Friedrich A. Hayek

Individualism and Economic Order

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fend and, indeed, I believe, the only kind which can be defended consistently. So let me return, in conclusion, to what I said in the beginning: that the fundamental attitude of true individualism is one of humility toward the processes by which mankind has achieved things which have not been designed or understood by any individual and are indeed greater than individual minds. The great question at this moment is whether man's mind will be allowed to continue to grow as part of this process or whether human reason is to place itself in chains of its own making.

What individualism teaches us is that society is greater than the individual only in so far as it is free. In so far as it is controlled or directed, it is limited to the powers of the individual minds which control or direct it. If the presumption of the modern mind, which will not respect anything that is not consciously controlled by individual reason, does not learn in time where to stop, we may, as Edmund Burke warned us, "be well assured that everything about us will dwindle by degrees, until at length our concerns are shrunk to the dimensions of our minds."

II. Economics and Knowledge*

1

THE ambiguity of the title of this paper is not accidental. Its main subject is, of course, the role which assumptions and propositions about the knowledge possessed by the different members of society play in economic analysis. But this is by no means unconnected with the other question which might be discussed under the same title—the question to what extent formal economic analysis conveys any knowledge about what happens in the real world. Indeed, my main contention will be that the tautologies, of which formal equilibrium analysis in economics essentially consists, can be turned into propositions which tell us anything about causation in the real world only in so far as we are able to fill those formal propositions with definite statements about how knowledge is acquired and communicated. In short, I shall contend that the empirical element in economic theory—the only part which is concerned not merely with implications but with causes and effects and which leads therefore to conclusions which, at any rate in principle, are capable of verification[1] —consists of propositions about the acquisition of knowledge.

Perhaps I should begin by reminding you of the interesting fact that in quite a number of the more recent attempts made in different fields to push theoretical investigation beyond the limits of traditional equilibrium analysis, the answer has soon proved to turn on the assumptions which we make with regard to a point which, if not identical with mine, is at least part of it, namely, with regard to foresight. I think that the field in which, as one would expect, the discus-

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1. Or rather falsification (cf. K. R. Popper, *Logik der Foschung* [Vienna, 1935], *passim*).

sion of the assumptions concerning foresight first attracted wider attention was the theory of risk.[2] The stimulus which was exercised in this connection by the work of Frank H. Knight may yet prove to have a profound influence far beyond its special field. Not much later the assumptions to be made concerning foresight proved to be of fundamental importance for the solution of the puzzles of the theory of imperfect competition, the questions of duopoly and oligopoly. Since then, it has become more and more obvious that, in the treatment of the more "dynamic" questions of money and industrial fluctuations, the assumptions to be made about foresight and "anticipations" play an equally central role and that in particular the concepts which were taken over into these fields from pure equilibrium analysis, like those of an equilibrium rate of interest, could be properly defined only in terms of assumptions concerning foresight. The situation seems here to be that, before we can explain why people commit mistakes, we must first explain why they should ever be right.

In general, it seems that we have come to a point where we all realize that the concept of equilibrium itself can be made definite and clear only in terms of assumptions concerning foresight, although we may not yet all agree what exactly these essential assumptions are. This question will occupy me later in this essay. At the moment I am concerned only to show that at the present juncture, whether we want to define the boundaries of economic statics or whether we want to go beyond it, we cannot escape the vexed problem of the exact position which assumptions about foresight are to have in our reasoning. Can this be merely an accident?

As I have already suggested, the reason for this seems to me to be that we have to deal here only with a special aspect of a much wider question which we ought to have faced at a much earlier stage. Questions essentially similar to those mentioned arise in fact as soon as we try to apply the system of tautologies—those series of propositions

2. A more complete survey of the process by which the significance of anticipations was gradually introduced into economic analysis would probably have to begin with Irving Fisher's *Appreciation and Interest* (1896).

which are necessarily true because they are merely transformations of the assumptions from which we start and which constitute the main content of equilibrium analysis—to the situation of a society consisting of several independent persons. I have long felt that the concept of equilibrium itself and the methods which we employ in pure analysis have a clear meaning only when confined to the analysis of the action of a single person and that we are really passing into a different sphere and silently introducing a new element of altogether different character when we apply it to the explanation of the interactions of a number of different individuals.

I am certain that there are many who regard with impatience and distrust the whole tendency, which is inherent in all modern equilibrium analysis, to turn economics into a branch of pure logic, a set of self-evident propositions which, like mathematics or geometry, are subject to no other test but internal consistency. But it seems that, if only this process is carried far enough, it carries its own remedy with it. In distilling from our reasoning about the facts of economic life those parts which are truly a priori, we not only isolate one element of our reasoning as a sort of Pure Logic of Choice in all its purity but we also isolate, and emphasize the importance of, another element which has been too much neglected. My criticism of the recent tendencies to make economic theory more and more formal is not that they have gone too far but that they have not yet been carried far enough to complete the isolation of this branch of logic and to restore to its rightful place the investigation of causal processes, using formal economic theory as a tool in the same way as mathematics.

