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Unstable Growth:  
Schumpeter.

With the work of Joseph Schumpeter we move into the twentieth century. The basic ideas of his theory of economic growth were presented in his *Theory of Economic Development*, first published in German in 1911. He continued to elaborate his analysis of capitalist development throughout his brilliant career.<sup>1</sup> The most complete statement of it, however, was contained in his *Business Cycles*, published in 1939. It is on this version that we shall draw most heavily in presenting the skeleton of his system.

Apart from his genius and prodigious capacity for work, Schumpeter had a breadth of experience which was unusual for economists of his generation, and which gives particular interest to his pronouncements on the factors involved in economic development. Here is a man who in the course of his career was Finance Minister of a Socialist government in Austria, professor of economics in Bonn and Tokyo, and from 1927 until his untimely death in 1950, professor of economics at Harvard University. Thus Schumpeter studied the economic scene closely over a period of four decades, during which he lived in four countries and three continents.

<sup>1</sup> Richard V. Clemence and Francis S. Doody, *The Schumpeterian System* (Cambridge, Mass., 1950), p. 1. "The Schumpeterian System occupies a remarkable place in the history of economic thought. Almost from the beginning of his work on the theories of interest and of business cycles Professor Schumpeter saw a vision of a distinctly capitalist process taking place in historic time. His youthful vision, first reduced to a comprehensive model in 1911, has since been elaborated and refined, but it has been altered in no essential respect to the present day. Such extraordinary consistency is almost unique in our science, and it is by no means a proof of virtue. What it rather suggests is that tests be made of the hypothesis that the model withstands critical attack. That is what we propose to do in this book."

Few economists of his generation had so wholehearted an admiration for the capitalist system as Schumpeter. He was not one of those who believed that the capitalist machine produces high rates of economic growth which offset the attendant social evils; Schumpeter heartily enjoyed and endorsed the society and civilization produced by "pure" capitalism as well. He preferred the relatively uninhibited and undemocratic capitalism, accompanied by a high level of cultural attainment, which prevailed in Europe before World War I, to the modified capitalism that has developed since. Even the semifeudal capitalism of prewar Japan struck a responsive chord in Schumpeter.

What his real political position was few people really knew. A few years before his death, in a speech to an organization of French Canadian employers in Montreal, he said bluntly that the way to stem the tide of socialism was to organize the corporative state under the guidance of the Roman Catholic Church.<sup>2</sup> It would be quite wrong to conclude from these random remarks that he had fascist leanings. At the same time, no one can doubt that he considered the existence of a sharply defined class structure a small price to pay for the continued economic and social progress which he believed unbridled capitalism brings.

We are not concerned here with the personal or political views of this

<sup>2</sup> "L'Avenir du Capitalisme," in *Comment Sauvegarder l'Entreprise Privée* (Montreal, 1946).

In his address to the American Economic Association in 1949, Schumpeter made the following statement: "Familiar facts of our own trade-union practice suggest that a development toward some form of guild socialism is not entirely off the cards. And other familiar facts suggest that observable tendencies or some of them may be compatible with forms of social reorganization that are not socialist at all, at least not in the sense which has been adopted for this paper. For instance, a reorganization of society on the lines of the encyclical *Quadragesimo anno*, though presumably possible only in Catholic societies or in societies where the position of the Catholic Church is sufficiently strong, no doubt provides an alternative to socialism that would avoid the 'omnipotent State.'"

In the same address he said: "It would spell complete misunderstanding of my argument if you thought that I 'disapprove' or wish to criticize any of these [New Deal] policies. Nor am I one of those who label all or some of them 'socialist.' Some have been espoused, even in the eighteenth century, by conservative or even autocratic rulers; others have been on the programs of conservative parties and have been carried by them long before New Deal days. All I wish to emphasize is the fact that we have traveled far indeed from the principles of laissez-faire capitalism and the further fact that it is possible so to develop and regulate capitalistic institutions as to condition the working of private enterprise in a manner that differs but little from genuinely socialist planning. . . . Having discovered this possibility of a *laborist capitalism* they go on to conclude that *this* capitalism may survive indefinitely, at least under certain favorable conditions. This may be so but it does not amount to a denial of my thesis. Capitalism does not merely mean that the housewife may influence production by her choice between peas and beans; nor that the youngster may choose whether he wants to work in a factory or on a farm; nor that plant managers have some voice in deciding what and how to produce it. It means a scheme of values, an attitude toward life, a civilization—the civilization of inequality and of the family fortune. This civilization is rapidly passing away, however. Let us rejoice or else lament the fact as much as everyone of us likes; but do not let us shut our eyes to it." Joseph Schumpeter, "The March into Socialism," *American Economic Review Papers and Proceedings*, XL (1950), pp. 447, 449–50.

brilliant, vigorous, charming, fascinating, and enigmatic personality. As with the economists already discussed, we are concerned only with his analytical framework and its usefulness for attacking the growth problems of underdeveloped and advanced countries today. These comments on Schumpeter's tastes and views are made for but one reason: Schumpeter's intellectual debt to Marx was greater than his debt to any other figure in the history of economic thought, and it is important to understand that a man may levy upon the Marxist system and still hate communism. Schumpeter's dislike of collectivism extended to a profound distaste even for capitalism in harness or the welfare state.

