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The Static and the Dynamic View of Economics

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THE STATIC AND THE DYNAMIC VIEW OF ECONOMICS

SUMMARY

I. Introductory, 571. — II. There is opposition, not between static and dynamic conditions, but only between static and dynamic conceptions, 572. — III. Evolutionary or non-reversible processes distinguished from those which are wave-like or reversible, 575. — IV. Some considerations on the characteristic processes in a capitalistic society, 578.

I

THE principal economic theories, both old and modern, have all been based mainly upon a static view of economic phenomena. Yet the further they proceed, the more are economists coming to the realization of the insufficiency of the static view of phenomena as the only basic conception of theoretical economics, and the more unanimous they become in recognizing both the necessity and the practicability of the development of a dynamic theory.

The reasons for this attitude are to be found first in the nature itself of economic phenomena, which are always changing, perpetually in a state of flux. As a result, the static conception, however perfect in itself, is unable to give a complete explanation of economic realities and to satisfy our craving for their scientific analysis and understanding. In addition, with the general rise in the level of culture and technique, the pace of economic development tends to increase, and the changes acquire a growing importance. These changes were especially marked in the course of the last decade,

and the whole progress of economic life acquired an unprecedented impetus. The practical need for some means by which to acquire an insight into the trend of economic events became accordingly a matter of urgent importance. Hence the necessity of establishing the exact nature of economic dynamics as distinguished from statics, as well as of the construction of an adequate theory of the former, is now beyond dispute. But how is the theoretical line of demarcation between the two to be traced?

II

In the first instance, the question has to be answered, whether the statics and the dynamics of phenomena are generally to be considered in opposition to each other, or whether opposition is possible only as regards the static and the dynamic views of them.

The world of economic phenomena is constantly changing. In reality, therefore, there exist only the dynamics of phenomena. This view of the problem, if not unanimously accepted, is in any case that of the majority of the economists. So much being admitted, it is certainly impossible to speak of static phenomena in a way that puts statics and dynamics in opposition to each other. If it be necessary to consider the problem from the point of view of an opposition merely between its two aspects, it is not the statics and the dynamics of phenomena themselves but the static view as against the dynamic view of them that should be treated in contrast to each other, as two different theoretical conceptions.

What, now, is the essential difference between these two conceptions? *The static conception considers economic phenomena, essentially and as a matter of principle, without taking into account their variations in time.* It

deals with reality as if its elements were in a state of fixed equilibrium. It is true that, in order to come to a better understanding of the equilibrium of unchangeable elements and of their inter-relations, the static theory may choose to operate, for methodological reasons, with the variations and fluctuations of these elements. Yet whenever it does so, its purpose is not that of investigating the dynamic processes and their laws taken in themselves, but only that of showing that all these variations and fluctuations of elements, given certain assumed conditions, tend unavoidably toward a state of equilibrium; and it is this alone which is then investigated. Such was the attitude of Ricardo, for instance, when he stated that the rate of "profits" tends to equality, and that prices necessarily fluctuate around their natural level, and then proceeded to investigate economic conditions on the assumption of a uniform rate of interest and of market prices conforming to their natural level.

On the other hand, *the dynamic conception considers economic phenomena in the process of changes in their elements and in the inter-relations of the latter in course of time*, and seeks to discover regularities in the progress of these variations. The dynamic view may, and indeed of necessity must, make use of the conclusions reached by static theory, based tho it is on the assumption of a stable and unchanging level of economic elements in a state of equilibrium. The conclusions of the static theory in inquiry from this point of view, however, play a purely methodological and subsidiary part, just as, in the case of the static theory, such an auxiliary rôle is played by the consideration of change and variation.

Hence it is clear that, while in the view of the static theory the fundamental assumption throughout the analysis is that of invariability and identity, and accordingly the conception is that of static equilibrium

and of a fixed standard of elements, the dynamic theory is based on the assumption of the variability of the essential difference of the elements and, accordingly, on the conception of the process of change in these elements and in their inter-relations. The dynamic theory may, no doubt, also make use of the conception of equilibrium; but in this case it will be not that of static equilibrium, but of dynamic, that is, the equilibrium of variable elements.

This definition of statics and dynamics is far from being generally accepted. Some authors define the two points of view by saying that the static theory considers phenomena in a condition of rest, while the dynamic theory deals with them in a condition of movement. In the opinion of the present writer, the conception of rest and movement cannot be used, strictly speaking, in reference to economic statics and dynamics.

It is true that all movement is change. But it would be a mistake to assume that all change is movement. The notion of change is wider than that of movement. Movement is a change not only in time, but also in space. When dealing with economic phenomena, however, very often we meet phenomena which are changes only in time, but not in space.

While thus rejecting the definition of statics and dynamics as the conceptions of rest and movement respectively, one is bound also to follow Clark's example in refusing to distinguish a stationary economic system from one in a static condition. From the point of view of economics, there is nothing that distinguishes a stationary system from one in a static condition. In the case of a stationary economic system the volume, the organization, and the technique of production, the quantity and quality of demand, the amount and distribution of capital, and the like, by definition, remain *economically*

unchangeable. As far as the material objects are concerned, there is obviously change; for instance, the cotton worked at the mills will never be the same for two consecutive days, or even hours. These changes in material things, however, do not concern the economist. That is why, in the view of the present writer, the theory of a stationary economic system, considered from the point of view of economics, is the same as that of an economic organization in a static condition.

III

Having thus determined the static and the dynamic points of view, we may proceed to characterize the various forms of dynamic processes.

