

## Theories of Economic Growth and Stagnation, with Particular Reference to China, 1840-1940<sup>(1)</sup>

### 1. Introduction: Problems in Applying Economic Theory to China

The object of this paper is to make a brief survey of certain significant contributions to the theory of economic growth and stagnation that may aid the study of a century of apparent stagnation in China.

This broad objective leaves much latitude within which the subject might be treated. Two alternative approaches suggest themselves. In the first case, emphasis might be laid on new theories in order to direct historical research to hitherto neglected horizons. For, from the point of view of researchability, history can be restudied whenever a new theory is developed. This argument applies particularly to a field that is already well developed, but in the case under consideration it loses much of its force: the study of the Chinese economy calls more urgently for rudimentary building blocks than for elaborate superstructures.

An alternative emphasis might therefore be laid on those theories that are judged especially relevant to the Chinese case. The question here is whether such theories have as yet been created by economists and whether we know enough about the facts of the Chinese case to link them with particular theories.

The contention of this paper is that the nature of theoretical development in economics, as well as the state of the historical data,

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require us to compromise between these two alternatives: this compromise may probably also best serve the ultimate objective of aiding the development of new theories of growth in general and a theory of Chinese stagnation in particular.

While the classicists (1) were very much occupied with the question of growth and stagnation, most of them were mainly concerned with the long-run tendency toward a stationary state (2). In other words, their central theme, with a few exceptions, was not how a country gets to be developed but what happens when a country continues to develop. It is true that considerable stress was laid on what are now called the political, social or institutional pre-conditions of development (3): but, following the triumph of the

(1) The term classicists is here defined to include Smith-Ricardo-Malthus-Mill. Other writers have defined the term to include all pre-Keynesian economists, or to include A. Marshall and his followers, or to include economists from Malthus to J. S. Mill, etc.

(2) See ADAM SMITH's, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Modern Library edition (New York, 1937); Chapter XXI of DAVID RICARDO's, *On the Principle of Political Economy and Taxation* (New York, 1911); Book II of T. R. MALTHUS's, *Principles of Political Economy Considered with a View to Their Practical Application*, Augustus Kelly (New York, 1951); and Book IV of J. S. MILL's, *Principles of Political Economy*, Ashley Edition, (London, 1909). For summaries and interpretations of the classical school, see WILLIAM J. BAUMOL, *Economic Dynamics* (New York, 1951), pp. 11-19; ADOLPH LOWE, "The Classical Theory of Economic Growth", *Social Research* (Summer 1954), pp. 127-158; ERSKINE MCKINLEY, "The Problem of 'Underdevelopment' in the English Classical School", *Quarterly Journal of Economics* (May 1955), pp. 235-252; T. HAAVELMO, *A Study in the Theory of Economic Evolution* (Amsterdam, 1954), pp. 6-14. It is hardly necessary to note that there are divergent viewpoints among the classicists, as is illustrated in numerous exchanges between Ricardo and Malthus. Smith's theory of economic development stands out in that it postulates cumulative growth and thus does not share the pessimism which earned economics the title of "the dismal science". (See, however, foot-note 5 below). "A simple-minded modern reader of the *Wealth of Nations*... might indeed be tempted to describe the work somewhat in terms of its title as a treatise on the economic development of backward areas or on how poor countries get rich" — JAMES BASTER, "Recent Literature on the Economic Development of Backward Areas", *Quarterly Journal of Economics* (November 1954), p. 586. J. S. Mill's stationary state differs from the pure case in which everything merely reproduces itself, and allows some technological progress and capital accumulation; only population is required to be stationary.

(3) "Among the primary and most important causes which influence the wealth of nations, must unquestionably be placed, those which come under the head of politics and morals. Security of property, without a certain degree of which, there can be no encouragement to individual industry, depends mainly upon the political constitution of a country, the excellence of its laws and the manner in which they are administered. And those habits which are the most favorable to regular exertions as well as to general rectitude of character, and are consequently most favorable to the production and maintenance of wealth, depend chiefly upon the same causes, combined with moral and religious instruction. It is not, however, my intention at present to enter fully into these causes, important and effective as they are; but to confine myself chiefly to the more immediate and proximate causes of increasing

classical school, these pre-conditions became accepted as axiomatic and scarcely any elaboration seemed necessary.

The neo-classicists, with their preoccupation with micro- and short-run analysis, almost completely by-passed the question of economic growth (4). In a way, this was a reaction against some of the rather obvious difficulties raised by the sweeping long-run generalizations — in particular, by the Malthusian population theory, which looked odd in the light of subsequent events in Europe. In terms of their contributions to the analysis of growth problems, one would certainly have to pay more attention to the classicists than to the neo-classicists.

The Keynesian revolution, despite its proposed break from the neo-classic trend ("classic" in Keynesian terminology), continued to place the short run in the center of the stage with the famous motto, "in the long run we are all dead". The framework is essentially static, although one of the advantages of the macroeconomic tools in the Keynesian system is their adaptability to a dynamic context which is required for the study of growth problems. However, most of the refined Keynesian growth models frankly deal with the workings of a developed economy and, perhaps unwittingly, retain the essential features of the Keynes-Hansen stagnation thesis (postulating a prolonged low rate of economic activity arising from exhaustion of investment opportunities) (5).

wealth, whether they may have their origin in these political and moral sources or in any others more specifically and directly within the province of political economy" — T. R. MAL-  
THUS, *Principles of Political Economy*, pp. 309-310.

(4) The Neo-classical school is not well defined. Its betterknown representatives include Jevons and Menger, the Cambridge school, Marshall and Pigou, and J. B. Clark and Taussig in the United States. Marshall was definitely interested in the theory of economic development but he never got round to it systematically. See A. J. YOUNGSON, "Marshall on Economic Growth", *Scottish Journal of Political Economy* (February 1956). In fairness to economists like Wicksell, Spiethoff, Schumpeter, Cassel and Robertson, it should be pointed out that they had emphasized, before the recent resurgence in growth economics, that business cycle fluctuations were essentially a concomitant of progress.

(5) See J. M. KEYNES, *The General Theory of Employment, Interest and Money* (New York, 1936), pp. 306-309; A. H. HANSEN, *Full Recovery or Stagnation* (New York, 1938); *idem*, "Economic Progress and Declining Population Growth", *American Economic Review* (March 1939), pp. 1-15; *idem*, "Extensive Expansion and Population Growth", *Journal of Political Economy* (April 1940), pp. 583-585.

The stagnation thesis attributes "sick recoveries which die in their infancy and depressions which feed on themselves and leave a hard and seemingly immovable core of unemployment" to a drying up of investment opportunities, which in turn is ascribed to the approaching cessation of population growth, the disappearance of new territory for settlement

The central focus of these models is thus upon that rate of growth which would be consistent with the full utilization of capacity or full employment (6).

It is only in the postwar era that sophisticated economic analysis has been seriously applied to less developed countries where the primary concern is to hasten the process of development (7). Like the borrowing in less developed areas of machine technology which had evolved chiefly on Western soil to suit Western requirements, the application of the existing body of economic teachings to less developed countries has also met with difficulties of transplantation. The attitude toward saving in a developing country, for example, has run a full circle: from an act of virtue according to the traditional theory, to a regrettable propensity as suggested by the "new economics", and back to a virtue as required by developmental needs.

It should not be expected that the new economics of underdevelopment can be readily applied to the Chinese historical situation. In the first place, the problem with which current development

and exploitation and the inadequacy of the rate of technological progress. (HANSEN, "Economic Progress", pp. 4-11).

It may be noted that the stagnation thesis, while pessimistic when the rate of population growth declines, is optimistic when the rate increases. The thesis, in other words, shares the optimism of Smith but rejects the pessimism of Malthus and Ricardo with respect to population increase. It may also be noted that many modern economists have emphasized the immense difficulties in getting the growth process started; they are pessimistic concerning the less developed countries but are usually optimistic as to the ability of more developed countries to continue their growth almost automatically. It is thus quite dangerous to classify economists as pessimists or optimists without qualification.

