

ON THE NATURE OF  
ECONOMIC GROWTH

Economists today are increasingly concerned with the problem of economic growth. They are inquiring whether it is possible for our economic system to continue the seemingly miraculous business of putting more people to work, making more goods, and adding to the national income. Back in the 1930's their major concern, however, was with depression and instability. The economy then was heading downward in what seemed to be a never ending plunge. The rate of population growth had dropped rapidly, and nineteenth-century chatter about race suicide revived. The limits of our territorial frontiers had long been reached. National output moved sluggishly, and the unemployed huddled with puzzled brows around makeshift fires and apple boxes. Then came the war, and there was a burgeoning need for men in jobs. But, despite expanded income and overtime pay, fewer goods were available than might have been expected. This was the anomaly of inflation, and economists had on their hands a new, though not unfamiliar, problem, which stayed with them even after the war.

Then international politics began to intrude into an already complex situation. The economists took a long look at the so-called "underdeveloped" countries and lo! they discovered a fresh center of interest. They

became aware of “growth”; they learned that the “underdeveloped” nations, once contemptuously dismissed as backward, might be able to make as good use of modern technology as the West. They observed an insistent pressure in these areas for quick economic advancement. This revealed itself with startling force as country after country sought political independence and economic self-sufficiency. But how would such economies grow? How could they accumulate the capital needed to enable them to take a proud place among the family of full-grown political economies? One could no longer tell these nations that they must be resigned forever to supply raw materials for the West, for there was always the example of totalitarian Russia, employing Draconian devices to build its industry. There, material advance had been stressed as a religious imperative; this was a tempting paradigm. Western economists had to search for ways in which growth might be instituted without the horrible nightmare of the Soviet crash program. Despite this new interest, the theory of economic growth remained on the periphery of the main body of economic doctrine. True, there was some discussion in Adam Smith and David Ricardo of what might be characterized as growth theory; they talked about the “stationary state” and diminishing returns. And there was Marx’s “law of capitalist motion.” But there was no unified explanation in the literature to show, for example, why Great Britain beat out everyone else in the industrial race, or why the rate of American growth was more rapid during the nineteenth century than it is now.

I. To the classicists the basic theme in economic growth was an unwavering drive toward the stationary state. That did not signify a stagnant economy but merely one in which population, capital, and technology underwent no change. The classical theory of economic development, compounded of elements of Malthusian population, Ricardian wage and rent doctrine, the law of diminishing returns, value based on cost of production, and saving through abstinence, stated that growth depends primarily on capital accumulation. In order to obtain more capital, however, the economy must be able to provide enough profit to encourage businessmen to assume risks. As capital accumulation goes on, wages (derived from a special wage fund) would tend to rise and, according to Malthusian beliefs, would thereby encourage increased population. The consequences are increasing pressures on less fertile land and the depressing specter of diminishing returns. Productivity falls, and the major part of subsequent price increases is appropriated by the landed aristocracy. If

## *On the Nature of Economic Growth*

wage rates rise in an effort to keep pace with higher prices, profit margins must then decline. One, therefore, is faced with the bleak outcome that capital accumulation induces a falling rate of profit. In time, the inducement to save and invest disappears as the economy grinds down to the repetitive cycle of the stationary state. Population just about maintains itself, natural resources are constant; the various forms of capital do not change; consumers keep buying pretty much the same sort of goods; and saving is merely enough to keep capital equipment from wearing out. Thus, the economic system reproduces itself at a constant, changeless rate, and all untoward events are fully anticipated in errorless fashion. The economic system cannot falter; in the language of Joseph A. Schumpeter, it is "hitchless."

To Marx, however, capitalist stability was a contradiction in terms. Maintaining an even keel was a logical impossibility; fluctuation, he insisted, is a built-in feature of capitalist growth. This, it might be noted, anticipated in a general way many of the ideas of later economists, such as Schumpeter, Roy, Harrod, and Keynes. Capital accumulation, agreed Marx, is the central feature in economic growth. New capital feeds on itself as well as on the increase in productivity. As these tendencies—accumulation and greater productivity—reinforce each other, the relative share of "surplus value" in the totality of exchange value tends to decline. Since surplus value is the source of profits, said Marx, its fall discourages additional investment and thus brings about unstable conditions. Here Marx utilized a factor internal to the system itself—the fall in the rate of profit—as the catalytic agent, whereas the classicists resorted to outside forces, such as population, as the underlying drive in growth.

Marx recognized that there was a perpetual race between declining profit rates and technological improvement. Here was a second growth factor that might be employed to explain much of what had happened since *Das Kapital* was published; in fact, any number of economists will agree that technology and innovation are today perhaps the most potent elements in economic change. The Marxian theory, however, was rooted in the notion of the exploitative relation, which was employed to explain the frequency with which the flow of consumer demand was choked off. This, together with the falling rate of profit, could be made to explain the periodic explosions for which capitalism seemed to show some affinity. The difference between Marx's theory of development and that of his forebears—and they all talked about capital accumulation—lay in the fact that to the classicists the process was an automatic one, while Marx recognized

that the whole business was rooted in the behavior of a social class. In classical economics accumulation leads to a widening of markets, more extensive diversion of labor, and greater productivity. Growth is merely a matter of increasing both the instruments of production and the demand for their output. In this way, the economy simply exfoliates like a growing tree. On the other hand, Marx insisted that it was the capitalist who decided how much "surplus value" should be set aside for further investment; accumulation depended ultimately on human desires to save and consume. There was nothing impersonal or automatic about the process.