Much as he admired the capitalist system, however, Schumpeter shared the gloomy prognosis of the Classical school and of Marx. He believed that capitalism will eventually stagnate and break down. This prospect was for him saddening indeed, especially since, in his view, the breakdown would come only from the lack of appreciation of what capitalism can do and the conditions which it needs in order to prosper. According to Schumpeter, not the failures of capitalism, but its very success, would lead eventually to the slaughter of the goose that lays the golden eggs. But we anticipate; let us review his system in the same manner as we have reviewed the Classical and Marxist systems, and see how he reaches this pessimistic conclusion.<sup>3</sup>

#### Proposition 1: The Production Function

Schumpeter had the same general concept of the production function as did Marx and the Classical school. We can therefore use the same Equation (1) once again:

$$O = f(L, K, Q, T) \quad (1)$$

#### Proposition 2: Savings Depend on Wages, Profits and the Interest Rate

Schumpeter defines saving as "saving up" for future consumption or for investment. With this definition, workers as well as capitalists are able to save, and both will save more as their incomes rise. However, Schumpeter retained in his system the neo-classical proposition that savings tend to increase with the interest rate. The *proportion* of a given wage or profit income that will be saved will increase as the interest rate goes up. Thus we may write for our second equation

$$S = S(W, R, r) \quad (2)$$

<sup>3</sup> Although Schumpeter's prognosis was certainly pessimistic for someone admiring capitalism and disliking socialism as much as Schumpeter did, he vehemently denied that his attitude was "defeatist." "The report that a given ship is sinking is not defeatist," he insisted. "Only the spirit in which this report is received can be defeatist: the crew can sit down and drink. But it can also rush to the pumps. . . . What normal man will refuse to defend his life merely because he is quite convinced that sooner or later he will have to die anyway." *Capitalism, Socialism, and Democracy* (3d ed.; New York, 1950), p. xi. Similarly, he wrote, "If a doctor predicts that his patient will die presently, this does not mean that he desires it. One may hate socialism or at least look upon it with cool criticism and yet foresee its advent. Many conservatives did and do" (*ibid.*, p. 61).

#### Proposition 3: Total Investment May Be Subdivided into Induced Investment and Autonomous Investment

One of Schumpeter's important contributions was a distinction between two kinds of investment: investment which is stimulated by recent increases in output, income, sales, or profits which we shall call "induced investment,"  $I_i$ ; and investment which is brought forth by such long-run considerations as technological change, which we shall call "autonomous investment,"  $I_A$ . So far as our third equation is concerned, then, we have an identity,

$$I = I_i + I_A \quad (3)$$

#### Proposition 4: Induced Investment Depends on the Level of Profits and the Interest Rate

The factors determining induced investment might be expressed in various ways, but Schumpeter laid particular stress on the relationship between profits,  $R$ , and the interest rate,  $r$ . In this respect, too, he followed the neoclassical tradition. Induced investment tends to rise as current profits rise and to fall as the interest rate goes up; the gap between profits and the interest rate is of primary importance in determining induced investment. However, the more capital has already been accumulated, the bigger must be the excess of profits over interest to induce more investment. We may therefore write

$$I_i = I(R, r, Q) \quad (4)$$

$$\frac{\partial I_i}{\partial R} > 0 \quad \frac{\partial I_i}{\partial r} < 0 \quad \frac{\partial I_i}{\partial Q} < 0$$

#### Proposition 5: Autonomous Investment Depends on Resource Discovery and Technological Progress

In his insistence that the most important part of private investment is determined by long-run factors, not directly related to recent changes in income, output, sales, and profits, Schumpeter made his major contribution to the theory of investment. He laid particular stress on what he called "innovation" as the mainspring of autonomous investment. What he meant by "innovation," however, might be regarded either as technological progress or resource discovery (or both), defining these terms broadly. He thought of innovation in general as any change in the production function which would bring an increase in output. "Any doing things differently," he said, which increases the productivity of the bundle of factors of production available (including resources given in the economy but not yet discovered) is an innovation. He listed five major forms of innovation:<sup>4</sup>

Development in our sense is then defined by the carrying out of new combinations.

This concept covers the following five cases: (1) the introduction of a new good—that is, one with which consumers are not yet familiar—or of a new

<sup>4</sup> Schumpeter, *The Theory of Economic Development*, p. 66.

quality of a good. (2) The introduction of a new method of production, that is, one not yet tested by experience in the branch of manufacture concerned, which need by no means be founded upon a discovery scientifically new, and can also exist in a new way of handling a commodity commercially. (3) The opening of a new market, that is, a market into which the particular branch of manufacture of the country in question has not previously entered, whether or not this market has existed before. (4) The conquest of a new source of supply of raw materials, or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be created. (5) The carrying out of the new organization of any industry, like the creation of a monopoly position (for example through trustification) or the breaking up of a monopoly position.

We shall use the term  $K$  to mean the rate of resource discovery through time,  $dK/dt$ , and  $T$  to mean the rate of technological progress through time,  $dT/dt$ . We then have the following relationship:<sup>5</sup>

$$I_A = I_a(K, T) \quad (5)$$

Readers already familiar with the Keynes-Hansen theory of development, in which population growth plays a prominent role as a stimulant to autonomous investment, may wonder why population growth is not included in Equation (5) of our model of the Schumpeter system. It seems more faithful to Schumpeter's own views on the subject to omit population growth. Schumpeter did not deny that population growth, under some circumstances, may bring forth long-run investment, or that a tapering-off of population growth might result in a drop in investment if not offset by other factors.<sup>6</sup> But he clearly did not attach much weight to population growth as an economic force; he chose to regard it as an "external factor" rather than as an integral part of his system.<sup>7</sup> He readily

<sup>5</sup> Autonomous investment, as well as induced investment, may be retarded by capital accumulation, although the relationship is presumably somewhat less powerful. Also, even autonomous investment may depend somewhat on the level of output. Thus we could write, instead of Equation (5),

$$I_A = \lambda(O) + \phi(K, T) - \psi(Q)$$

But since in the long run  $O$  and  $Q$  move closely together and have opposite effects on investment, we can safely drop the first and third terms.