(6) See R. F. HARROD, "An Essay in Dynamic Theory", *Economic Journal* (March 1939), pp. 14-33; *idem*, *Towards a Dynamic Economics* (London, 1948); BVSBY D. DOMAR, "Capital Expansion, Rate of Growth and Employment", *Econometrica* (1946), pp. 137-147; *idem*, "Expansion and Employment", *American Economic Review* (March 1947), pp. 34-55; *idem*, "The Problem of Capital Accumulation", *American Economic Review* (December 1948); pp. 777-794; *idem*, "Economic Growth: An Econometric Approach", Papers and Proceedings of the Sixty-fourth Annual Meeting of the American Economic Association, *American Economic Review* (May 1952), pp. 479-495; WILLIAM FELLNER, "The Capital Output Ratio in Dynamic Economics", in *Money, Trade and Economic Growth, in Honor of John H. Williams* (New York, 1951), pp. 105-134. For an up-to-date account of neo-Keynesian dynamics, including references, see D. HAMBERG, *Economic Growth and Instability* (New York, 1956).

(7) See the various reports and studies by the United Nations; articles in the journal *Economic Development and Cultural Change*; BERT F. HOSELYTZ, ed., *The Progress of Underdeveloped Areas* (Chicago, 1952); Conference papers on economic growth published by the National Bureau of Economic Research, by the Committee on Economic Growth of the Social Science Research Council, and by the International Congress for the Study of the Problem of Underdeveloped Areas (Milan, October 1954).

literature is mainly concerned is how to institute a development program; whereas our problem is why development did not take place or was not sustained. The two problems are obviously related but the answers may be entirely different. To illustrate, in studying the former problem (how to inaugurate development) it may be safe to assume that there is no deficiency in demand, since the rapid development which is postulated implies in itself a heavy demand on all available resources. In studying the case of China in the last hundred years, on the other hand, it is not legitimate to assume adequate demand except when such an assumption is explicitly substantiated by history. Further, it may be found that the family system for example, was the root of the obstacles to Chinese economic development, yet a realistic program of development would have found it more manageable and efficient to attack the problem from another angle than the family system.

The conditions in less developed countries are, moreover, far from similar. In general there is more similarity of conditions among developed than among less developed countries. The possibilities and problems of growth in the latter obviously vary according to many factors, such as whether the country is characterized by empty spaces or by population pressure, by richness in newly discovered natural resources or by intensive exploitation of known resources, by small or large size, by a local culture or a civilizational heritage.

It is not the intention of this paper to suggest the main contours of a century of Chinese economic history. The peculiarities of the Chinese case should put us on our guard against any ready generalization. The very contention that the Chinese economy stagnated during the period must be left open to question or at least be understood in a special sense. The basic facts, including the magnitudes of and changes in population and output, are yet to be established. Only then can we make a rigorous analysis of the nature and extent of economic growth or decline, or of the failure to achieve the type of industrial growth pioneered by western Europe a century earlier.

Furthermore, if the term stagnation suggests a sort of stationary state, the latter may be an illusion created by a mere trick of averaging. Certainly, there is no lack of evidence of feverish activity in China in certain periods, regions and sectors; a more fruitful question to ask may therefore be why China's development was suppressed, frustrated, interrupted or blocked, and why development in some regions and sectors failed to spread to other regions and sectors.

The obstacles to growth at a given time and locality and in a given economic branch may have been quite different from the obstacles in other circumstances (8). Indeed, the use of a national average requires one to presuppose at least a certain degree of homogeneity and cohesion and it may therefore be not particularly revealing in a "dual", or perhaps we should say more correctly, a "disjointed", economy (9).

The above considerations imply that we are not likely to find a particular ready-made theory of economic growth or stagnation applicable to the Chinese case. A variety of contributions, ranging from pure theoretical models to comparative studies and historical generalizations, however, may be used together and may be suggestive of hypotheses and viewpoints without which disconnected historical details would appear confusing and meaningless. The contributions to be discussed in the following may appear to be more divergent and controversial than they really are, for most of them aim at some kind of synthesis which will bring a variety of factors into focus around some central theme. The various themes to be discussed below are therefore not necessarily mutually exclusive; sometimes they represent different pictures of the same object and sometimes they complement each other to form a more complete picture.

## 2. The Stationary State and Underemployment Equilibrium

China has become almost legendary as an archetype of the stationary state (10). It is doubtful whether the situation prior to the

(8) The initial naïveté and ostrich-like attitude of Chinese leaders gave way to the doctrine of "Western technology and Chinese culture", which was in turn challenged by "complete Westernization", as the old regime disintegrated. The *zeitgeist* in the coastal cities, which had long been under the influence of Westerners, and that in the interior dominated by old-fashioned warlords, differed by centuries. Foreign activities like banking may have been a stimulant to modernization of Chinese banking, whereas foreign trade may have been an obstacle to indigenous development in that field.

(9) The term dual economy usually refers to the co-existence of a traditional agricultural sector and a Westernized sector in large cities. A disjointed economy may be understood to refer more generally to two or more sectors or regions where integration and articulate communication are largely lacking. The degree of economic integration in a disjointed economy like that of China in the last hundred years was apparently much lower than that within the family of nations in Western Europe in the same period.

(10) ADAM SMITH [*Wealth of Nations*, Modern Library Ed., p. 72], McCULLOCH [*Principles of Political Economy*, Edinburgh, 1825, p. 105], J. S. MILL [*Principles of Political*

Opium War in the 1840's warrants such an unqualified characterization. The paucity of technological improvements and the apparently low level of living need not have precluded important innovations in the introduction of new crops, the growth of population or the accumulation of capital, all of which are inconsistent with the postulate of a stationary state. In any case, the postulate of such a dull — or according to some writers, idyllic — situation in China hardly comports with events subsequent to the Opium War.

The era after the breakdown of the traditional Chinese "iron curtain" was one of strong cross-currents with all kinds of turmoil and confusion. The major wars and invasions, the hundreds of large and small uprisings, the processes of revolution and counter-revolution, reform and reaction, demolition and reconstruction, decay and revival — which succeeded one another and even existed side by side — could hardly fail to exert a profound influence on the course, magnitude and structure of economic variables. Foreign entrepreneurial activities, safeguarded by a network of extraterritoriality, tariff concessions and gunboats, brought in new commodities, ideas and technologies and could hardly produce less than erosion, disintegration and breakdown of the old order.

That the theory of a stationary state does not fit the facts in China becomes abundantly clear when the theoretical postulate of full employment implicit in such a state of perfect balance is contrasted with the masses of the unemployed found in the urban areas there. The problem of unemployment is not purely a cyclical one which rights itself in an upswing. It is to his lasting credit that Keynes demonstrated that the existence of unemployment can be a long-term and even chronic condition, i.e. one that may be characterized as an "unemployment equilibrium" (11). Whether such an equilibrium is stable or unstable need not be discussed here. It is sufficient to show that, if it is not stable, there is at least no

*Economy*, Ashley Ed., 1848, I, p. 178], all referred to this feature of the Chinese economy. But although they agreed on its stationariness, Smith attributed the absence of net investment to monopoly and government interference; McCulloch to high risk; and Mill, to the overvaluing of present as against future pleasures — ERSKINE MCKINLEY, "The Problem of Underdevelopment", p. 236.

(11) Although the Keynesian equilibrium with involuntary unemployment is usually referred to as "underemployment equilibrium", here the term is reserved for the non-Keynesian type of underemployment or disguised unemployment typical of densely populated, less developed countries, as distinguished from the Keynesian type.

automatic or built-in tendency toward the attainment of full employment.

The phenomenon of unemployment equilibrium — if it is in fact an equilibrium — in a less developed economy may, however, be quite non-Keynesian in its causes. In the Keynesian system the chief cause is the deficiency in demand. So long as a state of full employment has not been reached, the level of employment is directly related to that of income (or output) and is therefore subject to manipulation by raising the level of income through higher consumption or investment.