2

But before I can prove my contention that the tautological propositions of pure equilibrium analysis as such are not directly applicable to the explanation of social relations, I must first show that the concept of equilibrium *has* a clear meaning if applied to the actions of a single individual and what this meaning is. Against my contention it might

be argued that it is precisely here that the concept of equilibrium is of no significance, because, if one wanted to apply it, all one could say would be that an isolated person was always in equilibrium. But this last statement, although a truism, shows nothing but the way in which the concept of equilibrium is typically misused. What is relevant is not whether a person as such is or is not in equilibrium but which of his actions stand in equilibrium relationships to each other. All propositions of equilibrium analysis, such as the proposition that relative values will correspond to relative costs, or that a person will equalize the marginal returns of any one factor in its different uses, are propositions about the relations between actions. Actions of a person can be said to be in equilibrium in so far as they can be understood as part of one plan. Only if this is the case, only if all these actions have been decided upon at one and the same moment, and in consideration of the same set of circumstances, have our statements about their interconnections, which we deduce from our assumptions about the knowledge and the preferences of the person, any application. It is important to remember that the so-called "data," from which we set out in this sort of analysis, are (apart from his tastes) all facts given to the person in question, the things as they are known to (or believed by) him to exist, and not, strictly speaking, objective facts. It is only because of this that the propositions we deduce are necessarily a priori valid and that we preserve the consistency of the argument.[3]

The two main conclusions from these considerations are, first, that, since equilibrium relations exist between the successive actions of a person only in so far as they are part of the execution of the same plan, any change in the relevant knowledge of the person, that is, any change which leads him to alter his plan, disrupts the equilibrium relation between his actions taken before and those taken after the change in his knowledge. In other words, the equilibrium relationship comprises only his actions during the period in which his anticipations prove correct. Second, that, since equilibrium is a relationship

3. Cf., on this point particularly, Ludwig von Mises, *Grundprobleme der Nationalökonomie* (Jena, 1933), pp. 22 ff., 160 ff.

between actions, and since the actions of one person must necessarily take place successively in time, it is obvious that the passage of time is essential to give the concept of equilibrium any meaning. This deserves mention, since many economists appear to have been unable to find a place for time in equilibrium analysis and consequently have suggested that equilibrium must be conceived as timeless. This seems to me to be a meaningless statement.

3

Now, in spite of what I have said before about the doubtful meaning of equilibrium analysis in this sense if applied to the conditions of a competitive society, I do not, of course, want to deny that the concept was originally introduced precisely to describe the idea of some sort of balance between the actions of different individuals. All I have argued so far is that the sense in which we use the concept of equilibrium to describe the interdependence of the different actions of one person does not immediately admit of application to the relations between actions of different people. The question really is what use we make of it when we speak of equilibrium with reference to a competitive system.

The first answer which would seem to follow from our approach is that equilibrium in this connection exists if the actions of all members of the society over a period are all executions of their respective individual plans on which each decided at the beginning of the period. But, when we inquire further what exactly this implies, it appears that this answer raises more difficulties than it solves. There is no special difficulty about the concept of an isolated person (or a group of persons directed by one of them) acting over a period according to a preconceived plan. In this case, the plan need not satisfy any special criteria in order that its execution be conceivable. It may, of course, be based on wrong assumptions concerning the external facts and on this account may have to be changed. But there will always be a conceivable set of external events which would make it possible to execute the plan as originally conceived.

The situation is, however, different with plans determined upon simultaneously but independently by a number of persons. In the first instance, in order that all these plans can be carried out, it is necessary for them to be based on the expectation of the same set of external events, since, if different people were to base their plans on conflicting expectations, no set of external events could make the execution of all these plans possible. And, second, in a society based on exchange their plans will to a considerable extent provide for actions which require corresponding actions on the part of other individuals. This means that the plans of different individuals must in a special sense be compatible if it is to be even conceivable that they should be able to carry all of them out.[4] Or, to put the same thing in different words, since some of the data on which any one person will base his plans will be the expectation that other people will act in a particular way, it is essential for the compatibility of the different plans that the plans of the one contain exactly those actions which form the data for the plans of the other.

In the traditional treatment of equilibrium analysis part of this difficulty is apparently avoided by the assumption that the data, in the form of demand schedules representing individual tastes and technical facts, are equally given to all individuals and that their acting on the same premises will somehow lead to their plans becoming adapted to each other. That this does not really overcome the difficulty created by the fact that one person's actions are the other person's data, and that it involves to some degree circular reasoning, has often been pointed out. What, however, seems so far to have escaped notice is that this whole procedure involves a confusion of a much more general character, of which the point just mentioned is merely a special instance, and which is due to an equivocation of the term "datum." The data which here are supposed to be objective facts and the same for all people are evidently no longer the same thing as the

4. It has long been a subject of wonder to me why there should, to my knowledge, have been no systematic attempts in sociology to analyze social relations in terms of correspondence and noncorrespondence, or compatibility and noncompatibility, of individual aims and desires.

data which formed the starting-point for the tautological transformations of the Pure Logic of Choice. There "data" meant those facts, and only those facts, which were present in the mind of the acting person, and only this subjective interpretation of the term "datum" made those propositions necessary truths. "Datum" meant given, known, to the person under consideration. But in the transition from the analysis of the action of an individual to the analysis of the situation in a society the concept has undergone an insidious change of meaning.

4

The confusion about the concept of a datum is at the bottom of so many of our difficulties in this field that it is necessary to consider it in somewhat more detail. Datum means, of course, something given, but the question which is left open, and which in the social sciences is capable of two different answers, is to *whom* the facts are supposed to be given. Economists appear subconsciously always to have been somewhat uneasy about this point and to have reassured themselves against the feeling that they did not quite know to whom the facts were given by underlining the fact that they *were* given—even by using such pleonastic expressions as "given data." But this does not answer the question whether the facts referred to are supposed to be given to the observing economist or to the persons whose actions he wants to explain, and, if to the latter, whether it is assumed that the same facts are known to all the different persons in the system or whether the "data" for the different persons may be different.

There seems to be no possible doubt that these two concepts of "data," on the one hand, in the sense of the objective real facts, as the observing economist is supposed to know them, and, on the other, in the subjective sense, as things known to the persons whose behavior we try to explain, are really fundamentally different and ought to be carefully distinguished. And, as we shall see, the question why the data in the subjective sense of the term should ever come to correspond to the objective data is one of the main problems we have to answer.