<sup>6</sup> See especially his *Business Cycles*, pp. 1035-1036.

<sup>7</sup> Two quotations will serve to illustrate his attitude toward the population growth factor: "Changes in numbers and age distributions due to other causes than migration sometimes are in fact external factors or consequences of external factors, such as wars. Sometimes they are not, as we may see from the cyclical component in marriage rates. But as it is impossible to accept a minimum-of-existence theory of wages—which it would be necessary to do in order to make the relation between the rate of change of population and economic situations stringent—and as nativity and mortality display substantive independence of economic fluctuations—however much their historic changes have to do with the ulterior cultural effects of the working of the capitalist machine—it has seemed best to class them with external factors. . . ."

"Our reason for listing variations in population among external factors was that there is no unique relation between them and variations in the flow of commodities. Hence, it seemed convenient for our purpose, although it would be inadequate for others to look upon an increase in population as an environmental change condition

admitted that population growth, like saving, can lead to *growth* of the economy, but he made a distinction between growth and development. True *development* requires qualitative change:<sup>8</sup>

By "development," therefore, we shall understand only such changes in economic life as are not forced upon it from without but arise by its own initiative from within. . . . Nor will the mere growth of the economy, as shown by the growth of population and wealth, be designated here as a process of development. For it calls forth no qualitatively new phenomena, but only processes of adaptation of the same kind as the changes in the natural data. Since we wish to direct our attention to other phenomena, we shall regard such increases as changes in data.

Propositions 6 and 7: Technological Progress and the Rate of Resource Discovery (Innovations) Depend on the Supply of Entrepreneurs

The stress on the leading role of the entrepreneur in economic development under capitalism is the main feature of the Schumpeter system. As we saw in the previous chapter, Marx also considered the entrepreneurial function important, but he did not isolate it for special emphasis in the same degree as Schumpeter did.

The entrepreneur is the man who sees the opportunity for introducing a new technique or a new commodity, an improved organization, or for the development of newly discovered resources. He raises the money to launch a new enterprise, assembles the factors of production, chooses top managers, and sets the organization going. He need not be a "capitalist"—he may not provide any funds of his own. He may not be a day-to-day manager. Nor is he usually an inventor or explorer. Inventions or discoveries by themselves have little economic effect, Schumpeter argues. He instances the Montgolfier balloon, which caused considerable wonderment when invented, but had little effect on economic life. The Patent Registry is filled with files of patent applications for inventions that never see the light of day. For inventions or resource discoveries to be significant, someone with the special talent for seeing their economic potential and bringing them into use must come along. That man is the entrepreneur.

We may therefore write, using  $E$  to mean the rate of increase in the

nomina which presuppose either a certain density or a certain rate of increase in population except a fall in real income per head. Finally, it occurs so continuously as to be capable of current absorption. Short-time variations in marriage rates are obviously the reflex of business fluctuations and do not cause them." (*Business Cycles*, pp. 10, 74.)

<sup>8</sup> Schumpeter, *The Theory of Economic Development*, p. 63.

Clemence and Doody paraphrase Schumpeter on this point as follows: "Growth is defined as changes in population, and in total savings and accumulations of households and firms respectively, corrected for variations in the purchasing power of the monetary unit. Growth has so far been excluded from the system on the ground that changes in population and in saving can be currently absorbed without giving rise to cyclical fluctuations. Cycles can be understood without Growth, but not vice versa, and the quantitative importance of Growth, especially of saving, is due to the process of capitalist development. Such saving, of course, may be used to finance innovation,

supply of entrepreneurs,  $dE/dt$ , and  $K(dk/dt)$  for the rate of resource discovery,

$$T = T(E) \text{ and } K = K(E) \quad (6 \text{ and } 7)$$

Admittedly, the supply of entrepreneurship is not an easy thing to measure; but in Schumpeter's system the supply of entrepreneurship is the ultimate determining factor of the rate of economic growth, so we must give it a place of honor in our system of equations.

Proposition 8: The Supply of Entrepreneurs Depends on the Rate of Profits and the Social Climate

Like Marx, Schumpeter lays considerable stress on sociological factors, and some of these are not easily reduced to simple mathematical expressions. This stricture applies to Schumpeter's concept of the "social climate," a complex phenomenon reflecting the whole social, political, and socio-psychological atmosphere within which entrepreneurs must operate. It would include the social values of a particular country at a particular time, the class structure, the educational system, and the like. It would certainly include the attitude of society toward business success, and the nature and extent of the prestige and other social rewards, apart from profits, which accompany business success in the society. A particularly important factor in "climate" is the entrepreneur's understanding of the "rules of the game," the conditions under which he must operate. Sudden changes in the rules of the game are particularly deleterious to an increasing flow of enterprise.