It cannot be categorically stated that the Keynesian type of unemployment is necessarily absent in less developed areas, particularly in the short run. The point is that other causes may be overwhelmingly more important. In the first place, there is the displacement effect as described by Ricardo and Marx, i.e., displacement of labor by machines or other forms of capital. In a country where domestic development is as yet negligible, this effect is probably related less to the introduction of machine technology than to imports of consumer goods hitherto supplied by local handicrafts. In the second place, the opening up of ports and the mushrooming of commercial and productive activities in a few islands or oases of activity dotted across the country, especially along communication lines, may have attracted an inflow of rural population who cannot, however, all find employment even though they retain the expectation of doing so. In other words, disguised unemployment in the rural areas may be transformed into visible unemployment in the urban areas. Further, there is a possible natural increase of population, which may be accelerated by the process of "differential diffusion" of new influences; that is to say, there is a tendency for the death rate to decline before the birth rate follows suit, owing to the comparative responsiveness of the death rate to a slight degree of modernization (such as the introduction of some rudimentary public health measures), while there is no comparable responsiveness on the part of the birth rate.

Where the pressure of population on natural resources and capital in a less developed economy is severe, the reserve army of the obviously unemployed is, however, dwarfed by the ranks of persons suffering underemployment or disguised unemployment. In an economy which is predominantly agricultural such underemployment is found mostly in subsistence farming. A most convincing

demonstration of the existence of underemployment is that the yield per acre is not adversely affected by a decrease in the number of men at work on a given farm, providing there is no change in technology or other inputs. In other words, the productivity of marginal labor must be zero or even negative. It is possible that everybody may be working below capacity. It is also conceivable that everybody may be actually working very hard, e.g. in fragmented fields, but total product could still be increased with larger farm units and fewer men. This means that under certain kinds of agricultural conditions, institutional or organizational transformations may convert disguised into open unemployment. Furthermore there may be little underemployment at the seasonal peak; but institutional changes in some particular situations might reduce the degree of seasonal fluctuations in labor requirements and release some surplus labor as a result. (Clearly, where this is not possible, the same level of production cannot be maintained with less labor). Similarly disguised unemployment is common in the ancillary services, as among large hordes of retainers and retailers (12).

Such underemployment obviously existed in China. It would appear that on the whole the supply of labor cannot have been a bottleneck to economic development (13). There was no need to provide the necessary incentives to seek employment by such means as the creation of landless workers through an enclosure movement such as occurred in England (14), or the development of needs for cash by levying head taxes, or the alteration of the scale of preference between work and leisure. The difficulty of acclimatizing rural hands to the discipline of urban life was moreover made less by the existence of the reserve army of unemployed who were already in the urban areas. The high frequency of labor turnover often reported in China was probably due less to an absolute shortage of labor than to the ways in which it was recruited, the lack of communication between management and labor and the special alignments of

(12) A. LEWIS, "Economic Development with Unlimited Supplies of Labor", *Manchester School* (May 1954), pp. 139-191.

(13) This observation, of course, refers to labor in general. As to particular kinds of labor, there is always a shortage in a less developed economy. However, such shortage can be said to constitute a bottleneck to long-run development only to the extent to which the transformation of unskilled into skilled is made difficult for reasons mentioned below.

(14) W. E. MOORE, *Utilization of Human Resources through Industrialization* (Milbank Memorial Fund, 1950).

workers in relationships such as those between teacher and apprentice or within neighborhoods and clans. For the same reason, the transformation of unskilled into skilled workers may sometimes have been a lengthy process — particularly if the skills were regarded as trade secrets. The immigration of foreign skilled workers who played an important role in the propagation of technology in Europe and America was moreover extremely limited in China. The ethnic and cultural obstacles to migration were not overcome by planned importation of foreign labor and diligent learning of the required skills overseas as was the case in Japan.

The alleged paradox that unemployment of labor may be caused by a too slow rate of increase in population and labor force seems difficult to apply to an economy like that of China with its large surplus population. This paradox can arise in two different ways. According to one explanation, the paradox arises when the rate of growth of output is impeded by a shortage of labor when, for example, full employment is reached (15). The slowing down of the rate of growth or the inability to maintain a certain growth rate is, under certain assumptions, in itself sufficient to cause a downturn in output and employment. This variant of the theory requires no close examination in a case like that of China, where any conceivable rate of growth could hardly have reached the point where labor would become a bottleneck. According to another explanation of the paradox — namely the stagnation thesis — a declining rate of population growth lowers effective demand. In this view, investment demand is a function of the *rate of increase* in population rather than of the level of population, just as in the case of the acceleration principle it is a function of the rate of increase in income rather than of the level of income (16). It is difficult to ascertain

(15) J. R. HICKS, *A Contribution to the Theory of the Trade Cycle*, 1950, Chapters VII, VIII and X.

(16) For those who are familiar with the Harroddian model, the paradox may be said to occur when the warranted (full capacity) rate of growth exceeds the natural (full employment) rate of growth. In other words, the rate of growth of income which will absorb all labor seeking employment may not be sufficient to absorb all the supply of saving (which may be used to increase capacity), and when an attempt is made to invest all the saving there will be an over-abundance of capital, relative to available labor, so that capital will be idle and investment will decline. It is, however, somewhat misleading to emphasize labor shortage in the Harroddian case since the root of the trouble is not insufficient labor supply but a high propensity to save and insufficient investment opportunities. If labor force were more abundant, the situation would not necessarily be improved. I have, therefore, refrained from

the actual rate of increase of population in China. Assuming that the rate of increase of population actually declined, any conceivable depressive force arising therefrom might be offset by investment demand arising from innovation. As to a possible ceiling to growth, scarcity of capital rather than scarcity of labor is likely to be more limiting in a case like that of China (17). More fundamentally it should be remembered that an increase in population does not necessarily mean an increase in effective demand. Even the links between population growth and demand for housing and schools, which are most obvious in developed countries, may be insignificant in a country with a joint family system and without compulsory schooling.

The superabundance of labor is, on the other hand, viewed by some as a drag on economic development. In the first place, owing to the relative cheapness of labor, the modern technology which has originated in labor-scarce countries is not readily adaptable. In the second place, even if it is economical to adopt the new technology, the fear of technological unemployment may create resistance to its adoption on ethical and social grounds. In a country such as China these factors are probably more likely to operate in the agricultural sector than in the industrial sectors. In the agricultural sector, especially in subsistence farming, the opportunity cost — the cost of alternatives foregone — of labor is practically nil since alter-

identifying the Harrodian case with the paradox. I have also refrained from characterizing the less developed countries as a case where the full employment rate of growth exceeds the full capacity rate of growth. It is obviously true that no conceivable rate of growth in a country such as China could absorb all the underemployment. On the other hand, such a less developed country by no means enjoys "secular exhilaration" — in the sense that the Harrodian case is reversed — where entrepreneurs are willing to invest more than the prevailing supply of saving. Roughly, a less developed economy may be said to suffer from an under-saving under-investment stagnation as contrasted with an over-saving under-investment stagnation in a developed mature economy. The case of "secular exhilaration" — under-saving over-investment — probably obtains with deliberate and rapid industrialization largely under government auspices. Cf. R. F. HARROD, *Towards a Dynamic Economics*, p. 88; JOAN ROBINSON, "Mr. Harrod's Dynamics", *Economic Journal* (March 1949), pp. 81-82; R. EISNER, "Under-employment Equilibrium Rates of Growth", *American Economic Review* (March 1952), pp. 43-58; D. HAMBERG, "Full Capacity vs. Full Employment Growth", *Quarterly Journal of Economics* (August 1952), pp. 444-449; *ibid.* (November 1954), pp. 64-68; HAROLD PILVIN, "Full Capacity vs. Full Employment Growth", *Quarterly Journal of Economics* (November 1953), pp. 545-552; R. F. HARROD, "Comment", *ibid.*, pp. 553-559; EVSEY D. DOMAR, "Full Capacity vs. Full Employment Growth, Comment", *ibid.*, pp. 559-563.

