure of welfare. The distribution of income is another term that has to go into the welfare vector along with sustainable consumption per head, hours of work, and possibly some others. This is a verbal point. A more substantial one concerns our relation with other disciplines. In the paper before us the authors write, "We can't go beyond a certain point and this is the point where economic welfare becomes identified with subjective well-being or happiness or contentment. In measuring these ultimates and their correlation with things economic, we pass the baton to the philosophers and the psychologists."[2] This sort of remark is also often made by people who are writing about the *causes* of economic growth. It is made with the unspoken implication, sometimes the spoken implication, that although we pass the baton to psychologists or sociologists, it's extremely probable that they'll drop it or run in the wrong direction with it, but there's nothing much we can do about it. I suppose that most economists, if pressed, wouldn't really advocate such a rigid division of labor between the social sciences in considering either the causes of economic growth or its consequences. It would be difficult to defend it because, after all, economic welfare is not a special kind of welfare, it's a special means of procuring welfare, and even so not easy to define in a distinctive way. But in practice such relationship as there has been between disciplines has been largely in the area of applied work. It

[2] In the final version of the paper this passage does not appear. But the thought remains, so I have allowed my comment to stand.

hasn't affected the theoretical structure of economics at all, and hence it hasn't affected the way in which we pose questions. I think the trouble is we don't take pains to state in terms appropriate to other disciplines the problems we expect them to solve. In fact, worse, we sometimes beg questions that lie properly in their department. For example, I think that there is some substance in the charge that the mainstream of economic theory depends on the psychological assumptions of Jeremy Bentham. And if present-day psychologists reject Benthamite psychology, it's not a promising approach to interdisciplinary cooperation to say to psychologists: "Here are the conclusions on the economic aspects of the question, based on postulates you reject, now please supplement these by telling us the conclusions on the noneconomic postulates." The cooperation between ourselves and other social scientists should begin at an earlier stage.

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**Closing Remarks by R. Aaron Gordon**

It would appear at this stage of the proceedings that growth *does* matter, and that, even when the welfare implications of growth are taken into account, despite some protest to the contrary, we are somehow better off than we were, at least in 1929.