With apologies for its inadequacy, we shall use the symbol  $\chi$  to stand for the whole matter of "climate." We then have, as the determinant of a society's entrepreneurial resources,

$$E = E(R, \chi) \quad (8)$$

Proposition 9: Gross National Product Depends on the Relationship between Savings and Investment and the Supermultiplier

These words are probably not those which Schumpeter would have chosen to state this proposition; but they express the fundamental relationship which was recognized by Schumpeter, as well as by Marx before him and by most of Schumpeter's contemporaries and juniors. An excess of investment over voluntary savings, financed by credit creation, will raise gross national product (in money terms) by an amount which will be some multiple of the original gap between investment and saving. Conversely, an excess of voluntary savings over investment will reduce gross national product, in value terms, by some multiple of the original gap. We can therefore write<sup>9</sup>

$$\Delta O = k(I - S) \quad (9)$$

<sup>9</sup> It is useful to differentiate this particular equation with respect to time. We can then write

$$\frac{dO}{dt} = K \left( \frac{dI}{dt} - \frac{dS}{dt} \right)$$

That is, the rate of change in gross national product through time will be some multiple of the gap between the rate of growth in investment and the rate of growth in voluntary savings.

Proposition 10: The Wages Bill Depends on the Level of Investment

Schumpeter carried over into his system the proposition, common both to the Classical school and to Marx, that wage incomes tend to increase with investment, and vice versa. We may therefore write once more,

$$W = W(I) \quad (10)$$

Proposition 11: The "Social Climate" Is Reflected by the Distribution of Income

In order to close the system, we have to stretch a bit. We have already noted that Schumpeter's concept of "climate" is a very complex and subtle affair. However, it is clear from some of his later writings that he considered income distribution to be a good "thermometer" of the general climate. Any development tending to squeeze profits, such as growing strength of trade unions, progressive income taxes, social welfare programs, or any other government intervention designed to limit profits or to redistribute income, is tantamount to deterioration of the climate. Thus Schumpeter explained the depth and duration of the Great Depression of the 1930's in terms of the labor legislation, social security, public works spending, progressive tax structure, public utilities regulation, and other "New Deal" policies introduced in the middle and late 1930's. These constituted a change in the "rules of the game" so drastic as to discourage enterprise and thus retard investment. All these forms of government intervention have a direct short-run impact on the relationship between wages and profits (after taxes). The ratio of profits to wages is a mere shorthand expression for all the factors influencing "climate," but it is a convenient shorthand, so we will write

$$\chi = \chi(R/W) \quad (11)$$

Proposition 12: An Identity: Gross National Product Equals Profits Plus Wages

To close the system we can resort once more to the now familiar identity and write

$$O = R + W \quad (12)$$

We now have twelve equations and twelve unknowns and can turn to an analysis of the operation of this system as Schumpeter viewed it.

### Scope of the System

The Schumpeter analysis may be regarded as wide or narrow in scope, depending on what one expects from a theory of economic development. Schumpeter himself had this to say of his theory:<sup>10</sup>

Economic development is so far simply the object of economic history, which in turn is merely a part of universal history, only separated from the rest for purposes of exposition. Because of this fundamental dependence of the economic aspect of things on everything else, it is not possible to explain *economic* change by previous *economic* conditions alone. For the economic state

<sup>10</sup> Schumpeter, *The Theory of Economic Development*, p. 58.

of a people does not emerge simply from the preceding economic conditions, but only from the preceding total situation.

This statement certainly makes Schumpeter's aim sound ambitious enough. On the other hand, as Clemence and Doody point out in their appraisal:<sup>11</sup>

In comparison with the systems of such scholars as Toynbee and Spengler, the Schumpeterian System has very modest dimensions. No effort is made to achieve a synthesis of world history or even of the history of Western civilization. On the contrary, the whole analysis is concerned with the economic aspects of capitalist society, and most of the resources of modern economics are brought to bear on the comparatively narrow problem of the economic process of the capitalist era. Not only economics, but other social sciences as well are drawn upon heavily in the attempt to develop a model of this process. The important question, however, is not what resources are utilized but what results are achieved, and the present study is part of an effort to find out.

In general, the scope of Schumpeter's system is about as broad as that of the Classical school, and a bit less broad than that of Marx. Schumpeter does not try to provide a systematic explanation of changes in non-economic data; but in explaining changes in economic data he draws on a wide range of sociological, psychological, political, and technological factors.

### Operation of the System

Schumpeter starts his analysis with an economy in stationary equilibrium, characterized by a "circular flow" which forever repeats itself. This stationary equilibrium is described by Clemence and Doody as follows:<sup>12</sup>

The Pure Model has as its basis an economic system in general equilibrium. All economic activity in the model is essentially repetitive, following the course of familiar routine, and the model may thus be regarded as a circular flow of economic life. Every firm in the system is in perfect competitive equilibrium, with its costs, consisting of wages and rents, exactly equal to its receipts. Prices everywhere are equated to average costs; profits are zero; profit opportunities are nonexistent; interest rates are zero; and there is no involuntary unemployment of resources. Every household, like every firm, is in full long-run equilibrium, with receipts equal to expenditures, and with a budgetary pattern that cannot, under the existing circumstances, be advantageously altered.

The essence of development is a *discontinuous* disturbance of this circular flow:<sup>13</sup>

Development in our sense is a distinct phenomenon, entirely foreign to what may be observed in the circular flow or in the tendency towards equilibrium. It is spontaneous and discontinuous change in the channels of the flow, disturbance of equilibrium, which forever alters and displaces the equilibrium state previously existing. Our theory of development is nothing but a treatment of this phenomenon and the processes incident to it.