The usefulness of the distinction becomes immediately apparent when we apply it to the question of what we can mean by the concept of a society being at any one moment in a state of equilibrium. There are evidently two senses in which it can be said that the subjective data, given to the different persons, and the individual plans, which necessarily follow from them, are in agreement. We may mean merely that these plans are mutually compatible and that there is consequently a conceivable set of external events which will allow all people to carry out their plans and not cause any disappointments. If this mutual compatibility of intentions were not given, and if in consequence no set of external events could satisfy all expectations, we could clearly say that this is not a state of equilibrium. We have a situation where a revision of the plans on the part of at least some people is inevitable, or, to use a phrase which in the past has had a rather vague meaning, but which seems to fit this case perfectly, where "endogenous" disturbances are inevitable.

There still remains, however, the other question of whether the individual sets of subjective data correspond to the objective data and whether, in consequence, the expectations on which plans were based are borne out by the facts. If correspondence between data in this sense were required for equilibrium, it would never be possible to decide otherwise than retrospectively, at the end of the period for which people have planned, whether at the beginning the society has been in equilibrium. It seems to be more in conformity with established usage to say in such a case that the equilibrium, as defined in the first sense, may be disturbed by an unforeseen development of the (objective) data and to describe this as an exogenous disturbance. In fact, it seems hardly possible to attach any definite meaning to the much used concept of a change in the (objective) data unless we distinguish between external developments in conformity with, and those different from, what has been expected, and define as a "change" any divergence of the actual from the expected development, irrespective of whether it means a "change" in some absolute sense. If, for example, the alternations of the seasons suddenly ceased and the weather remained con-

stant from a certain day onward, this would certainly represent a change of data in our sense, that is, a change relative to expectations, although in an absolute sense it would not represent a change but rather an absence of change. But all this means that we can speak of a change in data only if equilibrium in the first sense exists, that is, if expectations coincide. If they conflicted, any development of the external facts might bear out somebody's expectations and disappoint those of others, and there would be no possibility of deciding what was a change in the objective data.[5]

5

For a society, then, we *can* speak of a *state* of equilibrium at a point of time—but it means only that the different plans which the individuals composing it have made for action in time are mutually compatible. And equilibrium will continue, once it exists, so long as the external data correspond to the common expectations of all the members of the society. The continuance of a state of equilibrium in this sense is then not dependent on the objective data being constant in an absolute sense and is not necessarily confined to a stationary process. Equilibrium analysis becomes in principle applicable to a progressive society and to those intertemporal price relationships which have given us so much trouble in recent times.[6]

5. Cf. the present author's article, "The Maintenance of Capital," *Economica*, II (new ser., 1935), 265, reprinted in *Profits, Interest, and Investment* (London, 1939).

6. This separation of the concept of equilibrium from that of a stationary state seems to me to be no more than the necessary outcome of a process which has been going on for a fairly long time. That this association of the two concepts is not essential but only due to historical reasons is today probably generally felt. If complete separation has not yet been effected, it is apparently only because no alternative definition of a state of equilibrium has yet been suggested which has made it possible to state in a general form those propositions of equilibrium analysis which are essentially independent of the concept of a stationary state. Yet it is evident that most of the propositions of equilibrium analysis are not supposed to be applicable only in that stationary state which will probably never be reached. The process of separation seems to have begun with Marshall and his distinction between long- and short-run equilibriums. Cf. statements like this: "For the nature of equilibrium itself, and that of the causes by which it is determined, depend on the length of the period over which the market is taken to extend" (*Principles* [7th ed.], I, 330). The idea of a state of equilibrium which was

These considerations seem to throw considerable light on the relationship between equilibrium and foresight, which has been somewhat hotly debated in recent times.[7] It appears that the concept of equilibrium merely means that the foresight of the different members of the society is in a special sense correct. It must be correct in the sense that every person's plan is based on the expectation of just those actions of other people which those other people intend to perform and that all these plans are based on the expectation of the same set of external facts, so that under certain conditions nobody will have any reason to change his plans. Correct foresight is then not, as it has sometimes been understood, a precondition which must exist in order that equilibrium may be arrived at. It is rather the defining characteristic of a state of equilibrium. Nor need foresight for this purpose be perfect in the sense that it need extend into the indefinite future or that everybody must foresee everything correctly. We should rather say that equilibrium will last so long as the anticipations prove correct and that they need to be correct only on those points which are relevant for the decisions of the individuals. But on this question of what is relevant foresight or knowledge, more later.

Before I proceed further I should probably stop for a moment to illustrate by a concrete example what I have just said about the meaning of a state of equilibrium and how it can be disturbed. Consider the preparations which will be going on at any moment for the production of houses. Brickmakers, plumbers, and others will all be producing materials which in each case will correspond to a certain

not a stationary state was already inherent in my "Das intertemporale Gleichgewichtssystem der Preise und die Bewegungen des Geldwerters," *Weltwirtschaftliches Archiv*, Vol. XXVIII (June, 1928), and is, of course, essential if we want to use the equilibrium apparatus for the explanation of any of the phenomena connected with "investment." On the whole matter much historical information will be found in E. Schams, "Komparative Statik," *Zeitschrift für Nationalökonomie*, Vol. II, No. 1 (1930). See also F. H. Knight, *The Ethics of Competition* (London, 1935), p. 175 n.; and for some further developments since this essay was first published, the present author's *Pure Theory of Capital* (London, 1941), chap. ii.