There were few further additions to the theory of economic growth until Joseph A. Schumpeter began to publish some of his more striking ideas. He had been trying to work out a general theory of business cycles, but, the more he labored at the problem, the more he found it necessary to come to grips with the question of growth and development. Change was basic to capitalism, he insisted. Starting with a simplified model of the economic order, Schumpeter developed the idea of the "circular flow" in which economic life was pretty much the same year after year.<sup>1</sup> Although this did not seem to differ in the main from the classicists' stationary state, Schumpeter's model was periodically disrupted by the intervention of the "innovator," a bold, path-breaking leader, a maker of the better mousetrap, whose introduction of new goods and new methods and new organization upset irrevocably the delicately balanced equilibrium of the "circular flow." It was this process of "creative destruction," said Schumpeter, that paradoxically stimulated change and growth.

But there is nothing gradual in all this, he warned. Innovation develops in clusters; there is a tendency for new techniques to be introduced all at once so that sudden spurts become characteristic of economic advance. Errors in judgment occur as businessmen rush in to take advantage of the innovators' success, involving turbulence and, quite often, collapse. But these are the elements of growth, for out of the destruction of old values the economy moves phoenix-like to higher levels of performance. This underscores the basic difference between Schumpeter and the classicists; to the latter, accumulation was a cause of growth, while to Schumpeter it was the result. The implications that these views might have for grasping the nature of economic change are highlighted when we look at underdeveloped economies, for there the fundamental problem is how to acquire capital in the first instance. Must economic advance await patiently ac-

1. Cf. *Theory of Economic Development* (Cambridge, Mass.: Harvard University Press, 1934).

## *On the Nature of Economic Growth*

cumulated resources? Or will the business of change itself bring about the necessary wherewithal?

II. While the foregoing theories sought to explain growth by a few selected factors which dominate the economic situation, there have been some writers who felt that the basic complexity of the problem makes it impossible to offer any systematic explanations. The leading proponent of this view is the noted statistician, Simon Kuznets, now at the University of Pennsylvania.<sup>2</sup> A theory, says Kuznets, will have to account for declines in growth, explain the problems of "backward" nations, show why material advances take place in both Western countries and the Soviet orbit, and outline the effects of such seemingly external factors as wars. The major question, says Kuznets, is whether there is available at present enough scientific data to justify the trouble of concocting theoretical formulations. He does not think so, for we still do not possess the "long time and wide space perspective in the empirical foundations of the theory of economic growth—the body of observations from which it must be derived and by which it must be tested." The existing body of economic information is as yet too elementary to permit really subtle and broad-gauge theoretical constructions. A theory, says Kuznets, must also have considered predictive value, something that economics cannot yet demonstrate. Present-day theories are really nothing more than dogmatic beliefs in some aspects of human nature or some principle of social organization and, in the last analysis, are mere exercises in the philosophy of history! What, then, can the economist do? All that remains, it seems, is to look for hints in detailed studies of business annals and to work up some statements of interrelationships.

Now, not only is this entirely eclectic but at bottom it represents little more than an appeal to pure empiricism. In a sense, Kuznets dodges the crucial task of the economic theorist, that of establishing modes of research. Fact-gathering without a conceptual framework can be quite a sterile business; the purpose of a theory is precisely to avoid such arid procedures. A theory may be viewed simply as an instrumental conceptual

2. A careful if somewhat ponderous worker, Dr. Kuznets has most recently set forth his ideas in a long essay, "Toward a Theory of Economic Growth," which appeared in the Columbia University Bicentennial Conference publication, *National Policy for Economic Welfare*, ed. Robert Lekachman (New York: Doubleday & Co., 1955). Hints of this attitude appeared in his earlier volume, *Economic Change* (New York: W. W. Norton Co., 1953); there are also similar views in his "International Differences in Capital Formation and Financing," in the National Bureau of Economic Research volume, *Capital Formation and Economic Growth* (Princeton, N.J.: Princeton University Press, 1955).

tool which may be employed as an aid in research, to help describe facts and the relationships between them. As applied to "economic growth" it suggests the development of measurements and criteria, which Kuznets himself has aided.<sup>3</sup> Kuznets is quite right, however, when he insists that theoretical developments will have to be rooted in such factors as population growth, accumulation of human knowledge, adaptability to technological potentials, and political and social relations between national states. Not unrelated to the last item are such questions as: Must smaller nations always employ drastic measures of self-help in order to secure the savings necessary for growth? Or will they have to seek the kind of aid that may make them merely victims of large empires? Another critical question: Does the kind of forced economic growth imposed by the Soviets on their own peoples distort the economic structure in a way that inevitably strengthens the totalitarian character of the Soviet system? If so, will the underdeveloped nations want to pursue such a course? It is when we raise questions like these that we must resort to the broad, if somewhat loose, explanations for which the word "theory" is employed.