(17) See next section; also HENRY J. BRUTON, "Growth Models and Underdeveloped Economics", *Journal of Political Economy* (August 1955), pp. 322-336; ALFREDO NAVARRETE JR., and IFIGENIA M. DE NAVARRETE, "Underemployment in Underdeveloped Economics", *International Economic Papers*, No. 3, 1953, pp. 235-239.

native employment is lacking. Consequently any factor of production that may be used to substitute for labor tends to be costly. In the industrial sectors, the superiority of modern technology, such as that of machine looms over hand looms or of steamships over junks, is so great that the cost-reducing effect of such technology should in many cases more than offset the factor-proportion effect (i.e., in this case the incentive to use proportionally more labor and less machinery owing to the relative cheapness of labor). Moreover, in these industrial sectors the labor-displacement effect of machine technology, if any, is indirect, in the sense that the setting up of, say, a machine loom factory need not entail a physical scrapping of the hand looms or a displacement of the workers, because the obsolescence of the hand looms may be brought about by impersonal market forces. On the other hand, in the agricultural sector the labor-displacement effect would tend to be direct since the introduction of machinery would upset the entire pre-existing structure of production and could conceivably drive millions of tillers off the farms.

In essence then, to the extent that the Chinese economy can be considered to have stagnated, the character and conditions diverge significantly from the stationary state postulated by traditional economics or the stagnation or unemployment equilibrium conceived by Keynes and Hansen. Furthermore, the type of unemployment encountered in these areas is generally more of the disguised than the open variety — rooted in capital scarcity rather than in deficiencies in effective demand.

### 3. Capital Scarcity

If labor is relatively abundant in a less developed economy like that of traditional China, it follows that natural resources and capital are relatively scarce. The effect of the relative dearth of natural resources and capital on the character of factor proportions in the economy and on the readiness to adopt modern technology has already been alluded to in connection with the relative cheapness of labor.

The niggardliness of nature is partly a function of the state of technology. Rich oil beds, bauxite and uranium ores were worthless before men learned how to utilize them. The situation in many

old civilizations may therefore be one of underdevelopment, in the sense that the natural resources are insufficiently explored, poorly utilized, or entirely unexploited if measured by the economic possibilities of modern technology; yet at the same time these same areas may be said to be overdeveloped in the sense that men have utilized the existing resources to the fullest extent possible at the level of technology known to and achieved by these civilizations. The common sight of terraced fields in China is a telling symbol of the extent of this type of overdevelopment. Yet it is conceivable that if only a few thousand people inhabited the whole continent of North America or Australia, it might still be considered overdeveloped if the inhabitants depended for their livelihood on certain primitive ways of hunting particular animals. Even in China during the period under consideration it would probably have been possible to improve conditions significantly if the underemployed had been properly organized to repair and extend irrigation and communication systems in much the same way as their forefathers and with little direct capital expenditure — a technique which is now widely used in “community development” programs. Yet the concept of overdevelopment is useful in this case because the natural resources of China have certainly differed from those in the vast, empty, fertile land of continental United States or Australia, as well as from the easily accessible mineral resources of South Africa or the rich oil fields of the Middle East. Foreign interests in China were thus mainly confined to commercial exploitation rather than to the development of resource-oriented industries. This fact probably explains in a large part why characteristically colonial-type investments, based on extractive and raw-material producing industries, have not been more attractive in China.

Likewise the scarcity of capital, in real as well as in financial terms, is related to the state of technology: under primitive conditions of production there may be comparatively few uses for capital. Unlike the scarcity of natural resources, however, scarcity of capital tends to be intensified by the introduction of modern technology. For modern technology often calls for large amounts of capital, sometimes in large indivisible lumps, which the economy is not accustomed to supply.

This difficulty is particularly obvious in a small economic unit where the total available capital is small in relation to the techno-

logical requirements. On the other hand, in a large country with an overall scarcity of capital, the determining factor in the case of a given project may be not the absolute availability of capital so much as the ability to mobilize capital.

From a dynamic point of view, capital is not merely required at the start of a production process; its continued accumulation is also necessary. Although it is conceivable that innovations may be so capital-saving that existing capital equipment may be replaced by more efficient capital equipment without requiring net additions, the nature of technology in modern times has militated against this possibility in China. It is therefore safe to assume that economic growth requires additional capital to create the additional capacity.

A given rate of capital accumulation must be balanced by a corresponding rate of supply of saving. In other words, the current output that goes into capital accumulation cannot at the same time be consumed.

Several reasons have been advanced as to why the propensity to save (ratio of saving to income) may be low in a less developed country. First, it is argued that the propensity to save is low because the level of income is low. The Keynesian postulate that the propensity to consume (ratio of consumption to income) decreases as income increases, is not, however, substantiated if one makes an international comparison. Nevertheless, if the level of income is so low as to reach a starvation point, it may be postulated that a high propensity to save is impossible. Moreover, the apparently uneven distribution of income typical of less developed countries does not necessarily improve the prospect for the supply of saving, because the savings of those who are comparatively well-to-do may be largely offset by consumption beyond their income on the part of the poor masses to whom savings are channeled, for example, through money lending. A related point is, secondly, that even the well-to-do may not actually be able to save because they have to perform those functions among relatives, friends and neighborhoods which are performed in more developed countries by social security; or they may have to indulge in conspicuous consumption befitting their status, or conform to dictates of custom as by making large expenditures for weddings, funerals and festivities. Further, when they do save, their savings often take the form of foreign assets which do not add to capital equipment within the country, or the form of luxury housing which hardly improves the productive capacity of the coun-

try (18). Lastly, as in the case of China, indemnity and loan payments to foreign recipients constitute a drain on the available capital (19).

Fortunately, however, the decision to save and the decision to invest may be made quite independently. Given a low propensity to save, what may happen if entrepreneurs decide to invest over and above the current rate of saving? The desired increase in the rate of saving, aside from the classical effect obtainable through raising the interest rate, may be brought about in two ways.

First, the investment may result in an increase in income which in turn will make possible a higher average propensity to save, provided the marginal propensity to save (ratio of increase in saving to increase in income) is, or can be made, high. This process, for example, plays a large part in the Indian Second Five Year Plan, which postulates a higher rate of capital accumulation as the plan progresses, while consumption is allowed to rise only slowly.

Secondly, the desired saving may be brought about by a redistribution of income, particularly in favor of the entrepreneurs. The redistribution may be effected through the mechanism of money, credit and prices: in this case the investment activity of the entrepreneurs (financed by money hoards or new credit) may force prices up (producing a non-Keynesian inflation with underemployment) and may depress real consumption on the part of those whose money income has not increased. Moreover, the new investment activity may bid up prices of raw materials and capital equipment and render some industries less profitable (an external diseconomy to the older

(18) Cf. below, "The Take-off". Hoarding is often mentioned as one of the ways by which saving is "dissipated". Actually, if hoarding is offset by real investment financed by creation of money, it is by no means dissipated, in fact it performs a necessary service by releasing the real resources. If it is offset by consumption beyond means, it results in no real saving but it also performs the service of releasing real resources and preventing inflation. If it is neither offset by investment nor by consumption it will lead (through a decline in effective demand) to a reduction in national income and will thus in effect become "abortive saving".

(19) The case of an abundance of financial capital and a shortage of physical capital goods does not seem to be important for China. It was, however, important to a number of less developed countries during and immediately after the Second World War when foreign exchange earnings were greatly enhanced while capital equipment could not be obtained in the world market. It is also important to a number of Middle Eastern countries with high oil income, only a small portion of which can be properly turned into domestic capital formation within a reasonable period of time, or to some African territories where port facilities limit imports.

industries; see section 5 below). It may involve the process of "creative destruction" postulated by Marx-Veblen-Schumpeter in the sense that the new establishments may render the older industries technologically outmoded. The capital equipment of the outmoded industries is probably too specific to be of use to other industries. The resources released by these industries are, therefore, largely limited to the amount of replacement demand that would otherwise be made by them. Such demand is in turn inversely related to the length of life of the capital equipment in question.

Alternatively the redistribution of income and resources may be effected by a deliberate policy, such as the expropriation of rents through land reforms while at the same time siphoning away the extra, spendable resources of the peasants or former tenants by means of taxes or instalment payments for the purchase of land.