7. Cf. particularly Oskar Morgenstern, "Vollkommene Voraussicht und wirtschaftliches Gleichgewicht," *Zeitschrift für Nationalökonomie*, VI (1934), 3.

quantity of houses for which just this quantity of the particular material will be required. Similarly we may conceive of prospective buyers as accumulating savings which will enable them at certain dates to buy a certain number of houses. If all these activities represent preparations for the production (and acquisition) of the same amount of houses, we can say that there is equilibrium between them in the sense that all the people engaged in them may find that they can carry out their plans.[8] This need not be so, because other circumstances which are not part of their plan of action may turn out to be different from what they expected. Part of the materials may be destroyed by an accident, weather conditions may make building impossible, or an invention may alter the proportions in which the different factors are wanted. This is what we call a change in the (external) data, which disturbs the equilibrium which has existed. But if the different plans were from the beginning incompatible, it is inevitable, whatever happens, that somebody's plans will be upset and have to be altered and that in consequence the whole complex of actions over the period will not show those characteristics which apply if all the actions of each individual can be understood as part of a single individual plan, which he has made at the beginning.[9]

8. Another example of more general importance would, of course, be the correspondence between "investment" and "saving" in the sense of the proportion (in terms of relative cost) in which entrepreneurs provide producers' goods and consumers' goods for a particular date, and the proportion in which consumers in general will at this date distribute their resources between producers' goods and consumers' goods (cf. my essays, "Price Expectations, Monetary Disturbances, and Malinvestment" [1933], reprinted in *Profits, Interest, and Investment* [London, 1939], pp. 135–56, and "The Maintenance of Capital," in the same volume, pp. 83–134). It may be of interest in this connection to mention that in the course of investigations of the same field, which led the present author to these speculations, that of the theory of crises, the great French sociologist G. Tarde stressed the "contradiction de croyances" or "contradiction de jugements" or "contradictions de espérances" as the main cause of these phenomena (*Psychologie économique* [Paris, 1902], II, 128–29; cf. also N. Pinkus, *Das Problem des Normalen in der Nationalökonomie* [Leipzig, 1906], pp. 252 and 275).

9. It is an interesting question, but one which I cannot discuss here, whether, in order that we can speak of equilibrium, every single individual must be right, or whether it would not be sufficient if, in consequence of a compensation of errors in different directions, quantities of the different commodities coming on the market were the same as if every individual had been right. It seems to me as if equilibrium

6

When in all this I emphasize the distinction between mere intercompatibility of the individual plans[10] and the correspondence between them and the actual external facts or objective data, I do not, of course, mean to suggest that the subjective interagreement is not in some way brought about by the external facts. There would, of course, be no reason why the subjective data of different people should ever correspond unless they were due to the experience of the same objective facts. But the point is that pure equilibrium analysis is not concerned with the way in which this correspondence is brought about. In the description of an existing state of equilibrium which it provides, it is simply assumed that the subjective data coincide with the objective facts. The equilibrium relationships cannot be deduced merely from the objective facts, since the analysis of what people will do can start only from what is known to them. Nor can equilibrium analysis start merely from a given set of subjective data, since the subjective data of different people would be either compatible or incompatible, that is, they would already determine whether equilibrium did or did not exist.

We shall not get much further here unless we ask for the reasons for our concern with the admittedly fictitious state of equilibrium. Whatever may occasionally have been said by overpure economists, there seems to be no possible doubt that the only justification for this is the supposed existence of a tendency toward equilibrium. It is only by this assertion that such a tendency exists that economics ceases to be an exercise in pure logic and becomes an empirical science; and it is to economics as an empirical science that we must now turn.

in the strict sense would require the first condition to be satisfied, but I can conceive that a wider concept, requiring only the second condition, might occasionally be useful. A fuller discussion of this problem would have to consider the whole question of the significance which some economists (including Pareto) attach to the law of great numbers in this connection. On the general point see P. N. Rosenstein-Rodan, "The Coordination of the General Theories of Money and Price," *Economica*, August, 1936.

10. Or, since in view of the tautological character of the Pure Logic of Choice "individual plans" and "subjective data" can be used interchangeably, the agreement between the subjective data of the different individuals.

In the light of our analysis of the meaning of a state of equilibrium it should be easy to say what is the real content of the assertion that a tendency toward equilibrium exists. It can hardly mean anything but that, under certain conditions, the knowledge and intentions of the different members of society are supposed to come more and more into agreement or, to put the same thing in less general and less exact but more concrete terms, that the expectations of the people and particularly of the entrepreneurs will become more and more correct. In this form the assertion of the existence of a tendency toward equilibrium is clearly an empirical proposition, that is, an assertion about what happens in the real world which ought, at least in principle, to be capable of verification. And it gives our somewhat abstract statement a rather plausible common-sense meaning. The only trouble is that we are still pretty much in the dark about (*a*) the *conditions* under which this tendency is supposed to exist and (*b*) the nature of the *process* by which individual knowledge is changed.

7

In the usual presentations of equilibrium analysis it is generally made to appear as if these questions of how the equilibrium comes about were solved. But, if we look closer, it soon becomes evident that these apparent demonstrations amount to no more than the apparent proof of what is already assumed.[11] The device generally adopted for this purpose is the assumption of a perfect market where every event becomes known instantaneously to every member. It is necessary to remember here that the perfect market which is required to satisfy the assumptions of equilibrium analysis must not be confined to the particular markets of all the individual commodities; the whole economic system must be assumed to be one perfect market in which everybody knows everything. The assumption of a perfect market,

11. This seems to be implicitly admitted, although hardly consciously recognized, when in recent times it is frequently stressed that equilibrium analysis only describes the conditions of equilibrium without attempting to derive the position of equilibrium from the data. Equilibrium analysis in this sense would, of course, be pure logic and contain no assertions about the real world.

then, means nothing less than that all the members of the community, even if they are not supposed to be strictly omniscient, are at least supposed to know automatically all that is relevant for their decisions. It seems that that skeleton in our cupboard, the "economic man," whom we have exorcised with prayer and fasting, has returned through the back door in the form of a quasi-omniscient individual.