III. W. A. Lewis, a noted British economist, begins by asking<sup>4</sup> whether such growth is desirable as a social objective. There are certain costs, he says, that are engendered by the painful process of development, and not everyone may believe that rapid economic change is a satisfactory way of reaching social goals. Some people may prefer the habits of a stable society. Nevertheless, continues Lewis, the range of human choice does increase with the extended control over environment which is implied by growth. Growth banishes famine, lessens infant mortality, and eliminates disease. It creates more goods and services and provides time for the pursuit of mental endeavors, and, where human aspirations exceed available resources, it helps to reduce social tensions.

But the cost of these advances must be recognized, we are told. Acquisitiveness becomes ascendant, and the commercial spirit is given full sway. This generates tension at both social and individual levels; social responsibilities may be sidetracked while individual needs are being met. Things become big for their own sake; corporate monopoly enters into the price paid for growth. To all this must be added the maddening discipline of the clock and the excesses of rapid urbanization. Yet it might be asked whether

3. Cf. Joseph A. Schumpeter, "Theoretical Problems of Economic Growth," *Journal of Economic History Supplement*, 1947.

4. Cf. *The Theory of Economic Growth* (London: Allen & Unwin, 1955).

## *On the Nature of Economic Growth*

these are not the costs of hasty industrialization rather than of growth. If urban life were carefully planned and nurtured, need it exhibit the blight it now manifests? A more optimistic view would suggest that man's aspirations can harness the materialism of economic growth with reasoned and directed effort, admits Lewis.

Growth, he continues, stems from three basic causes. First, there is the effort to economize and create more goods. Second, it is stimulated by the increase of knowledge and its application to material techniques. Third, the increase of capital per head of population is bound to help the economy advance. Yet analysis of these elements will not tell us enough about the way in which an economy grows. How, for example, does a society's system of values effect this process? Does a caste-dominated, religion-centered social order inhibit the accumulation of goods? Does equality as a social value facilitate expansion? Do those habits of thought that facilitate growth have accumulative effects, or do they reach some point at which they begin to fetter development?

Lewis then asks: Just how much does capital contribute to the growth process? Studies by Simon Kuznets and Colin Clark, the noted Australian statistician, show that in the advanced nations a net investment of 10 per cent of annual output yields a 3 per cent increase in income. This far exceeds what the underdeveloped countries are able to accomplish. In the former a higher ratio of capital to income means a greater ability to produce heavy equipment and thereby a greater stream of goods. The root of the difficulty for the underdeveloped areas lies in their lack of skills and knowledge, so that the production of an output similar to that of the more developed nations demands an even greater investment. Thus, if India were to maintain a net investment ratio of a mere 4 or 5 per cent, the gap between it and the United States would continue to widen.

This raises a crucial question for the analysis of growth: How fast can capital be accumulated without undue strain on the populace? To judge by the experience of prewar Japan and Germany, it can be accumulated quite rapidly, yet there are limits, for buildings cannot be put up unless there is the requisite complement of bricklayers, carpenters, and masons. Moreover, expansion at a steady rate can proceed only if certain "social overhead" items are provided, such as utilities, docks, water supply, and means of communication. While these do not immediately produce goods, they are, nevertheless, essential to high production. Even in countries where only a modest endowment of natural resources exists, such as Denmark or Switzerland, the existing social overhead provides a basis for a

relatively high level of production. In fact, some nations with a rich supply of resources, lacking such social overhead, cannot match these nations in productivity. Brazil is a case in point.

Examining the components of capital, Lewis finds that in advanced nations housing absorbs 25 per cent, public works 35 per cent, manufacturing and agriculture 30 per cent, and other items 10 per cent. On this basis, Kuznets' analysis (in the National Bureau of Economic Research article cited in n. 2 above) suggests a net investment of from 5 to 15 per cent in Western nations; thus, consumption absorbs even with us the largest part of output. It is interesting to note that Kuznets' data indicate that, even in the initial stages of industrialization, capital formation occurred in spirals. This now seems to have spent itself, so that the share of national income now going into the formation of capital has remained fairly stable.<sup>5</sup>

The problem of increasing real income has been the concern of several other scholars whose major focus has been the "underdeveloped" regions. Norman S. Buchanan and Howard S. Ellis offer a trenchant discussion of the matter in their *Approaches to Economic Development*,<sup>6</sup> one of the few really comprehensive studies of economic growth currently available. They would agree with Lewis and other observers that the manner and the timing of capital formation are significant problems in the advanced nations. But in the underdeveloped countries, they argue, there is no question of full employment or uneven rates of growth; the only reality that people face there is perpetual poverty. This underscores the simple fact that the process of capital formation must somehow be initiated. While there always was some accumulation in the underdeveloped nations, virtually all of it went to satisfy religious and ceremonial needs. Yet, if the surplus populations<sup>7</sup> are to be put to work, they must have equipment and tools, for the use of additional labor without an increase in capital would most likely result in inflation. Capital accumulation in Asia and Africa, we are told, means belt-tightening and shunting production from consumer goods to producer goods.