The crucial matter in growth is therefore not so much the initial scarcity of (the stock of) capital as the ability or inability to accumulate capital and to bring about the necessary propensity to save consistent with such accumulation (20).

Assuming that capital accumulation does take place, it is now common knowledge that the process has a dual character (as have many other economic variables): on the one hand it creates income and on the other hand it creates additional productive capacity. It cannot be assumed, as postulated by Say's Law, that "additional income creates its own demand". On the demand side a given rate of investment induces a certain flow of increased consumption and further investment. On the supply side, the investment is reflected in additional capacities, which after a lapse of time (frequently referred to as the "period of fruition") yield a series of additional products that must be absorbed if growth is to continue. The speed with which the harvests materialize depends upon the particular technology and industry concerned. In investments such as the building of railways, a long period ensues before the trains actually begin to run. In contrast, certain types of investment in agriculture may come to fruition within a year.

(20) Professor Alexander Gerschenkron pointed out to me that the initial accumulation of capital is more difficult than at a later stage of growth. This consideration is also at the root of "the doctrine of balanced growth" and "the take-off" discussed below. The point made here is that in a large country like China the mobilization of capital is perhaps even more important than the total amount of capital available at the start.



It may be appreciated that the race between income and capacity in a given situation does not assure us that the two flows will always be nicely balanced. Under certain assumptions, for example, excess capacity emerges if the rate of increase of income is insufficient to absorb the product of the new capacity, but an increase in income creates further capacity, the product of which must be absorbed by further rises in income. Once excess capacity exists it exercises a dampening effect on investment. Thus the paradox of excess capacity in capital-scarce countries parallels that of unemployment in labor-scarce countries.

The above considerations throw light on why growth is usually accompanied by instability. This point is relevant, in an apparently stagnant economy, to the extent that attempts at growth may have been made. Furthermore, it is important to link the long-term considerations with the business cycle considerations. The characteristic feature of a stagnant economy is not the lack of boom periods such as are common in the business cycles but the lack of sustained growth. In other words, the question is why cyclical swings have not been superimposed upon a more or less steeply rising trend.

#### 4. Entrepreneurship and Innovation

To say that stagnation occurs because there is a lack of entrepreneurship and innovation is almost tautological. Like the above analysis of capital accumulation, however, an examination of economic growth or stagnation from the vantage point of entrepreneurship and innovation helps to bring together the multifarious forces in the whole complex of economic transformation, including those forces which are ordinarily considered outside the boundary of economics. There is, moreover, a close historical relation between capital accumulation and entrepreneurship. The classical economists, including Marx, have long regarded the function of the entrepreneur to be capital accumulation and conversely have considered innovation as essentially embodied in capital accumulation. Theories of capital accumulation, entrepreneurship and innovation may therefore be viewed as different ways of explaining basically the same process.

Theoretically it is of course possible to have capital accumulation without innovation. Such capital accumulation may be either widen-

ing or deepening, either capital intensive or labor intensive (21). In an economy which is characterized by stagnation of output and by limitation of natural resources, capital accumulation is not likely to entail an increase in the capital output ratio. In so far as population growth outstrips capital growth, it is also not likely to induce an increase in the capital labor ratio.

It is perhaps difficult to distinguish exactly between the setting up of a production function (which, according to Schumpeter, is properly innovation) and the sliding along (adjustment within) a production function (which is not innovation). It is also difficult to determine how different the new production function must be in order to qualify as innovation. Obviously all types of product differentiation of the Chamberlainian variety, such as a new wrapping or a novel hat, do not attain the status of Schumpeterian innovation but may logically be viewed as "innovation in the small".

Moreover, it is also possible to separate entrepreneurship from innovation. It is argued that the Schumpeterian hero in the process of innovation — the entrepreneur — is much diminished in size in a situation where the main function is to copy the well-known methods long practised in other countries (22). Here the difference from the ideal type of innovator is, however, not as sharp as it may appear. It should be remembered that the innovator is usually not the inventor. (A recent example is that a Briton invented penicillin, but American entrepreneurs first exploited it for business purposes, and were then followed by British and other entrepreneurs). Furthermore, there are many difficulties, technical as well as economic and social, in the way of introducing new methods of production such as establishing new manufacturing industries or building railways. It is not at all certain that the implanting of new methods of production in a less developed country (though long practised in the pioneer countries) actually requires less ingenuity than that of the original innovator or of the innovator in such giant concerns as Du Pont and General Electric in the contemporary United States.

(21) Deepening of capital involves a higher ratio of capital stock per unit of output, widening merely represents capital accumulation without deepening. Capital intensity is defined as capital stock per unit of labor. Labor intensity is not separately defined; in comparison a less capital-intensive case may be said to be labor-intensive.

(22) H. W. SINGER, "Obstacles to Economic Development", *Social Research* (Spring, 1953), pp. 19-31; H. G. AUBREY, "Deliberate Industrialization", *Social Research* (June 1949); ALFRED BONNE, "Towards a Theory of Implanted Development in Underdeveloped Countries", *Kyklos*, 1956, Fasc. I, pp. 1-16.

In the latter, innovation is almost automatic in that a sizeable part of the revenue is invested in research and (owing to the cumulative nature of modern science) such research expenditures have a reasonable expectation of yielding commercially valuable results which will directly shape the pattern or output (23).

Another argument intended to diminish the role of entrepreneurship is that in the less developed countries the function of innovation is likely to fall on government and is in fact frequently performed by the government. There is no reason, however, why the function of entrepreneurship should not be assumed by the government. In other words, the concept of entrepreneurship may be extended to cover innovational activities performed by the government as well as by the individual or the firm, in a private enterprise economy or in a mixed or socialistic economy.

So long as the late-comers are way behind the forerunners in innovations, we are not entirely in the dark as to the nature of the technological changes which they will undergo, even though the sequence of changes may be quite different from that in earlier developed countries. In other words, junks are likely to be replaced by steamers, carriages by power-driven automobiles or locomotives, crude implements by more complicated machinery, simple tools by machine tools, etc. It is true that the late-comer has the advantage of skipping certain intermediate steps, jumping from an eighteenth-century model to a twentieth-century model, from horse trails to jet planes. But amidst such skipplings it is easier to identify a new production function and to strengthen the link between innovation and capital accumulation. The historically based concept of innovation is therefore essentially applicable to the late-comers. It remains to be seen how the entrepreneur emerges.

The entrepreneur is sometimes viewed as a sort of genius, a genetic marvel. It is difficult to substantiate or refute such an idea. But even if we assume that the entrepreneur possesses unusual qualities as a person, it remains to be shown how his potentialities

(23) Schumpeter's reluctance to consider such more or less matter-of-fact innovations in the highly developed economies as entrepreneurial activity necessarily restrains the scope of entrepreneurship and innovation. Such innovations, owing to their cumulative nature, are hardly infinitesimal or insignificant and should therefore be admissible to his formal definition of innovation. His vision on the declining investment opportunities and the obsolescence of the entrepreneurial function and the consequent fate of capitalism might have had to be modified if he had allowed a wider range of evolution of entrepreneurship within his general construct.

are realized in fact. In the Chinese case, there does not seem to be a lack of entrepreneurial talent, since many emigrant entrepreneurs seem to have done well under adverse conditions (24).

Another explanation of the lack of entrepreneurs in China is that the necessary rationalization process (foreshadowed by the age of enlightenment in Europe) had not occurred. The behavior of entrepreneurs is said to have been inhibited by extra-economic considerations, such as nepotism rooted in the family system. Undoubtedly profit maximization is not the sole aim of businessmen. But are there not always sufficient numbers of businessmen who have the passion to make more and more profit? Assuming the activities of such businessmen were not prohibited or otherwise penalized, would they not accumulate more and more power until they overshadowed their less profit-minded fellow businessmen? (25).