The statement that, if people know everything, they are in equilibrium is true simply because that is how we define equilibrium. The assumption of a perfect market in this sense is just another way of saying that equilibrium exists but does not get us any nearer an explanation of when and how such a state will come about. It is clear that, if we want to make the assertion that, under certain conditions, people will approach that state, we must explain by what process they will acquire the necessary knowledge. Of course, any assumption about the actual acquisition of knowledge in the course of this process will also be of a hypothetical character. But this does not mean that all such assumptions are equally justified. We have to deal here with assumptions about causation, so that what we assume must not only be regarded as possible (which is certainly not the case if we just regard people as omniscient) but must also be regarded as likely to be true; and it must be possible, at least in principle, to demonstrate that it is true in particular cases.

The significant point here is that it is these apparently subsidiary hypotheses or assumptions that people do learn from experience, and about how they acquire knowledge, which constitute the empirical content of our propositions about what happens in the real world. They usually appear disguised and incomplete as a description of the type of market to which our proposition refers; but this is only one, though perhaps the most important, aspect of the more general problem of how knowledge is acquired and communicated. The important point of which economists frequently do not seem to be aware is that the nature of these hypotheses is in many respects rather different from the more general assumptions from which the Pure Logic of Choice starts. The main differences seem to me to be two:

First, the assumptions from which the Pure Logic of Choice starts are facts which we know to be common to all human thought. They may be regarded as axioms which define or delimit the field within which we are able to understand or mentally to reconstruct the processes of thought of other people. They are therefore universally applicable to the field in which we are interested—although, of course, where *in concreto* the limits of this field are is an empirical question. They refer to a type of human action (what we commonly call "rational," or even merely "conscious," as distinguished from "instinctive" action) rather than to the particular conditions under which this action is undertaken. But the assumptions or hypotheses, which we have to introduce when we want to explain the social processes, concern the relation of the thought of an individual to the outside world, the question to what extent and how his knowledge corresponds to the external facts. And the hypotheses must necessarily run in terms of assertions about causal connections, about how experience creates knowledge.

Second, while in the field of the Pure Logic of Choice our analysis can be made exhaustive, that is, while we can here develop a formal apparatus which covers all conceivable situations, the supplementary hypotheses must of necessity be selective, that is, we must select from the infinite variety of possible situations such ideal types as for some reason we regard as specially relevant to conditions in the real world.[12] Of course, we could also develop a separate science, the subject mattter of which was *per definitionem* confined to a "perfect market" or some similarly defined object, just as the Logic of Choice applies only to persons who have to allot limited means among a variety of ends. For

12. The distinction drawn here may help to solve the old difference between economists and sociologists about the role which "ideal types" play in the reasoning of economic theory. The sociologists used to emphasize that the usual procedure of economic theory involved the assumption of particular ideal types, while the economic theorist pointed out that his reasoning was of such generality that he need not make use of any "ideal types." The truth seems to be that within the field of the Pure Logic of Choice, in which the economist was largely interested, he was right in his assertion but that, as soon as he wanted to use it for the explanation of a social process, he had to use "ideal types" of one sort or another.

the field so defined our propositions would again become a priori true, but for such a procedure we should lack the justification which consists in the assumption that the situation in the real world is similar to what we assume it to be.

8

I must now turn to the question of what are the concrete hypotheses concerning the conditions under which people are supposed to acquire the relevant knowledge and the process by which they are supposed to acquire it. If it were at all clear what the hypotheses usually employed in this respect were, we should have to scrutinize them in two respects: we should have to investigate whether they were necessary and sufficient to explain a movement toward equilibrium, and we should have to show to what extent they were borne out by reality. But I am afraid that I am now getting to a stage where it becomes exceedingly difficult to say what exactly are the assumptions on the basis of which we assert that there will be a tendency toward equilibrium and to claim that our analysis has an application to the real world.[13] I cannot pretend that I have as yet got much further on this point. Consequently, all I can do is to ask a number of questions to which we shall have to find an answer if we want to be clear about the significance of our argument.

The only condition about the necessity of which for the establishment of an equilibrium economists seem to be fairly agreed is the "constancy of the data." But after what we have seen about the vagueness of the concept of "datum" we shall suspect, and rightly, that this does not get us much further. Even if we assume—as we probably

13. The older economists were often more explicit on this point than their successors. See, e.g., Adam Smith (*Wealth of Nations,* ed. Cannan, I, 116): "In order, however, that this equality [of wages] may take place in the whole of their advantages or disadvantages, three things are required even when there is perfect freedom. First, the employment must be well known and long established in the neighbourhood . . ."; or David Ricardo (*Letters to Malthus,* October 22, 1811, p. 18): "It would be no answer to me to say that men were ignorant of the best and cheapest mode of conducting their business and paying their debts, because that is a question of fact, not of science, and might be argued against almost every proposition in Political Economy."