The big question is whether the populace would easily take to a regimen

5. Moses Abramovitz, another NBER economist, argues in a recent paper, *Proceedings of the American Economic Association*, May, 1956, that not only was the rate of growth slowed down in recent history but that its progress has not been a smooth one.

6. New York: Twentieth Century Fund, 1955.

7. The existence of which is almost universal, according to Ragnar Nurske's *Problems of Capital Formation in Underdeveloped Countries* (London: Blackwell, 1953).



## *On the Nature of Economic Growth*

of this kind. While growth would be quickly visible if investment went into drainage and irrigation, thus increasing agricultural output, there would be less to show in the early years should investment go into schools and "social overhead." Unless there were a dictatorial political regime to impose forcibly such policies, resistance might easily arise. Yet there are some writers who argue that rapid development would shock the underdeveloped countries into a sustained rate of growth. These nations would overleap the boundaries of tradition and thus uproot their static habits. Disease, poor diet, lack of sanitation, and inadequate housing all require large capital outlays as remedy—so large, in fact, that they frequently demand state intervention. Proponents of this view, who find voice mainly in United Nations publications, distrust such notions as consumer sovereignty and have no faith in the viability of the free price system. While they would abjure the ruthlessness of Soviet techniques, they nevertheless feel that the "big jump" into modern industrialism can be made, provided the richer nations will help out, thus avoiding the totalitarian approach. And, as Gunnar Myrdal points out,<sup>8</sup> there is a strong emotional drive in the underdeveloped nations which reinforces this urge for rapid economic growth.

The alternative is for a more gradual approach, one that would allow new ways to be absorbed into society without tumult and upset. It is argued that stagnation would be apt to set in again as soon as foreign aid ceased, unless there is a strong domestic base. The fundamental nature of a society cannot be altered from without, say the gradualists, but must itself respond to internal needs. It does little good, for example, to institute improved health measures without providing also the kind of economy that can sustain the inevitable increase in population. What has happened in Egypt in recent decades illustrates the problem. There, a sharply declining death rate merely increased the pressure on arable land already limited and exacerbated poverty-stricken conditions. A more lasting solution therefore, say the advocates of gradualism, is the slow but persistent accumulation of capital which will move the underdeveloped societies in the direction of permanent change. Professor Ragnar Nurske, for example, stresses the view that growth must in the last analysis stem from domestic savings. While foreign investment, he says, may be helpful, the basic source has got to be the sweat and effort of the people themselves.

In modern societies a major cause of growth is technological change.

8. Cf. *An International Economy* (New York: Harper & Bros., 1956).

But, as Schumpeter has pointed out, a distinction must be made between invention and innovation. While the former, he said, is a technical and scientific accomplishment, the latter is an economic and sociological event. An invention does not become an innovation until it is absorbed into the main stream of industrial life. And, in order to achieve this, the businessman must be able to visualize a flow of profits streaming from the act of innovation. In a quite significant sense, therefore, the businessman's expectations condition the process of innovation and growth.

An innovation must be either cost-reducing or quality-improving if it is to be profitable, and, since it frequently results in a substitution of new goods for old, it can have a far-reaching effect on the rate of capital formation. When innovations are linked—that is, when they lead to other innovations, as in the automobile industry—the impact on society is indeed profound. It is this process of linkage, together with the tendency for innovations to “bunch up,” that becomes a prime mover in economic growth. Some of the effects that ensue are short run in character, but others may create a permanent wrenching of the economic structure. The impact on investment is quite direct; some firms find that their individual growth may have been retarded as a result of an innovation and may consequently employ their now redundant capital to liquidate debt or pay out dividends. However, new and growing firms will increase investment and use relatively more capital, thus tending to make the economy more viable. But, as these slow down, the thorny problem of stagnation may once again raise its head.

Now, someone has to carry through an innovation, and in this sense we are interested in those who become the personal vehicles of growth. Ever since Adam Smith, such people have been designated as entrepreneurs or, literally, “undertakers.” Professor Thomas C. Cochran, of the University of Pennsylvania, says<sup>9</sup> that the businessman plays his role in accumulating capital and effecting innovation through a complex of factors comprising personality conflicts, cultural attitudes, technological possibilities, and the use of available resources. To Cochran, the entrepreneur's major service is to mobilize savings and apply the resulting financial capital to the problem of increasing productivity. At this point, Cochran tests his hypothesis by reviewing the job of the entrepreneur in American history. The evidence, he says, suggests the following generalization: Early American communities discovered in America an extraordinary low man-land ratio and

9. Cf. his article, “The Entrepreneur in American Capital Formation,” in the NBER volume.

## *On the Nature of Economic Growth*

an unbelievable opportunity for increasing returns on their investment. As a result, a premium was placed on devices that would save man-hours. In addition, the relative absence of Old World rigidities favored entrepreneurial activity, and in time the adventurous businessman was no longer viewed as quite the social deviant that aristocratic values made him out to be. The entrepreneur became a common phenomenon and lent leadership to the new communities on this side of the ocean. In many small towns in the eighteenth and early nineteenth centuries, Cochran says, the general store became the focus of business and social life and the owner a figure of community power. Capital accumulation kept pace with business expansion; banks became permanent parts of the economic landscape; government helped out with patent laws, rights of way, and land grants; and American culture became an entrepreneurial culture. Of course, there were many miscalculations and failures, many entries and exits; managerial skill "was learned at the expense of empty-handed creditors."