First, it is essential to distinguish the processes of qualitative changes from those of quantitative variations. In all cases in which either the elements of economic life themselves, or their inter-relations, are subject to changes which cannot be completely expressed in terms of numbers or volume or any quantitative measure, one meets with what is referred to here as qualitative changes.

A further distinction, in addition to the above, which the writer thinks expedient from the scientific point of view, rests on a different ground, dividing dynamic processes into the evolutionary (or non-reversible) processes, on the one hand, and the wave-like or fluctuating on the other. ¹

The term "evolutionary," or non-reversible, process applies to those changes which, in the absence of extraneous (non-economic) disturbing causes, develop in a certain definite direction and therefore are not subject

1. Of the existence of reversible processes, however, as will be shown later, one may speak only in a relative sense.

to repetition or reversion. As an example, one may point to the permanent tendency of population to grow, of the total volume of production to increase, and the like.

It is clear that this conception of non-reversible processes is similar to that of a secular trend. Yet I am of opinion that the current conception of secular trend is only technical and statistical; it is not economic. A certain secular trend, represented, for example, by a straight line, will fit a certain period of production. But if we consider the same period only as a part of a greater one, another secular trend may appear, represented, say, in the form of a parabola. This indicates that the conception of secular trend does not always give to economists an exact idea of the character of the economic dynamic process. And for that reason it is not used in the present article.

By "wave-like" or "fluctuating" processes are meant processes of variation which are changing their direction in the course of time and are subject to repetition and reversion. Such are changes in prices, in the rate of interest, in the percentage of unemployed. These elements are subject to change in various directions. Considered as continuous, the processes of change may be represented by curves whose directions and slopes vary, exhibiting a series of recurring maxima and minima. None of the points of these curves is identical with any other, since it represents a different moment of time and a different combination of economic factors in production, distribution, etc. Hence the statement that the process is subject to reversion and repetition is not to be applied in an absolute sense, but is to be used only to distinguish this class of change from the other, which admits of no repetition or reversion.

The conceptions of reversible and non-reversible processes, as well as those of statics and dynamics, belong,

strictly speaking, to the domain of natural science in the narrower sense of the word, such as physics, chemistry, and biology; and their importance in those sciences is very great. But if the necessary caution is exercised in making use of the conceptions in economics, there would appear to be no obstacles to their application in this field as well; and the use of the conceptions of reversible and non-reversible processes in economics may be looked upon as an application of a general idea to a specific class of cases.

Attentive empirical, and especially statistical, analysis shows, further, that there exist both regular and irregular reversible processes. Regular processes, in turn, may be either seasonal or cyclical. As to cycles, the processes may again be different. Economists have long observed the existence of cycles (prosperity — crisis — depression) having periods of seven to eleven years. I would call them middle cycles. The work of J. Kitchin ² points to the existence of 3- to 4-year cycles. These may be called minor cycles. The present writer, in his empirical studies of economic dynamics, came upon the fact of the existence of cycles with a period of 40 to 50 years, which, tho little known, would appear to be very important. From the beginning of the Industrial Revolution to the present time two and one half periods of these cycles have passed. They may be called major cycles. The attention of economists has been mainly focussed on the study of the cycles of 7 to 11 years, and on seasonal fluctuations. Considering what has just been said, however, there would appear to be no justification, as a matter of principle, for restricting the investigations to these two groups of fluctuations. It is essential to investigate thoroly the minor cycles as well as the long ones.

2. See Review of Economic Statistics of Harvard Economic Service.

IV

Having passed under review the principal forms of dynamic processes, we may pass to the realities of capitalistic society. To which of the characteristic processes of variation are the several elements of such a society generally subject?

Practically all economic elements are subject to both qualitative and quantitative variations. In the case of certain elements, such as economic organization, the technique of production, demand, qualitative changes are not less important than quantitative variations. In the case of others, however, such as prices, rates of interest, rent, quantitative variations are of fundamental importance.

Proceeding further to analyze reversible and non-reversible processes in relation to the several economic elements, or to economic life as a whole, the following considerations should be borne in mind. Regarded as a whole, economic reality represents a non-reversible process, in which progress is accomplished by stages. But the individual economic elements, while they are thus subject, as parts of the whole, to a non-reversible process of variation, in some cases develop, when considered separately, through a reversible process. A considerable group of economic elements, such as, on the one hand, prices, rates of interest, and wages, and, on the other hand, percentages of unemployment and business failures, exhibit processes of reversible, wave-like variations. At the same time, still other elements, such as population, the volume of production and trade, and the amount of capital, develop by a *complex* process of variation, in which there are at least two principal currents of change. The first of these currents is their general trend of development; the second is the velocity

or rate of development. A close examination of the abundant materials available on the subject, by the application of mathematical analysis, has indicated that the general tendency of development for these elements represents, at least for the period covered by the inquiry, a non-reversible process, in which interruptions may be the result only of the influence of disturbing causes and catastrophes, either elemental or social. The rate of development is represented by a curve exhibiting wave-like fluctuations; it seems therefore to be subject to a reversible process of variation.

This difference in the nature of the variations in the different economic elements is extremely important, since only by taking it into account is one enabled completely to understand the characteristics of economic dynamics. Tho economic evolution as a whole must doubtless be considered as a single and indivisible process, the acceptance of the classification of economic processes and elements here suggested is absolutely necessary for the purpose of scientific analysis of economic realities. The investigator may indeed find it expedient to concentrate his attention on one of the two forms of processes; yet, when dealing with (say) reversible processes, he must always bear in mind the existence and the influence of non-reversible processes; and *vice versa*.

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