must—that here the term is used in its objective sense (which includes, it will be remembered, the preferences of the different individuals), it is by no means clear that this is either required or sufficient in order that people shall actually acquire the necessary knowledge or that it was meant as a statement of the conditions under which they will do so. It is rather significant that, at any rate, some authors feel it necessary to add "perfect knowledge" as an additional and separate condition.[14] Indeed, we shall see that constancy of the objective data is neither a necessary nor a sufficient condition. That it cannot be a necessary condition follows from the facts, first, that nobody would want to interpret it in the absolute sense that nothing must ever happen in the world, and, second, that, as we have seen, as soon as we want to include changes which occur periodically or perhaps even changes which proceed at a constant rate, the only way in which we can define constancy is with reference to expectations. All that this condition amounts to, then, is that there must be some discernible regularity in the world which makes it possible to predict events correctly. But, while this is clearly not sufficient to prove that people will learn to foresee events correctly, the same is true to a hardly less degree even about constancy of data in an absolute sense. For any one individual, constancy of the data does in no way mean constancy of all the facts independent of himself, since, of course, only the tastes and not the actions of the other people can in this sense be assumed to be constant. As all those other people will change their decisions as they gain experience about the external facts and about other people's actions, there is no reason why these processes of successive changes should ever come to an end. These difficulties are well known,[15] and I mention them here only to remind you how little we actually know about the conditions under which an equilibrium will ever be reached. But I do not propose to follow this line of approach further, though not because this question of the empirical probability that people will learn (that is, that their subjective data will come to correspond with

14. See N. Kaldor, "A Classificatory Note on the Determinateness of Equilibrium," *Review of Economic Studies,* I, No. 2 (1934), 123.

15. *Ibid., passim.*

each other and with the objective facts) is lacking in unsolved and highly interesting problems. The reason is rather that there seems to me to be another and more fruitful way of approach to the central problem.

9

The questions I have just discussed concerning the conditions under which people are likely to acquire the necessary knowledge, and the process by which they will acquire it, have at least received some attention in past discussions. But there is a further question which seems to me to be at least equally important but which appears to have received no attention at all, and that is how much knowledge and what sort of knowledge the different individuals must possess in order that we may be able to speak of equilibrium. It is clear that, if the concept is to have any empirical significance, it cannot presuppose that everybody knows everything. I have already had to use the undefined term "relevant knowledge," that is, the knowledge which is relevant to a particular person. But what is this relevant knowledge? It can hardly mean simply the knowledge which actually influenced his actions, because his decisions might have been different not only if, for instance, the knowledge he possessed had been correct instead of incorrect but also if he had possessed knowledge about altogether different fields.

Clearly there is here a problem of the *division of knowledge*[16] which is quite analogous to, and at least as important as, the problem of the division of labor. But, while the latter has been one of the main subjects of investigation ever since the beginning of our science, the former has been as completely neglected, although it seems to me to be the really central problem of economics as a social science. The problem which we pretend to solve is how the spontaneous interaction of a number of people, each possessing only bits of knowledge, brings

16. Cf. L. v. Mises, *Gemeinwirtschaft* (2d ed.; Jena, 1932), p. 96: "Die Verteilung der Verfügungsgewalt über die wirtschaftlichen Güter der arbeitsteilig wirtschaftenden Sozialwirtschaft auf viele Individuen bewirkt eine Art geistige Arbeitsteilung, ohne die Produktionsrechnung und Wirtschaft nicht möglich wäre."

about a state of affairs in which prices correspond to costs, etc., and which could be brought about by deliberate direction only by somebody who possessed the combined knowledge of all those individuals. Experience shows us that something of this sort does happen, since the empirical observation that prices do tend to correspond to costs was the beginning of our science. But in our analysis, instead of showing what bits of information the different persons must possess in order to bring about that result, we fall in effect back on the assumption that everybody knows everything and so evade any real solution of the problem.

Before, however, I can proceed further to consider this division of knowledge among different persons, it is necessary to become more specific about the sort of knowledge which is relevant in this connection. It has become customary among economists to stress only the need of knowledge of prices, apparently because—as a consequence of the confusions between objective and subjective data—the complete knowledge of the objective facts was taken for granted. In recent times even the knowledge of current prices has been taken so much for granted that the only connection in which the question of knowledge has been regarded as problematic has been the anticipation of future prices. But, as I have already indicated at the beginning of this essay, price expectations and even the knowledge of current prices are only a very small section of the problem of knowledge as I see it. The wider aspect of the problem of knowledge with which I am concerned is the knowledge of the basic fact of how the different commodities can be obtained and used,[17] and under what conditions they are actually obtained and used, that is, the general question of why the subjective data to the different persons correspond to the objec-

17. Knowledge in this sense is more than what is usually described as skill, and the division of knowledge of which we here speak more than is meant by the division of labor. To put it shortly, "skill" refers only to the knowledge of which a person makes use in his trade, while the further knowledge about which we must know something in order to be able to say anything about the processes in society is the knowledge of alternative possibilities of action of which he makes no direct use. It may be added that knowledge, in the sense in which the term is here used, is identical with foresight only in the sense in which all knowledge is capacity to predict.

tive facts. Our problem of knowledge here is just the existence of this correspondence which in much of current equilibrium analysis is simply assumed to exist, but which we have to explain if we want to show why the propositions, which are necessarily true about the attitude of a person toward things which he believes to have certain properties, should come to be true of the actions of society with regard to things which either do possess these properties, or which, for some reason which we shall have to explain, are commonly believed by the members of society to possess these properties.[18]

But, to revert to the special problem I have been discussing, the amount of knowledge different individuals must possess in order that equilibrium may prevail (or the "relevant" knowledge they must possess): we shall get nearer to an answer if we remember how it can become apparent either that equilibrium did not exist or that it is being disturbed. We have seen that the equilibrium connections will be severed if any person changes his plans, either because his tastes change (which does not concern us here) or because new facts become known to him. But there are evidently two different ways in which he may learn of new facts that make him change his plans, which for our purposes are of altogether different significance. He may learn of the new facts as it were by accident, that is, in a way which is not a necessary consequence of his attempt to execute his original plan, or it may be inevitable that in the course of his attempt he will find that the facts are different from what he expected. It is obvious that, in order that he may proceed according to plan, his knowledge needs to be correct