A more plausible explanation is that there are peculiar difficulties for the entrepreneur in a less developed country like China, even assuming that there are latent entrepreneurial talents in the country and that they are reasonably rational. In the first place, purely from the profit point of view, the best investment may be to secure a bureaucratic position — and its attendant permissible squeezes and perquisites — quite apart from the fact that such a position may be highly valued from the status point of view. In a negative sense, any moderately successful entrepreneur may not feel safe from arbitrary exploitation by those in power; it may be necessary to play ball with them for self-preservation. As a result those activities which are easily susceptible to outside control, such as the running of industrial establishments, may be avoided or kept

(24) It is argued, however, that one of the reasons for the lack of entrepreneurs in China is that (owing to the open society perpetuated by the examination system) the best brains have been absorbed by the literati and the bureaucracy, or, more correctly, the opportunity cost of being an entrepreneur was too high. In contrast, the emigrants enjoyed little social mobility and consequently they concentrated their efforts on the pursuit of entrepreneurial activities.

(25) It is of interest to note that the Weber-Tawney thesis of the link between religion and the rise of capitalism puts emphasis on the value system rather than on the rationalization process. Weber's charismatic type, which may be a generalized entrepreneurial type, is by no means entirely rationalistic. Even Schumpeter's entrepreneur may be motivated by desire for power and joy of creating. It is doubtful whether the economic man by cool calculation would choose to be an entrepreneur. Cf. EDWARD A. CARLIN, "Schumpeter's Constructed Type — The Entrepreneur", *Kyklos*, 1956, Fasc. I, pp. 27-43; A. GERSCHENKRON, "Social Attitudes, Entrepreneurship and Economic Development", *Explorations in Entrepreneurial History*, 1953.

inconspicuous. The fact that so many of the Chinese industries were established in the foreign concessions (despite the fact that most of the men behind them tended to be highly nationalistic) was perhaps due to the necessity to be free from arbitrary government which knew no "rule of law".

From a purely economic point of view, it is also argued that a given innovation may often be unprofitable unless accompanied by others. This leads to consideration of the doctrine of balanced growth (see section 5). Before we leave the entrepreneurs, however, it may be useful to consider the role of the government as entrepreneur and bureaucratic entrepreneurship.

To demand that a government which is incapable of performing its classic function (maintenance of peace and justice) should perform entrepreneurial activities appears to be extravagant. Yet many key activities can be performed only by the government. When the government machinery is totally unprepared to assume these activities, economic growth is impeded. It will be noted that this is essentially a new problem for the less developed countries, since the pace of growth was much more leisurely in the pioneering countries with the result that the demand placed on the government could be met without too much straining of the existing machinery.

Sporadic achievements are of course attainable even under adverse conditions. But some of these achievements, such as may be attained under the system of bureaucratic enterprises, may stultify further development. Under that system the power of government office is exploited for private economic gain, but the economic activity incident to the office tends to be inefficiently performed since the basis for gaining office, frequently dependent on personal relations, balance of power of various cliques, or military might, is apt to be unbusinesslike and unstable. These difficulties, it may be noted, differ from those arising through the routinization and the lack of initiative and daring which occur in a modern bureaucracy accountable to the public.

##### 5. Problems of Balanced Growth

In the previous section the setting up of the production function by the entrepreneur was not specifically related to any micro- or macro-analysis. Usually the production function is that of a firm and is therefore micro-economic. It permits one to distinguish be-

tween the internal and external economies of the Marshallian type, the external economies being independent of the firm's production function or the effort of the entrepreneur, who benefits from them. Alternatively, the production function may be defined in the aggregate — including the whole country if necessary, in which case all economies may be considered as internal.

In certain types of analysis, as in international trade theory, for instance, it is convenient to use a production function referring to the whole country. But if one desires to focus attention on the external economies, it is necessary to perform at least a certain degree of disaggregation so that the interactions of various industries or sectors within the aggregative economy may be brought out.

The creation of external economies may result from innovation in a particular sector. For example, the opening up of railways in the western United States created external economies for the growing of wheat through the extension of the market in the manner suggested by Adam Smith. Again, the introduction of synthetic rubber cheapens the input of the tire industry. It is also conceivable that the external economies may be originated without innovation, as in the case of the provision of a labor supply following the agglomeration of population in urban centers.

The "doctrine of balanced growth" argues that a chief obstacle to growth in a less developed country is that the external economies are lacking (26). It is difficult for any one industry to develop when the rest are not developing. It is not sufficient for one or two entrepreneurs to go ahead; a cluster of entrepreneurs is required from the very beginning. There are abundant illustrations of this point from Chinese economic history. The cotton textile industry, for instance, relied to a large extent on imported cotton because the domestic product was either too short, too unstandardized or too difficult to transport. The automotive industry could not be set up because there were not sufficient roads, other engineering industries, or markets. An isolated development is uneconomical and cannot

(26) ALLYN YOUNG, "Increasing Returns and Economic Progress", *Economic Journal* (December 1928), pp. 527-542; P. N. ROSENSTEIN-RODAN, "Problems of Industrialization of Eastern and Southeastern Europe", *Economic Journal* (June-September 1943), pp. 202-211; R. NURKSE, *Problems of Capital Formation in Underdeveloped Countries* (Oxford, 1953); MARCUS FLEMING, "External Economies and Doctrine of Balanced Growth", *Economic Journal* (June 1955), pp. 241-256; ALBERT O. HIRSCHMAN, *The Strategy of Economic Development* (New Haven, 1958).

go very far; but if all sectors are developed simultaneously, the external economies originating from one will benefit the others and vice versa.

This doctrine may be interpreted as a critique of laissez-faire in development (27). A private entrepreneur is not interested in creating external economies for other entrepreneurs. There is then a tendency for the potential private gain to be less than the potential social gain. A logical answer would be to have a comprehensive plan of development so that the external economies would be, so to speak, internalized. However, this does not necessarily mean that the plan must operate under direct government management. A variety of methods might be used in pursuit of this doctrine. Thus the Japanese development, for instance, relied initially upon the government, which, however, soon turned the reins over to private enterprise (28).

There is general agreement that certain activities conducive to the creation of external economies are likely to be performed best by the government. There is the classic function of government in maintaining peace, order and justice. There is the institutional framework within which the economy must function, such as the system of weights and measures, the monetary and banking systems, and the organization of the market. Modern writers further emphasize the necessity of creating social and economic overhead capital, including educational, health and social security facilities, transportation and communication networks, and public utilities. These shade into the zone of basic and heavy industries. The non-development of these functions of government in China in the last hundred years is well known.

A more exact idea of balance may be gained by looking at the conditions of consistency demanded by the Leontief input-output model (i.e., the quantitative relations of various inputs and outputs). It is apparent that if one industry (e.g. steel) expands, its increased requirement of inputs (e.g. furnaces, coke, and power) must be

(27) T. SCITOVSKY, "Two Concepts of External Economies", *Journal of Political Economy* (April 1954), pp. 1943-1951; J. P. STROCKFISCH, "External Economies, Investment and Foresight", *ibid.* (August 1955), pp. 446-449; T. SCITOVSKY, "A Reply", *ibid.*, pp. 450-451; H. W. ARNDT, "External Economies in Economic Growth", *Economic Record* (November 1955), pp. 192-214.

(28) WILLIAM W. LOCKWOOD, *The Economic Development of Japan, Growth and Structural Change - 1868-1938* (New Jersey, 1954), pp. 14-15.

supplied by the increased outputs from many industries (including the original industry itself), and its increased output (e.g. steel) must be absorbed by the various industries (e.g. automobiles, canning, electrical and steel industries) (29).

In an open economy the operation of the doctrine of balanced growth works both ways. On the one hand, the severe requirements of the doctrine may be relaxed. For example, the extent of the market may go beyond the national boundaries, while domestic industries may be supplied by foreign markets. Thus many industries in Hong Kong today import machinery as well as most of their raw materials, and export most of their products. In that case the advantages of an open economy are utilized to the fullest extent. Even in an open economy, on the other hand, many factors do not in fact move across the border. An example of immobile factors is labor. The availability of inexhaustible supplies of labor would be a comparative advantage which would not be nullified by the fact of an open economy. This lack of mobility is also characteristic of certain other factors as well as labor, to a greater or less degree: in particular, political and institutional conditions can hardly be exported or imported. An open economy which is untempered by protective arrangements renders simultaneous domestic development of many industries extremely difficult; this is due to the high degree of selectivity dictated by the comparative advantage or disadvantage of domestic industries in competition with imports, if indeed the difficulty is not aggravated by monopolistic practices such as dumping.