The discontinuous disturbance comes in the form of an innovation. The innovation entails the construction of new plant and equipment. It may do so in any of three different ways. First, it may hasten the replacement of existing plant and equipment by rendering it obsolete. Second, it may create an expectation of high monopoly profits for the first firm in the new field and thus raise the "marginal efficiency" (expected yield, after allowance for risk) of capital in general, leading to an increase in total net investment. Third, it may produce a new product that seems so attractive that people are willing to cut into their savings to have it, thus raising the propensity to consume and making additional plant and equipment profitable and necessary. Schumpeter himself stresses the second of these types of expansionary process. He also argues "as if" the construction of new plant and equipment was undertaken by New Firms, and points out that historically there is no lack of realism in such an argument; most of the major innovations—such as the railways and steamships of the nineteenth century, and the automobiles, chemicals, and electric power of the twentieth—have in fact been developed mainly by new firms.

Schumpeter also argues that the development of the new firms is usually associated with the rise to business leadership of New Men, and here too he points to history to substantiate his argument. This part of Schumpeter's theory is very important, if it is true, for it means that unless business leadership is forthcoming to build up new firms for the exploitation of innovations, capitalist economies may suffer more or less chronic depression. As we have seen, enterprise of the sort basic to economic expansion, according to Schumpeter, is something different from the genius of the inventor, or the efficiency of the executive of a going concern, or the willingness to risk one's own capital in new enterprises. It consists mainly of seeing and seizing the opportunity for development of a New Firm; historically, it has been this kind of special skill that has been most handsomely rewarded in capitalist economies.

Once the innovator has demonstrated the profitability of his venture, followers will enter the field in "clusters." The original innovator will of course try to maintain his monopoly position. In the past, he has seldom had complete success in this regard. Today, when a growing proportion of inventions comes from the research departments of existing firms, it is easier for monopolies to protect their positions, and to prevent any "cluster" of would-be followers from entering a new field of production. By the same token, the expansionary force of an innovation is diminished.

The development of the new industry is followed by the adaptation of old industries to the changed pattern of demand. The development of railroads entailed the construction of new towns, relocation of old industries, expansion of the iron and steel industry, and so forth. The development of the automobile industry brought with it the move to the suburbs, the construction of highways, the development of new recreation centers, enormous expansion of the petroleum and rubber industries, and so on. A "big" innovation like railroads or automobiles can generate a huge wave of investment through its direct and indirect effects on the economy.

that the wave of new investment is financed largely by new credit created by the banks. In other words, the investment is assumed to be financed by monetary expansion rather than by an increase in current (*ex ante*) savings, so that new investment produces a spread between investment and *ex ante* savings and generates an upswing. This assumption is, of course, perfectly realistic.

When the "gestation" period is over, and the new plants are completed, the rate of investment drops to the level necessary for replacement only; net investment ceases. Obviously, the operation of a railway involves less current investment than its construction. Moreover, once the new plants are in operation there will be a new and increased flow of consumers' goods onto the market; this factor in itself would tend to reduce prices. The tendency for prices to fall is enhanced by contraction of the money supply; as the new firms begin to sell their product, they come into possession of a "stream of receipts," which enables them to reduce their indebtedness to the banks. Reducing debt means simply the cancellation of deposits, and consequently the money supply contracts. With increasing supplies of goods on the market and a decreasing supply of money to buy them, prices naturally tend to fall. Some firms make windfall losses as a result of this unforeseen drop in prices. Commercial failures increase. Aggregate profits decline. Expectations become gloomy, and the impulse for innovation itself dries up. Depression ensues.

It will be noted that the validity of Schumpeter's theory as an explanation of economic fluctuations depends on the "swarming" of innovations in "clusters" in the early stages of the upswing, when the economy is still close to an equilibrium position. Perhaps no feature of Schumpeter's theory has been so frequently subjected to attack as this one. To the present writer, however, this feature of the Schumpeterian system seems acceptable enough. Two similar opinions might be cited in support of this view:<sup>14</sup>

1. Why is innovating activity most favored by equilibrium? A comparison of the difficulties and risks of innovation at different stages of the two-phase cycle shows a heavy balance in favor of this situation. The stability of business conditions, as well as the complete absence of profits, is more conducive to innovation than any other stage of the cycle could be. Since the risk of failure is at a minimum, and the pressure to innovate at a maximum, we should expect that innovating activity, under capitalist arrangements, would be extraordinarily great.

2. The standard criticism which has been raised against Professor Schumpeter's theory of the business cycle is concerned with the "clustering" of innovations at certain periods of time. The explanation sought by the critics was either in terms of the social psychology of innovations, i.e., that one successful innovation encourages others (a point which Professor Schumpeter himself makes, cf. Vol. i, p. 100, which, however, is not of decisive importance for the theory), or in terms of a clustering in time of technological inventions. These explanations being refuted, the theory was easily rejected. But all this is quite irrelevant. Professor Schumpeter's theory does not rest upon either of these points. The clustering is a consequence of the changing risk of failure. Whatever the time

<sup>14</sup> Clemence and Doody, *op. cit.*, p. 54; Oscar Lange, review of Joseph Schumpeter *Business Cycles*, in *Review of Economic Statistics*, November, 1941, p. 192.

shape of the supply of new inventions, new plans of organization, etc., or of entrepreneurial skill, the actual introduction of innovations will be "bunched" at periods of neighborhood of equilibrium when the risk of failure is the smallest; and as an intensification of the rate of innovation disequilibrates the economy and increases the risk of failure, this rate must slacken again. Thus we can dismiss the standard criticism; the clustering is explained quite satisfactorily in Professor Schumpeter's theory.