18. That all propositions of economic theory refer to things which are defined in terms of human attitudes toward them, that is, that the "sugar" about which economic theory may occasionally speak is defined not by its "objective" qualities but by the fact that people believe that it will serve certain needs of theirs in a certain way, is the source of all sorts of difficulties and confusions, particularly in connection with the problem of "verification." It is, of course, also in this connection that the contrast between the *verstehende* social science and the behaviorist approach becomes so glaring. I am not certain that the behaviorists in the social sciences are quite aware of *how* much of the traditional approach they would have to abandon if they wanted to be consistent or that they would want to adhere to it consistently if they were aware of this. It would, for instance, imply that propositions of the theory of money would have to refer exclusively to, say, "round disks of metal, bearing a certain stamp," or some similarly defined physical object or group of objects.

only on the points on which it will necessarily be confirmed or corrected in the course of the execution of the plan. But he may have no knowledge of things which, if he possessed it, would certainly affect his plan.

The conclusion, then, which we must draw is that the relevant knowledge which he must possess in order that equilibrium may prevail is the knowledge which he is bound to acquire in view of the position in which he originally is, and the plans which he then makes. It is certainly not all the knowledge which, if he acquired it by accident, would be useful to him and lead to a change in his plan. We may therefore very well have a position of equilibrium only because some people have no chance of learning about facts which, if they knew them, would induce them to alter their plans. Or, in other words, it is only relative to the knowledge which a person is bound to acquire in the course of the attempt to carry out his original plan that an equilibrium is likely to be reached.

While such a position represents in one sense a position of equilibrium, it is clear that it is not an equilibrium in the special sense in which equilibrium is regarded as a sort of optimum position. In order that the results of the combination of individual bits of knowledge should be comparable to the results of direction by an omniscient dictator, further conditions must apparently be introduced.[19] While it should be possible to define the amount of knowledge which individuals must possess in order that his result should follow, I know of no real attempt in this direction. One condition would probably be that each of the alternative uses of any sort of resources is known to the owner of some such resources actually used for another purpose and that in this way all the different uses of these resources are connected, either directly or indirectly.[20] But I mention this condition

19. These conditions are usually described as absence of "frictions." In a recently published article ("Quantity of Capital and the Rate of Interest," *Journal of Political Economy*, XLIV, No. 5 [1936], 638) Frank H. Knight rightly points out that "'error' is the usual meaning of friction in economic discussion."

20. This would be one, but probably not yet a sufficient, condition to insure that, with a given state of demand, the marginal productivity of the different factors of production in their different uses should be equalized and that in this sense an equilibrium of production should be brought about. That it is not necessary, as one might

only as an instance of how it will in most cases be sufficient that in each field there is a certain margin of people who possess among them all the relevant knowledge. To elaborate this further would be an interesting and a very important task but a task that would far exceed the limits of this paper.

Although what I have said on this point has been largely in the form of a criticism, I do not want to appear unduly despondent about what we have already achieved. Even if we have jumped over an essential link in our argument, I still believe that, by what is implicit in its reasoning, economics has come nearer than any other social science to an answer to that central question of all social sciences: How can the combination of fragments of knowledge existing in different minds bring about results which, if they were to be brought about deliberately, would require a knowledge on the part of the directing mind which no single person can possess? To show that in this sense the spontaneous actions of individuals will, under conditions which we can define, bring about a distribution of resources which can be understood as if it were made according to a single plan, although nobody has planned it, seems to me indeed an answer to the problem which has sometimes been metaphorically described as that of the "social mind." But we must not be surprised that such claims have usually been rejected, since we have not based them on the right grounds.

think, that every possible alternative use of any kind of resources should be known to at least one among the owners of each group of such resources which are used for one particular purpose is due to the fact that the alternatives known to the owners of the resources in a particular use are reflected in the prices of these resources. In this way it may be a sufficient distribution of knowledge of the alternative uses, *m*, *n*, *o*, . . . *y*, *z*, of a commodity, if A, who uses the quantity of these resources in his possession for *m*, knows of *n*, and B, who uses his for *n*, knows of *m*, while C, who uses his for *o*, knows of *n*, etc., until we get to L, who uses his for *z*, but knows only of *y*. I am not clear to what extent in addition to this a particular distribution of the knowledge of the different proportions is required in which different factors can be combined in the production of any one commodity. For complete equilibrium additional assumptions will be required about the knowledge which consumers possess about the serviceability of the commodities for the satisfaction of their wants.

There is only one more point in this connection which I should like to mention. This is that, if the tendency toward equilibrium, which on empirical grounds we have reason to believe to exist, is only toward an equilibrium relative to that knowledge which people will acquire in the course of their economic activity, and if any other change of knowledge must be regarded as a "change in the data" in the usual sense of the term, which falls outside the sphere of equilibrium analysis, this would mean that equilibrium analysis can really tell us nothing about the significance of such changes in knowledge, and it would also go far to account for the fact that pure analysis seems to have so extraordinarily little to say about institutions, such as the press, the purpose of which is to communicate knowledge. It might even explain why the preoccupation with pure analysis should so frequently create a peculiar blindness to the role played in real life by such institutions as advertising.

10

With these rather desultory remarks on topics which would deserve much more careful examination I must conclude my survey of these problems. There are only one or two further remarks which I want to add.

One is that, in stressing the nature of the empirical propositions of which we must make use if the formal apparatus of equilibrium analysis is to serve for an explanation of the real world, and in emphasizing that the propositions about how people will learn, which are relevant in this connection, are of a fundamentally different nature from those of formal analysis, I do not mean to suggest that there opens here and now a wide field for empirical research. I very much doubt whether such investigation would teach us anything new. The important point is rather that we should become aware of what the questions of fact are on which the applicability of our argument to the real world depends, or, to put the same thing in other words, at what point our argument, when it is applied to phenomena of the real world, becomes subject to verification.