But in the twentieth century, the functions of the entrepreneur have been bureaucratized. The entrepreneur has been made obsolescent through the rise of the professional executive, the growing importance of the financier, and the clamping-down of government regulation. Even his area of operation has been restricted: highways, bridges, and power facilities are now the special province of government investment, and, with the coming of the garrison economy, the private entrepreneur's scope is even more limited. It is Cochran's belief that the entrepreneur has successfully worked himself out of a job; his role in capital formation and economic growth is now a dubious one. There are serious implications in this approach, for it leads to the startling thought that even "growth" itself has become bureaucratized. And, in fact, those who point to the fantastic abilities of modern corporations to finance investment out of their own resources would doubtless lend support to the Cochran view. Progress is no longer an adventure but a calculated, carefully weighed proposition packaged in the corporate conference room.

IV. Most economic theorists, however, express doubt that growth can continue indefinitely. Paul T. Homan, a noted elder statesman among economists, once remarked that, if present figures were projected into the future, the national output would have to be stated in multiple trillions and that average family incomes would be at least ten times greater than they are now. The fact is that growth is always beset by disturbances of

various kinds, stemming from unsuccessful risks and innovative failures.

It is this ever present prospect of a downturn that impelled many economists to look for the key to growth in certain internal relationships, such as investment to income. While they observed that lags in income could be corrected by increased investment, they frequently overlooked the fact that such investment invariably increased total productive capacity even more than was the case previously. Some writers felt that, since this was a problem for "long-run analysis," it could be safely ignored in short-term predictions. It was Roy F. Harrod, the biographer of Keynes, and a leading British theorist in his own right, who first called attention, in 1939, to this problem of augmented industrial capacity.<sup>10</sup> The basic question, said Harrod, is: What is the rate of growth in income which is required to insure the full use of an ever *increasing* quantity of capital? Furthermore, can such a rate of growth sustain itself, or must it sooner or later break down? Would deviations from the required rate of growth stimulate any corrective forces? How is this rate related to the needs of full employment? Suppose actual growth falls short of full employment? What steps are necessary to bring growth up to full-employment levels, or must the economy first fall on its face? Would explosive inflationary conditions set in should the actual growth rate exceed what is required for full employment? None of these questions is really easy to answer, and much technical ingenuity has been expended in constructing elegantly erudite solutions. But, as Daniel Hamburg, of the University of Maryland, remarks in his excellent study of the problem,<sup>11</sup> the purpose has been "to perceive in precise terms the relations between the long-run forces of economic growth and the forces inducing instability in the growth of income such as has characterized the development of capitalism."

One of the more lucid presentations of the problem was that made by Evsey Domar in 1947.<sup>12</sup> Addressing himself to the problem of determining what rate of growth in national income would maintain full employment, Domar observed that investment exhibits a *dual* character in that it not

10. Cf. "An Essay in Dynamic Theory" and "Supplement on Dynamic Theory" in *Economic Essays* (New York: Harcourt, Brace & Co., 1952). The first of these was originally published in 1939. Others who have written on this problem are Evsey Domar, "Expansion and Employment," *American Economic Review*, March, 1947, and "Problem of Capital Accumulation," *American Economic Review*, December, 1948, and M. Kalecki, *Theory of Economic Dynamics* (London: Allen & Unwin, 1954).

11. *Economic Growth and Instability* (New York: W. W. Norton Co., 1956).

12. See Domar's article, "Expansion and Employment" in *American Economic Review*, March, 1947.

## *On the Nature of Economic Growth*

only generates income but also increases productive capacity. The Keynesian proposition that savings equals investment and that income paid out must return to the productive process are formulations that merely maintain the status quo. A more realistic conception, said Domar, would make room for added capital formation and the subsequent increase in the ability to produce.

Now, such new capital might be either unused, merely put to one side, or employed at the expense of earlier, older capital, or possibly substituted for labor and other factors. The first instance represents a simple waste of resources, while the others are changes that always take place in a dynamic economy. Yet such problems are seldom, if at all, set forth in standard Keynesian doctrine, argued Domar, in which employment is a relatively uncomplicated function of income. More technically, the problem is to ascertain the magnitude of investment required to make the increase in income equal to the increase in productive capacity. This suggests that employment ought to be visualized as a function of the ratio of income to productive capacity. The difficulty, of course, is the definition of productive capacity, but this may be stated as output at full employment. Thus the problem is reduced by Domar to an equation in which the required ratio of growth is established by setting the rate of increase in productive capacity equal to the rate of increase in income. In analytical terms this means that continuous full employment can be attained only if investment and income grow at constant annual percentage rates which are equal to the product of marginal propensity to save and the average propensity of investment. This is a terribly technical way of saying that simple offsets to saving are insufficient to maintain full employment—that, in fact, investment must always exceed saving. The economy must be somewhat like the Einsteinian universe, always expanding at an accelerated rate.