Although Schumpeter's theory is not in itself a complete theory of business cycles, it contains elements which must be included in any complete theory. In particular, his analysis of innovations is still the best explanation of how an upswing gets started. Certainly he has made an important contribution to the theory of development by his systematic exposition of the thesis suggested by Marx that capitalist development tends to proceed by leaps, bounds, and falls rather than by a smooth and steady progression. But another aspect of Schumpeter's theory of fluctuations is more troublesome from our standpoint.

Whereas in his original presentation he talked of only one kind of cycle, in his *Business Cycles* he talked of three: the "Kitchin" cycle of three to four years duration; the "Juglar" cycle of seven to eleven years; and the "Kondratieff" cycle of fifty to fifty-five years (in each case the name given the cycle is that of the economist who first provided statistical evidence of its existence and attempted an explanation of it). We are not troubled by Schumpeter's using the same theory to explain all three cycles, although that has bothered some of his critics. It is entirely feasible that the impact of such major innovations as steam or electricity should be felt over long periods and the impact of minor innovations like tubeless tires over short ones, although it is not clear why their impact should be spread over precisely the periods designated by Schumpeter. What does bother us is that, whereas the Kitchin and Juglar cycles appear clearly in the data, the very existence of the Kondratieff cycle is debatable. First, there are very few countries for which reliable time series are available for a couple of centuries—and even a two-century-long time series covers only four Kondratieff cycles, which is not a large sample. Secondly, the "long wave" seems to show up in some time series and not in others. It is fairly clear in prices but it does not appear in figures of total output or employment. It is clear enough that during long periods, such as 1825–50 and 1870–90 in the United Kingdom, or 1870–90 and 1929–40 in the United States, a lot of people talked about "depression." The "Great Depression" of the 1930's and the depression of the 1830's and 1840's show some striking similarities; these were depressions in any language. The so-called "great depression" of the 1870's and 1880's, on the other hand, was a period in which total output went merrily on up throughout. Professor Rostow, who has certainly given the matter as careful study as anyone, finds little evidence of such a cycle in his study of nineteenth-century Britain.

The matter is of some importance for development policy. For if cycles exist in which for twenty-five years a prosperity and expansion phase, interrupted only by the shorter cycles, can be followed by an equally long period of general depression and contraction, it becomes necessary to dis-

tinguish the true long-run trend from the movements in the Kondratieff cycle, as well as in the short-run cycle, in order to evaluate the results of a development program. And to do that we would have to know a great deal more about the nature and causes of the Kondratieff cycle than we do. It is also important to know whether there are any cures for the "long wave," and if so what. If a country launches its development program in the downswing of a Kondratieff cycle, it will be very hard to generate enthusiasm for the program by saying that although income is not currently rising, it is rising *relative* to what it would have done without the development program, and that in another twenty-five years or so, when the Kondratieff upturn appears, a rapid rate of increase in per capita income can be confidently expected.

### Schumpeter's Theory of Trend

Schumpeter's pure theory is a contribution to the analysis of business cycles rather than to the analysis of economic development. It seems likely that Schumpeter himself became aware of this fact in the course of his career. His great two-volume book published in 1939 is a further elaboration of the ideas in his 1911 *Theory of Economic Development*; it is significant that the title of the later work was changed to *Business Cycles: A Theoretical, Historical, and Statistical Analysis of the Capitalist Process*. Schumpeter's main point was precisely that the capitalist process is necessarily cyclical. He did not provide any systematic explanation of trends; indeed, he treated the trend as a statistical concept—a line drawn through the inflection points of a curve showing the pattern of business cycles. But what determines whether that trend is upward, downward, or horizontal? On this question Schumpeter had little to offer but insights and observations, and although these were very helpful in themselves, they do not really constitute a "theory" of economic development.

Let us summarize the system as outlined above:

$$\begin{aligned}
 O &= f(L, K, Q, T) & (1) \\
 S &= S(W, R, r) & (2) \\
 I &= I_t + I_A & (3) \\
 I_t &= I(R, r, Q) & (4) \\
 I_A &= I_a(K, T) & (5) \\
 T &= T(E) & (6) \\
 K &= K(E) & (7) \\
 E &= E(R, x) & (8) \\
 O &= k(I - S) & (9) \\
 W &= W(I) & (10) \\
 x &= x(R/W) & (11) \\
 O &= R + W & (12)
 \end{aligned}$$

When we compare this set of equations, summarizing the Schumpeter system, with those summarizing the Classical or the Marxist system, we note

First is the introduction of the interest rate as a determinant of savings. Not every economist would regard this feature of the system as a great advantage, since the relationship of savings to the level of interest rates is none too clear. Second is the separation of autonomous from induced investment and the isolation of "innovations" as the factor influencing autonomous investment; many economists consider this feature Schumpeter's major contribution to the theory of development. Third is the emphasis on entrepreneurship as the vital force in the whole economy. This feature was and remains the most distinctive aspect of Schumpeter's system, and it is this feature that has found its way most frequently into later theories of growth.

But what are we to say about it? What determines the supply of entrepreneurship? Without answers to this question, we still do not know why an economy grows, stagnates, or collapses; and Schumpeter does not provide very satisfactory answers. It all resolves itself into the vague concept of "climate" for the rise of the New Men who will do the job of establishing New Firms and making the economy grow.