The pursuit of a simultaneous development of many industries, following the above doctrine of balanced growth, may in itself create external diseconomies and imbalance in many ways (30). The spurt in demand for existing resources may cause shortage of supply and

(29) WASSILY LEONTIEF, *The Structure of American Economy, 1919-1939* (2nd ed., Oxford, 1951); WASSILY LEONTIEF et al., *Studies in the Structure of the American Economy* (Oxford, 1953).

(30) Cf. UNITED NATIONS, *World Economic Survey, 1955* (New York, 1956), especially the chapter on balanced growth, pp. 3-13. It may be noted that in the broadest sense any type of balance — balance between aggregate demand and aggregate supply, between investment and saving, between investment and consumption, between export-promoting and import-substituting industries, between agriculture and industry, between short maturity and long maturity projects, etc. — in the process of growth may be termed balanced growth. These are to be distinguished from the doctrine of balanced growth sketched above, although they should be discussed together in a general consideration of the problem of growth.

price advances detrimental to other users. The hazards of imbalance between the flow of expenditures and that of product, between the demand for imports called forth by the program and the capacity to export, etc., are familiar phenomena in inflation-biased economies undergoing a process of development.

One particular source of imbalance has been traced back to the demonstration effect: i.e., the high levels of living and consumption of the developed countries are being imitated in the less developed economies, while the skill and effort and large stocks of capital that make such high levels possible are largely lacking (31).

The demonstration effect was probably not a very serious problem in China among the population as a whole. However, in so far as the demonstration effect was operative among the small middle class who were in a unique position to save and accumulate capital, it might have played a strategic role in the course of development of the whole economy. In a country where the primary consideration is want creation, the demonstration effect may be a useful initial stimulus; and in any case from a dynamic point of view the demonstration effect, despite the imbalance created by it, may be far more conducive to future growth than the stagnation under traditional equilibrium.

The above consideration may be extended to the question of balance between social and economic development. The classicists have insisted that certain social conditions are prerequisites for economic development, and some sociologists have deplored the "cultural lag" — the lag of cultural advance behind technological progress — in certain highly developed areas like Japan. The theory of the demonstration effect suggests that the cultural lag may be inverted (in the sense that social advancement precedes technological progress) (32). There is, of course, no precise standard in terms of which the relative rates of social and economic development (cultural and technological advancement) may be compared, and there is no necessity to recreate all the social ills which were attendant upon the industrial revolution of the early period; factory legislation and

(31) JAMES S. DUESENBERRY, *Income, Saving and the Theory of Consumer Behavior* (Cambridge, Mass., 1949); NURKSE, *Problems of Capital Formation*.

(32) For some international comparisons of social development and economic development see UNITED NATIONS, *Preliminary Report on the World Social Situation*, 1952, pp. 129-135; N. T. WANG, "Some Problems of International Comparison of Public Social Expenditures", *Indian Economic Review* (February 1955), pp. 23-52.

old-age pensions may be introduced before there are any factories to speak of and before the increase of life expectancy changes the shape of the population pyramid. It is always debatable on welfare grounds how far we should go in a particular direction. When the strains and stresses of the impact of modern technology and modes of living on the whole social fabric are taken into consideration, as for example in the schemes of evolution and crises of the entire socio-economic system of Marx and Schumpeter, and in the social revolutions evident in certain countries today which Marx and Schumpeter did not live to see, the economist by himself is likely to find his tool box inadequate.

## 6. The Take-off

The doctrine of balanced growth is capable of misinterpretation if it is not considered together with the theory of the take-off (or breakthrough), which emphasizes the breakthrough rather than balance, the strategic role of certain leading industries rather than simultaneous development of industries in the growth process (33). The question of what should be developed first or what sectors should receive priority in an initial development in a given setting should not be answered with a platitude that all sectors are of equal importance and therefore should be developed simultaneously. Such advice is in fact worse than useless, it is even dangerous, because if it is followed, the resources may be so thinly spread among various projects that it will be impossible to achieve anything substantial.

Furthermore the notion of growth may also be misleading if it is taken to imply a smooth continuous process. Robertson's notion that progress takes the form of discontinuous spurts is especially relevant to a less developed country which is attempting to achieve a major transformation by inculcating different ways of doing things. If the initial condition of the country is in fact an approximation to the stationary state, or to the conditions of circular flow or of a vicious circle, the process must be one of breaking out of the rut. In a sense, the initial start always upsets some balance.

The concept of a take-off implies further that once a successful break from the past is achieved, the process becomes more or less

(33) W. W. ROSROW, *The Process of Economic Growth* (New York, 1952); *idem*, "The Take-off into Self-Sustained Growth", *Economic Journal* (March 1956), pp. 25-48.

cumulative (34). Professor Rostow feels it possible to identify the period of take-off historically; according to his judgment, China did not achieve a take-off during the last hundred years, which is not surprising. Of particular interest is the close link between the take-off and the development of certain leading industries. Such industries may be the textile industries, the railways, or the heavy industries. The essential requirement is that some concentrated effort be made in certain particular sectors rather than spread among all sectors. The issue, for example, whether agriculture or industry should receive priority is thus not always a false issue, contrary to what Lewis has told us, but may be a realistic one, even though a definitive answer may not always be possible and insufficient growth in agriculture may be a drag on industry, and vice versa (35).

In an open economy the theory of comparative advantage would suggest an international division of labor such that a given country will specialize in certain activities better suited to it in the relative sense. It may be remembered that by this theory, even if a country is so underdeveloped as to be inferior in all products, it is still possible for it to specialize in the products in which it is relatively less inferior. On the basis of this theory, a less developed country devoid of protective measures has frequently been viewed as facing difficulties in its development (36). In the first place, the familiar argument for protecting infant industries points out that the cost of production in such industries is likely to be high at first but will gradually decrease. To those well versed in the Marshallian analysis, the use of a declining marginal cost curve may help to bring the point out; but it must be remembered that such a cost curve in the

(34) It is largely a matter of taste whether such cumulative growth is termed a moving equilibrium or disequilibrium, balanced growth or imbalanced. Those who emphasize the process of imbalance point out that the secret of growth is that some activity is always out of line with the rest, thus providing a constant motivation for the rest to catch up. An illustration is a perpetual shortage of goods under controlled or suppressed inflation. Those who stress the necessity of balance point out that an imbalance always calls for some kind of balancing process. Thus an excess demand under inflationary conditions may be brought into balance by price changes, by non-availability of goods or by pressure on the balance of payments. When the balancing process is over-burdened, the whole system may break down. For instance, when the balance of payments is so strained that adjustments in the exchange rates, trade controls, short-term credits and the like are insufficient to correct the situation, a balance is then achieved by simple default.

(35) See W. A. LEWIS, *The Theory of Economic Growth* (1955), pp. 276-283.

(36) Cf. JACOB VINER, *International Trade and Economic Development* (1952), pp. 50-73,

infant industry case is historically irreversible and therefore is quite different from one on which the producer may choose to slide back and forth. It may be better described as a "learning curve", depicting the tendency of cost to decline as the know-how is gradually being mastered. Such a tendency has been empirically demonstrated in many new endeavors (37). The concept of a learning curve has an added advantage when applied to the less developed countries because it focuses attention on the process of learning, which in a majority of cases can only be acquired through doing. This applies, for example, to engineering as well as to management.

A related argument against specialization is that the kind of specialization which is likely to be indulged in will be the wrong one under conditions of unfettered competition. What a densely agricultural economy should specialize in is industry rather than agriculture if the operation of the law of diminishing returns is to be avoided or mitigated.

Still another related argument against specialization applies particularly to the kind of specialization that demands only simple and routine operations, such as hand-picking of cotton, cocoa or coffee, which requires little training and ingenuity and therefore is not conducive to development. Here is a case where specialization may provide a relatively high income and yet growth may be impeded owing to backward conditions or lack of investment in skills, or lack of educational and institutional development (38).