The likelihood of investment increasing *all* the time is at best moot. Yet, if investment does not satisfy the conditions of required growth set forth by these relationships, excess capacity would set in and inhibit further investment. In situations engendered by a monopolistic economy, such excess capacity is clearly a threat to continued growth and expansion.

Harrod, on the other hand, argued<sup>13</sup> that the economy can develop a rate of growth that would be consonant with full capacity operation. While Harrod employs a rather high degree of abstraction, his model is a dynamic one in that he assumes productive technique to be improving. Now, the “warranted” rate is that which insures a continuation of invest-

13. Cf. *Towards a Dynamic Economics* (New York: Macmillan Co., 1948).

ment at levels that meet the profit expectations of the businessman. Unexpected, unanticipated results in output are due entirely to changes in investment plans. However, limitations on "warranted" growth are set by the size of the labor force and the current state of technology. "Warranted" growth is, therefore, a ceiling rate set by existing economic conditions. In one important sense this notion is really nothing more than "potential" growth, and, if this exceeds *actual* growth, then stagnation will be the outcome. That is to say, the economic system has failed to meet its promise. In the reverse condition, one in which actual growth is greater than what appears to be inherent in the current economic situation, a state of perpetual exhilaration is created in which facilities are expanded and inflationary pressures accumulate.

Another cornerstone of Harrod's model is the "acceleration" factor, which says that there is a fixed relationship between the quantity of a flow and the size of the stock from which it comes. To illustrate, there is a definite relation among purchases, inventories, and sales. Shifts in the rate of sales may lead to more than a proportionate change in the rate of purchases, so that the final effect is magnified. Now, when sales decline, there is a tendency to cut back on investment. Should this react particularly on consumer-goods industries, net investment may very well become a negative quantity, and the nightmare of excess capacity might arise. Similarly, an increase in sales may be a harbinger of economic exhilaration. Now, while "acceleration" may have little influence in the early stages of cyclical upswing because of existing excess capacities, it can have a choking effect as the upper limits of the cycle are attained. Then the usual bottlenecks and shortages begin to plague the economy. The businessman, however, is generally satisfied if income is increasing fast enough to justify the outlay on new capital. Thus, the higher the income, the higher the investment, and, again, the higher the income, on and on in continuing leapfrog fashion, with the economy running ever faster as though on a giant treadmill.

Further analysis of growth requires that a distinction be made among different kinds of investment. Harrod separates "autonomous" from "induced" investment. The former, which results from innovation and is therefore independent of sales and current output, does not need the stimulus of income expansion to get going; only an adventurous spirit and the unremitting search for profit is required. The latter kind of investment, however, is directly connected with output and, consequently, depends on "acceleration." If sales in the immediate past have been brisk and

## *On the Nature of Economic Growth*

future prospects are good enough to create a real sense of certainty, then induced investment will be given a considerable fillip. Should prosperity be extended, profits may very well become extraordinary. In fact, conditions may be so good that it may become difficult to distinguish between autonomous and induced investment. However, in such a situation the growth of income must be more rapid than ever, for there must be enough created to absorb the savings generated by both types. What may very well come about, as Hamburg says, is a condition of sustained periods of economic exhilaration alternating with long periods of stagnation.

It is most unlikely, says Hamburg, that growth would be continuous. Some firms expand while others go out of existence. A smooth growth configuration cannot be derived from innovation, for this comes in spurts and clusters, creating all sorts of turbulences. Furthermore, existing firms are hardly the ones that introduce innovation. They usually stand pat, so that new ways of doing business or new ways of making things require an "adventurous" concern. Monopoly, cartels, a fear of excess capacity, the rise of the professional manager—all may exert dampening effects on any tendency for unceasing expansion.

The present situation, especially in world population trends, underscores the urgency of continuing economic development. With an increase each year in the labor force, there is a need for a growth pattern that would absorb new members. In the absence of such absorptive capacity, the increased supply of man-hours coupled with increased labor productivity would only lead to a "labor reserve," a condition, it will be recalled, predicted by Marx. To overcome this, it would be necessary for income to rise directly with labor supply and productivity. Hamburg quite rightly stresses the importance of this concept, for all too often growth has been discussed solely in terms of the increase in capital. It is quite possible that the full use of capital equipment would not lead to full employment of labor, particularly in an economy where the use of capital is directed toward labor-saving devices as with automation. Further, it is conceivable that the growth rate of capital might exceed "full-employment" growth, so that the tendency toward excessive capital accumulation would be reinforced, eventually leading to a depressing effect. On the other hand, in underdeveloped countries, a tendency for "full-employment" growth to exceed capital growth results in what economists call "involuntary employment." Such a condition, says Hamburg, can be overcome by resorting to the kind of investment that stems from innovations rather than from sources internal to the economy itself. But innovation does not have

a strong effect where there is a considerable backlog of idle capacity. Consequently, it is the interplay of factors such as these that makes for secular stagnation, and it apparently takes the strength of a garrison economy's innovative impact to dispel the drag of idle capacity.