We have only three indications of what Schumpeter regarded as the essence of this all-important matter of "climate": a more or less offhand remark in his earlier book, some statements about the psychological make-up of entrepreneurs, and his explanation of the Great Depression. The remark is<sup>15</sup>

The more life becomes rationalised, levelled, democratised, and the more transient become the relations of the individual to concrete people (especially in the family circle) and to concrete things (to a concrete factory or to an ancestral home), the more many of the motives enumerated in the second chapter lose their importance and the more the entrepreneur's grip on profit loses its power. To this process the progressive "automatisation" of development runs parallel, and it also tends to weaken the significance of the entrepreneurial function.

The entrepreneur is, among other things, a social deviant:<sup>16</sup>

The third point consists in the reaction of the social environment against one who wishes to do something new. This reaction may manifest itself first of all in the existence of legal or political impediments. But neglecting this, any deviating conduct by a member of a social group is condemned, though in greatly varying degrees according as the social group is used to such conduct or not. Even a deviation from social custom in such things as dress or manners arouses opposition, and of course all the more so in the graver cases. This opposition is stronger in primitive stages of culture than in others, but it is never absent. Even mere astonishment at the deviation, even merely noticing it, exercises a pressure on the individual. The manifestation of condemnation may at once bring noticeable consequences in its train. It may even come to social ostracism and finally to physical prevention or to direct attack. Neither the fact that progressive differentiation weakens this opposition—especially as the most important cause of the weakening is the very development which we wish to explain—nor the further fact that the social opposition operates under certain circum-

<sup>15</sup> Schumpeter, *The Theory of Economic Development*, p. 155.

stances and upon many individuals as a stimulus, changes anything in principle in the significance of it. Surmounting this opposition is always a special kind of task which does not exist in the customary course of life, a task which also requires a special kind of conduct.

He is also egocentric, untraditional, and ambitious:<sup>17</sup>

The typical entrepreneur is more self-centered than other types, because he relies less than they do on tradition and connection and because his characteristic task—theoretically as well as historically—consists precisely in breaking up old, and creating new, tradition. Although this applied primarily to his economic action, it also extends to the moral, cultural, and social consequences of it. It is, of course, no mere coincidence that the period of the rise of the entrepreneur type also gave birth to Utilitarianism. . . .

First of all, there is the dream and the will to found a private kingdom, usually, though not necessarily, also a dynasty. The modern world really does not know any such positions, but what may be attained by industrial or commercial success is still the nearest approach to medieval lordship possible to modern man. . . .

Then there is the will to conquer; the impulse to fight, to prove oneself superior to others, to succeed for the sake, not of the fruits of success, but of success itself. From this aspect, economic action becomes akin to sport—there are financial races, or rather boxing-matches. . . .

Finally, there is the joy of creating, of getting things done, or simply of exercising one's energy and ingenuity.

Schumpeter's ideas about the breakdown of capitalism are perhaps most clearly stated in the final chapter of his *Business Cycles*, where he discusses the "stagnation thesis" in relation to the Great Depression of the 1930's. This theory, which is the subject of Chapter 7, states in essence that the length and depth of the Great Depression was to be explained in terms of vanishing investment opportunity, because of declining rates of population growth, disappearance of the frontier, and a tendency for innovations to become capital saving. Schumpeter does not deny the logical validity of the stagnation thesis:<sup>18</sup>

The validity of that theory is not denied on the grounds that its basic proposition is wrong. . . . Capitalism is essentially a process of (indigenous) economic change. Without that change or, more precisely, that kind of change which we have called evolution, capitalist society cannot exist, because the economic functions and, with the functions the economic bases of its leading strata—of the strata which work the capitalist engine—would crumble if it ceased: without innovations, no entrepreneurs; without entrepreneurial achievement, no capitalist returns and no capitalist propulsion. . . . The atmosphere of industrial revolutions—of "progress"—is the only one in which capitalism can survive. In this sense stabilized capitalism is a contradiction in terms.

He also accepts "the companion proposition that investment opportunity in this sense may, and in fact is quite likely to, vanish sometime in the future." He even adds "an element of his own." The mechanization of progress may "produce effects similar to those which cessation of tech-

nological progress would have. Even now the private entrepreneur is not nearly so important a figure as he has been in the past. We have moreover noticed the implications of chemical and other developments which may result in making innovation capital saving or at least less capital absorbing than, say, it has been in the railroad age." He considers the argument regarding population growth to be "inadequately formulated," but agrees that "provision for an indefinite family future is of central importance in the scheme of bourgeois motivation, and much driving power may be eliminated by childlessness."

However, he flatly denies that such a theory is an explanation of the Great Depression. A particularly deep and long depression was to be expected at that time anyhow, he maintains, in terms of his own theory of long waves. Even the "disappointing Juglar" of 1933–37, which ended in a new downswing long before full employment was restored, is in part to be explained in terms of his general theory: "It did not differ in character from the comparable Juglar prosperities of the preceding Kondratieff downgrades, and therefore does not indicate any fundamental change in the working of the capitalist organism."<sup>19</sup> However, he does feel that more was involved in the Great Depression, and particularly in the disappointing Juglar, than the general nature of interacting Kondratieff and Juglar cycles: to wit, the deterioration of the climate for entrepreneurial activity. For "Capitalism produces by its mere working a social atmosphere—a moral code, if the reader prefers—that is hostile to it, and this atmosphere, in turn, produces policies which do not allow it to function."<sup>20</sup> Moreover, there is no "equilibrating apparatus" to guarantee that this atmosphere will not appear before "the capitalist process will have really spent its force or be spending it." In the United States of the 1930's, he suggests, this atmosphere appeared too soon.