The infant industry argument seems to apply to the Chinese case with full force because China failed to obtain tariff autonomy or exercise other restraints to trade until the very end of her modern century of foreign contact. The obstacles to export expansion, on the other hand, can hardly be explained by the same argument.

(37) The learning curve expresses the relation between (marginal) cost and output in the process of mastering the techniques of production. It differs from the ordinary (marginal) cost curve in that the former relates to points on different production functions while the latter is usually assumed to be derived from the same production function. Well-known illustrations of cost reduction over time by better production methods may be found in the automobile industry. See also empirical learning or progress functions in WERNER Z. HIRSCH, "Manufacturing Progress Functions", *The Review of Economics and Statistics* (May 1952), pp. 143-155; A. ALGHIAN, "An Airframe Production Function", *Project Rand Paper*, p. 108, 1949; and A. D. SEARLE and C. S. GODY, "Productivity Increases in Selected Wartime Shipbuilding Programs", *Monthly Labor Review*, Vol. 61, No. 6 (1945).

(38) H. MYINT, "An Interpretation of Economic Backwardness", *Oxford Economic Papers* (June 1951), pp. 132-163.

The explanations for this must be rather sought in low levels of standardization, purification, and packaging, and in irregularities of supply (39). Consequently the problem in China was never one of over-specialization and a flooding of the export market (except occasionally, due to errors of competition) but rather the supplanting of Chinese products by substitutes, such as Indian tea and Japanese silk, which were better suited to the foreign market. The root of China's trouble was therefore not lopsided development, as was sometimes the case with mono-cultural export economies under colonial exploitation, but underdevelopment, not only in the domestic and import sectors of the economy but also in the supposedly specialized export sector.

The critics of specialization usually ignore the importance of import requirements in a developing country. The apparent success of the Soviet case, where development has been achieved with a minimum of imports, hides the fact that the Russian industrial economy was already at a relatively high level on the eve of the Bolshevik revolution. For a country like China during the last hundred years to aim at self-sufficiency in capital equipment could have only led to its extreme scarcity. The limited foreign exchange resources of China, of course, were not utilized with a view to facilitating development. The large amounts of food imports, to say nothing of opium imports in the early days, in a country which produced very little else but food were a symbol of poor utilization of resources and hardly contributed to economic development. The constant drain of foreign exchange resources through payments of indemnities, high interest paid on loans, flight of capital, and remittance of foreign profits abroad, all tended to aggravate the difficulties.

Consideration of the structure of the import trade leads us to consideration of the claim of agriculture in development. It is well known that in the last hundred years in China agricultural development was almost completely neglected by both the government and private enterprise, except in a few cases related to the export industry or to the supply of raw materials required by domestic industry. It is true that mechanization of agriculture was probably not feasible in most parts of China. But improvement of seeds, insect control

(39) For illustrations see G. C. ALLEN and A. DONNITHORNE, *Western Enterprise in Far Eastern Economic Development - China and Japan* (London, 1954).

and better irrigation could have been introduced with practically no disturbance to the settlement pattern; even the use of chemical fertilizers should have meant a considerable saving in foreign exchange, when compared with the cost of food imports. It is therefore not convincing to contend that Chinese agriculture was necessarily faced with diminishing returns even with the use of improved technology. The argument that the rate of development in agriculture must be kept relatively low, owing to the operation of Engel's Law (that as per capita income increases the proportion of the income spent on food decreases), is probably not applicable to China, at least in the first stages of an attempted take-off, when the agricultural deficit should be turned into an agricultural surplus with which industrial expansion may be financed (40).

The problem of food shortage is partly a problem of transportation. Movement of food from surplus to deficit areas is difficult and costly without adequate means of transportation. Transportation has, of course, a wider role. It has long been regarded by Marshall, for example, as a key factor in development. It widens the market and at the same time it stimulates many ancillary industries. It cannot be said that this sector, particularly the railways, was neglected (at least since the turn of the century) by the Chinese government, which developed transportation for military reasons if for no other. The economic benefits were, however, limited by competing waterways and by such factors as frequent military commandeering of railroad rolling stock, incessant destruction, lack of integration among regions under various spheres of influence and tie-in agreements in the foreign concessions.

The role of new housing construction in the process of take-off is of particular interest for two reasons. First, owing to a statistical convention, housing is lumped by economists with capital formation. Yet its capacity to create future output is probably much more limited than that of other forms of capital equipment, even though (formally speaking) rents of an owner-occupied luxury house can also be imputed and counted as part of current output. Secondly, the Soviet program seems to have deliberately assigned a low priority to hous-

(40) The question whether the farmers should be "exploited" in order to finance industries is a separate issue. When, however, agricultural productivity is at a very low level, any exploitation of the farmers must be limited by a starvation level of living.

ing, thereby enabling concentration of capital formation in other industries and hastening the process of industrialization.

These problems of transport development and housing investments are related to the renewed interest in the disaggregation of capital (in the different components of capital such as inventories and fixed capital equipment), in particular in the strategic role of basic industries and machines to produce machines. It is argued that, granted that more houses and more consumption goods are desired, a much larger flow of production in the future can be obtained by improving the machines that make bricks, cement and consumers' goods, and an even larger flow by making machines that make machines instead of producing consumer goods now. This line of approach is almost the inverse of the process followed by the pioneers of development. Yet, if society can be made to sacrifice the present for the future, its rate of growth — at least after a period — can be expected to be faster than might be the case otherwise. The line of approach is possible only with some kind of programming, particularly long-term programming in which the basic industries create their own demand at successive phases of the program. Such a program was, of course, absent in China during the period under consideration. (A combination of approaches is suggested by the Indian experience, in which the emphasis in the First Five-Year Plan was largely on agriculture, while in the Second it is on heavy industries and the Gandhian type of small-scale industry. Thus the mean is struck by a bipolar approach. The Indian plan suggests that the emphasis on the heavy industries is feasible in a mixed economy. The emphasis on the Gandhian type of small-scale industry is mainly motivated by employment considerations similar to those present in China).

## 7. Conclusion

The foregoing rapid survey merely touches on some important issues in the economics of growth and stagnation. It has not presented the views of different authors systematically because most of their views are necessarily fragmentary, and divergent views often result from the different techniques used and different points emphasized rather than from any fundamental divergence in substance. True, the prognoses of the optimists and the pessimists diverge as

regards the ability of less developed countries to manage a take-off or as regards the prospects of continued growth of developed countries. Yet the divergence can either be found in the built-in bias of the model used (such as the assumption of the acceleration principle to the neglect of autonomous investment) or in the parameters assumed to be constant (such as a fixed consumption function or a stable capital output ratio). The more powerful tools of analysis at the command of modern theorists enable us to arrive at a more general and more neutral theory in the sense that the outcome depends on a variety of circumstances, on the initial conditions, on the values of the parameters, on the exogenous shocks, etc., so that under plausible assumptions, a wide range of possibilities may be implicit within a single theoretical framework.

The search for more and more generality has, however, important drawbacks. The quasi-mathematical requirements of necessary and sufficient conditions for growth may be quite misleading; for growth may be possible if a sufficiently potent stimulus (such as oil and foreign investment in the Middle East when practically all other "necessary" conditions are lacking) is introduced into the system. The list of factors favorable or unfavorable to growth in a given setting may be the reverse in another setting. Certainly a declining rate of population growth can have quite opposite effects, depending upon the given circumstances. Professor Rostow's crystallization of determinants of growth into a set of psychological propensities and his inclination to consider these as independent variables does not help us very much in tracing the line of causation, or in analyzing the nature of interrelationships among these variables.

The pitfalls in the formulation of a general theory may be avoided by checking with historical generalizations. As more cases are drawn to our attention, we find on the one hand that the so-called general theory may have been built on a too narrow empirical base or on the other hand that the logical possibilities implicit in it are perhaps not all relevant. It is by the process of give and take between theory and history — as Schumpeter put it — that our understanding of growth and stagnation may be enhanced, in the case of China as elsewhere.

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