Yet the situation today is hardly like this at all. We are in a condition of secular exhilaration, one probably due to an overabundance of the innovative, autonomous kind of investment. In the present milieu, such investments exhibit a self-generating character, since extremely favorable profit margins encourage the introduction of new devices and gadgets while at the same time relatively high income levels create an atmosphere of receptivity to change. Further, at levels of high economic activity, people may be placing more stress on consumption than on saving. This may weaken the role of the induced type of investment, from which is derived the purely internal growth drives. As a result, autonomous investment may displace induced investment during prosperous times. Suppose now that the profitability of autonomous investment begins to wear out; it is evident that in such circumstances the sense of exhilaration may quickly evaporate as economic growth grinds to a painful halt.

An upward movement in perpetuity, according to this theory, is a debatable question. Distortions in the physical structure of production may ensue which in turn could markedly affect the growth line. Differences in rates of growth in various parts of the economy may require a redirection of output, perhaps from capital-goods industries to consumer goods. Such a contingency could cause idle capacity to appear in some sectors and so break the circular flow of income. In fact, a problem of this sort may very well be at the root of the difficulties faced by the Soviet economy, for it is conceivable that an absolute imperative toward capital-goods production has been built into Russian industry, thus making it by now a super-human task to supply an adequate flow of consumer goods. As Adolph Lowe says,<sup>14</sup> the way in which the different sectors of the economy are structured can have a significant impact on growth. In most instances the process of growing is carried on by only a few major sectors of the economy. These may be based on new technology, as in British textiles in the eighteenth century or American transportation in the nineteenth, or on political motivations. Such changes may set in motion a host of corollary lines as with the automobile industry, but the historical evidence suggests that major growth patterns do not involve the entire economic system. As a result, it is entirely possible to draw fairly pessimistic infer-

14. Cf. his paper, "Structural Analysis of Real Capital Formation," in the NBER volume.



## *On the Nature of Economic Growth*

ences should the impetus toward expansion give out in the major sectors.

William Fellner, a Yale University economist and successor to the late Irving Fisher, rejects such a gloomy outlook.<sup>15</sup> Fellner employs, in the main, the same general techniques as Harrod and Hamburg but arrives at quite different conclusions. He acknowledges that in a growing economy investment must keep pace with total savings, but, says he, if the economy is enjoying a condition of exhilaration, there will be inevitably an adequate supply of savings to match investment. But, while this "matching" problem may be basic, it cannot become a really serious matter so long as there are enough technological improvements to provide investment outlets.

An approach such as Fellner's, which places stress on the relationship of technological advances to available resources, is fundamentally an effort to expose the "structural" problem. He contends that the essential requirement is to heighten productivity in order to encourage investment. By doing so, the economy would be able to overcome the insufficiency of "planned investment," a condition that has in the past led to a slowing-down of growth. This leads Fellner into some rather odd pathways: growth becomes a purely "psychic" phenomena, and idle capacity is of no great importance so long as entrepreneurs do not consider the total stock of capital as excessive. This suggests, too, that unemployment and growth are not really incompatible. However, it is not made clear whether businessmen's plans for expansion could be long sustained in the face of declining purchasing power.

Fellner makes much of the problem of matching saving and investment and securing what he considers a correct time sequence. He fears that too much variation from a smooth growth path would upset the entire apple cart and cause either uncontrolled inflation or stagnation. The limits of tolerance, he says, are quite small; in the final analysis, steady growth demands that net capital formation (that is, investment) always equals net savings at a stable general price level. This is indeed a tall order, and it is precisely the difficulty of achieving such stability that is underscored by Harrod and Hamburg. But Fellner is undismayed, for, says he, a smooth pattern can be worked out through the effective control of money; in addition, capital must always be more abundant than labor (so that the old devil of diminishing returns may be exorcised), and structural shifts must be gradual so that bottlenecks and distortions arising from the improper application of resources may be avoided.

But Fellner's views are not entirely clear; while sometimes perturbed by

15. Cf. *Trends and Cycles in Economic Activity* (New York: Henry Holt & Co., 1956).

divergences from smooth growth rates, at other times he insists that the possibility of instability has been exaggerated. This is so, he says, because planned investment is set in a *range* of magnitudes, and, so long as what is actually attained falls within the anticipated limits, no great harm will have been done by straying slightly from the mark. A divergence from what is necessary for upward growth has generally been temporary anyway, and, should economic conditions worsen, a point would eventually be reached where the need for some goods and some investment would set things going again. But this was precisely the sort of analysis of economic change that was offered twenty-five years ago, and it seems just about as helpful now as it was then. What Fellner suggests basically is that growth depends on the compatibility of expectations and the plans stemming from them. Since we know that expectations and results will not always jibe, says he, continuous little adjustments must be made to avoid malinvestment, and the best place to effect such numerous adjustments is, of course, the free market!