As evidence of this hostile climate, he cites first the burden of direct taxation since 1932. He attaches more importance to the income, corporation, and estate taxes than to some of the newer taxes, such as undistributed profits and capital gains taxes, but he agrees that such "changes in the rules" were inimical to entrepreneurial activity. The tax on payrolls for financing the social security program was also of some significance. In addition, "labor policies reduced investment opportunity—besides employment per unit of output—mainly by forcing up wage rates."<sup>21</sup> His general analysis leads him to expect that "developments in the field of public utilities would be a leading factor of the current, as they had been in the preceding Juglar." The failure of this expectation to be fulfilled he explains in terms of the increasing activity of the federal and municipal governments in this field. The reappearance of "the big stick" with respect to monopoly was another discouraging factor. Finally, "the personnel and methods by which and the spirit in which" the New Deal measures were administered were "much more important than anything contained in any enactment."

<sup>19</sup> *Ibid.*, p. 1037.

<sup>20</sup> *Ibid.*, p. 1038.

Thus Schumpeter's theory of economic growth (as distinct from his theory of economic fluctuations) has a large element of tautology in it, making it difficult to test empirically. It is not set up as a "refutable hypothesis." Economic growth occurs when the social climate is conducive to the appearance of a sufficient flow of New Men, but the only real way to test whether the social climate is appropriate, is to see whether the New Men are in fact appearing; that is, whether there is economic growth. If vigorous economic growth appears, the social climate is appropriate; when there is no vigorous economic growth, the social climate is by definition inimical to it.

In general, the climate is appropriate when entrepreneurial success is amply rewarded, and where there are good—but not too good—chances of success. If entrepreneurs are to be social deviants, the society must oppose them in some degree, accepting them only after they have proved their success. In contrast to Marx, who thought of "capitalists" as a "class" almost in the sense of caste, a group to which workers could not aspire, an essential aspect of Schumpeter's vigorous capitalist development is rapid circulation of the elite. Success in the innovational process must lead also to the top of the social ladder—if not for oneself, then at least for one's son or grandson—as it did in nineteenth-century Europe.<sup>22</sup>

Accepting the Schumpeter theory of growth raises an interesting question: what can be expected from a society in which entrepreneurs are no longer deviants, since collective entrepreneurial activity is regarded as the most acceptable form of endeavor. Can an economy of "organization men," safe and secure in their junior executive or trade-union positions, produce a rate of economic expansion as rapid as was obtained under unbridled capitalism, in which entrepreneurial activity was highly regarded only when spectacularly successful?

Schumpeter certainly thought not. In his address to the American Economic Association in 1949 (published posthumously) he said:<sup>23</sup>

The very success of the business class in developing the productive powers of its country and the very fact that this success has created a new standard of life for all classes has paradoxically undermined the social and political position of the same business class whose economic function, though not obsolete, tends to become obsolescent and amenable to bureaucratization. . . . The concentration of the business class on the tasks of the factory and the office was instrumental in creating a political system and an intellectual class the structure and interests of which developed an attitude of independence from, and eventually of hostility to, the interests of large-scale business. The latter is becoming increasingly incapable of defending itself against raids that are, in the short run, highly profitable to other classes.

<sup>22</sup> One factor that Schumpeter seems to have missed is the importance of the frontier in the circulation of the elite. A major difference between the "open society" of the United States, and the more stratified society of Australia, with its accompanying emphasis on the role of government and social welfare, is that in Australia the same opportunities for rising to the top of the economic ladder, and thus to the top of the social ladder, by "going West" did not prevail. We shall have more to say of this

Similarly, in his *Capitalism, Socialism, and Democracy* he wrote:<sup>24</sup>

This social function (of entrepreneurship) is already losing importance . . . it is much easier now than it has been in the past to do things that lie outside the familiar routine—innovation itself is being reduced to routine. Technological progress is increasingly becoming the business of teams of trained specialists . . . personality and will power must count for less in environments which have become accustomed to economic change . . . social and technological change undermined and eventually destroyed the function and position of [the warrior knight]. Now a similar social process—in the last analysis the same social process—undermines the role and, along with the role, the social position of the capitalist entrepreneur.

In concluding this chapter, let us say one word about the relationship of the Schumpeter theory to the problems of underdeveloped areas. Tautological though the theory may be, there can be little doubt of its relevance. The lack of adequate entrepreneurship is one of the most frequently cited obstacles to take-off in such countries, as we shall see in Chapter 12. It also appears true that the relatively small entrepreneurial group in such countries frequently consists of a deviant class: the Chinese in Southeast Asia, the Hindus in East Bengal, the Jews in Libya, the Indians in Africa, and so on. Schumpeter's theory also raises doubts about the possibilities of successful development in countries which *start* with a climate inimical to entrepreneurship, as is the case in many of the underdeveloped countries. The "socialist" intent of many of these countries has been announced. Such "New Deal" legislation as social security programs, high and progressive income tax rates, labor legislation, and the like have been introduced in many underdeveloped countries in the years following World War II, with levels of income and stocks of capital that are only a tiny fraction of those of the United States in the 1930's. It may be possible for the entrepreneurial function to be performed by government agencies instead of by private individuals, but the Schumpeter theory would throw some doubt on this possibility.

<sup>24</sup> Schumpeter, *Capitalism, Socialism, and Democracy* (3d ed.: New York, 1950), pp. 132-133.