The fact is that the elimination of structural disproportions in the economy would not necessarily give an easy solution to violent and sharp changes. Such adjustments would never be quick enough to overcome the strains of growth; raw materials and labor cannot be moved about like chess pieces on a board, nor is it possible to convert factories quickly to alternative uses. Nor can fluctuations be dampened or eliminated by the correction of structural disproportions, for the fundamental relationships among savings, investment, and income would continue to operate even if all segments of the economy were affected the same way.

V. Thus, the problem of growth is complicated by the fact that investment and consumption are always going on at different rates of speed in different parts of the economy. While this is happening, the nature of the commodity basket itself is undergoing change, so that different recipes for mixing economic ingredients—capital and labor—are required. This sets limits to both the rate and the extent of growth. There also are other limits: availability of finance, existing industrial capacity, and, for countries with a high foreign-trade component, the balance of payments itself. Joan Robinson has argued<sup>16</sup> that growth can take place only if there is “a technical surplus available above subsistence,” and within that limit if there is a “surplus above the level of real wages that the workers are willing to accept,” and within that limit if the entrepreneurs energetically carry out

16. Cf. *The Accumulation of Capital* (New York: Macmillan Co., 1956).

## *On the Nature of Economic Growth*

the business of accumulation. That is to say, growth ultimately depends on the totality of savings that an economy can set aside.

But economic growth under these conditions is a precarious affair. The savings and investment process may break down for any number of reasons, among which are a shift in the technological substructure of industry, an increase in the number of monopolistic situations, or a rise in productivity without any commensurate change in investment. The problem may be intensified when there is a lack of sufficient capital, as is illustrated by the comparison of the growth experience of the United States and other nations. Among the latter, low income and low productivity stem from an inadequacy in both the amount and the utilization of capital. The suggestion that they should acquire more equipment merely underscores the dilemma in which they find themselves, for the accumulation of capital presumes a sufficiency of income and a high-enough level of productivity to provide the wherewithal.

In the meantime the advanced nations, which form a small part of the world's peoples, not only keep getting richer but have a common expectation that in the future they will be able to provide more economic opportunity for their citizens and even higher consumption standards. They anticipate all this despite the fact that international relations were beset in the last forty years by numerous calamities which should have impeded the course of economic growth. But these frequent crises and wars merely intensified the concern with the state of *national* economics, while at the same time international economic relations, so essential to the well-being of the less fortunate nations, have continued to deteriorate. As Gunnar Myrdal argues,<sup>17</sup> growth is a matter of concern for all nations, not only the West. Unfortunately, the retreat to economic nationalism and the ensuing damage to international growth continue unabated. Myrdal sees evidence of this in the drastic decline in the movements of capital and labor; virtually all nations now seal their borders against intruders from other labor markets, while the flow of international capital, which could help stimulate growth in Latin America or southern Asia, has virtually ceased except for the reinvestment of profits or some new investment in colonial areas whose economy can be controlled from metropolitan centers. With attention focused only on internal economies, import barriers in most countries have risen. Together with currency and payment restrictions, these practices have progressed from being mere symptoms of economic dislocation to becoming root causes.

The problem of economic growth is sharpened when the disparities in

17. *Op. cit.*

capital resources, labor productivity, and skills, and consequently in living standards, between the advanced and underdeveloped nations is exhibited to full view. The latter are seemingly determined to do away with their "have-not" status; they are breaking away from old traditions. That this sometimes assumes the form of violent nationalism or a flirtation with communism is not unexpected. Drives for economic growth are often converted into ambitious political programs for the adoption of modern industrial techniques. But, while the underdeveloped nations want to skip the stage of capital accumulation, they at the same time lack the international capital market which eased the rigors of growth of the West. The idea of economic growth and the high standard of living it brings in its wake—based on decades of capital accumulation—have gone forth from the Western countries to the underdeveloped nations which now have the advice but not the capital.

Myrdal says that the underdeveloped areas need a deliberate population policy which will help reduce pressure on resources. He insists that governments will have to play a more significant role than they did when the Western economies were in their growing stages. Certain reforms will have to be instituted. But the basic approach is a program of self-help intended to stimulate savings at the high levels and to do all this when consumption levels are low, with little or no capital imports and widely fluctuating prices for export commodities. The underdeveloped nations will have to search for a greater diversity of products in their output, while all available foreign exchange is used to acquire producers goods. But Myrdal is not sanguine about prospects. "Short of a number of near miracles," says he, "few underdeveloped countries will succeed in attaining their essential goals." Yet only when these underprivileged nations, with their vast numbers of humans of different colors, religions, and cultures, have attained equality of opportunity will the full potentials of economic growth be reached. This is Myrdal's basic concept, and it is one we can ill afford to shunt aside. The problem is not merely an economic or political one; it is essentially a moral question, for, asks Myrdal, can the Western nations, whose prospect for continued growth remains undiminished, continue to look inwardly and build only a nationalistic parochial paradise, while multitudes in Asia, Africa, and Latin America strive for just a little more sustenance? Moreover, can we afford to let these peoples follow willy-nilly the totalitarian way to industrialization? Yet, while the urgency of these questions seems incontestable, one wonders whether the quality of modern high politics will permit more than a cavalier approach to their ultimate answer.