The second point is that I do of course not want to suggest that the sorts of problems I have been discussing were foreign to the arguments of the economists of the older generations. The only objection that can be made against them is that they have so mixed up the two sorts of propositions, the a priori and the empirical, of which every realistic economist makes constant use, that it is frequently quite impossible to see what sort of validity they claimed for a particular statement. More recent work has been free from this fault—but only at the price of leaving more and more obscure what sort of relevance their arguments had to the phenomena of the real world. All I have tried to do has been to find the way back to the common-sense meaning of our analysis, of which, I am afraid, we are likely to lose sight as our analysis becomes more elaborate. You may even feel that most of what I have said has been commonplace. But from time to time it is probably necessary to detach one's self from the technicalities of the argument and to ask quite naïvely what it is all about. If I have only shown not only that in some respects the answer to this question is not obvious but that occasionally we even do not quite know what it is, I have succeeded in my purpose.

write of an ant heap or the history an observer from Mars might write of the human race.

If this account of what the social sciences are actually doing appears to you as a description of a topsy-turvy world in which everything is in the wrong place, I beg you to remember that these disciplines deal with a world at which from our position we necessarily look in a different manner from that in which we look at the world of nature. To employ a useful metaphor: while at the world of nature we look from the outside, we look at the world of society from the inside; while, as far as nature is concerned, our concepts are about the facts and have to be adapted to the facts, in the world of society at least some of the most familiar concepts are the stuff from which that world is made. Just as the existence of a common structure of thought is the condition of the possibility of our communicating with one another, of your understanding what I say, so it is also the basis on which we all interpret such complicated social structures as those which we find in economic life or law, in language, and in customs.

IV. The Use of Knowledge in Society*

1

WHAT is the problem we wish to solve when we try to construct a rational economic order? On certain familiar assumptions the answer is simple enough. *If* we possess all the relevant information, *if* we can start out from a given system of preferences, and *if* we command complete knowledge of available means, the problem which remains is purely one of logic. That is, the answer to the question of what is the best use of the available means is implicit in our assumptions. The conditions which the solution of this optimum problem must satisfy have been fully worked out and can be stated best in mathematical form: put at their briefest, they are that the marginal rates of substitution between any two commodities or factors must be the same in all their different uses.

This, however, is emphatically *not* the economic problem which society faces. And the economic calculus which we have developed to solve this logical problem, though an important step toward the solution of the economic problem of society, does not yet provide an answer to it. The reason for this is that the "data" from which the economic calculus starts are never for the whole society "given" to a single mind which could work out the implications and can never be so given.

The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess. The economic problem of society is thus not merely a problem of how to allocate "given" resources—if "given" is taken to mean given

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to a single mind which deliberately solves the problem set by these "data." It is rather a problem of how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it briefly, it is a problem of the utilization of knowledge which is not given to anyone in its totality.

This character of the fundamental problem has, I am afraid, been obscured rather than illuminated by many of the recent refinements of economic theory, particularly by many of the uses made of mathematics. Though the problem with which I want primarily to deal in this paper is the problem of a rational economic organization, I shall in its course be led again and again to point to its close connections with certain methodological questions. Many of the points I wish to make are indeed conclusions toward which diverse paths of reasoning have unexpectedly converged. But, as I now see these problems, this is no accident. It seems to me that many of the current disputes with regard to both economic theory and economic policy have their common origin in a misconception about the nature of the economic problem of society. This misconception in turn is due to an erroneous transfer to social phenomena of the habits of thought we have developed in dealing with the phenomena of nature.

2

In ordinary language we describe by the word "planning" the complex of interrelated decisions about the allocation of our available resources. All economic activity is in this sense planning; and in any society in which many people collaborate, this planning, whoever does it, will in some measure have to be based on knowledge which, in the first instance, is not given to the planner but to somebody else, which somehow will have to be conveyed to the planner. The various ways in which the knowledge on which people base their plans is communicated to them is the crucial problem for any theory explaining the economic process, and the problem of what is the best way of

utilizing knowledge initially dispersed among all the people is at least one of the main problems of economic policy—or of designing an efficient economic system.

The answer to this question is closely connected with that other question which arises here, that of *who* is to do the planning. It is about this question that all the dispute about "economic planning" centers. This is not a dispute about whether planning is to be done or not. It is a dispute as to whether planning is to be done centrally, by one authority for the whole economic system, or is to be divided among many individuals. Planning in the specific sense in which the term is used in contemporary controversy necessarily means central planning—direction of the whole economic system according to one unified plan. Competition, on the other hand, means decentralized planning by many separate persons. The halfway house between the two, about which many people talk but which few like when they see it, is the delegation of planning to organized industries, or, in other words, monopolies.

Which of these systems is likely to be more efficient depends mainly on the question under which of them we can expect that fuller use will be made of the existing knowledge. This, in turn, depends on whether we are more likely to succeed in putting at the disposal of a single central authority all the knowledge which ought to be used but which is initially dispersed among many different individuals, or in conveying to the individuals such additional knowledge as they need in order to enable them to dovetail their plans with those of others.

3

It will at once be evident that on this point the position will be different with respect to different kinds of knowledge. The answer to our question will therefore largely turn on the relative importance of the different kinds of knowledge: those more likely to be at the disposal of particular individuals and those which we should with greater confidence expect to find in the possession of an authority made up of

suitably chosen experts. If it is today so widely assumed that the latter will be in a better position, this is because one kind of knowledge, namely, scientific knowledge, occupies now so prominent a place in public imagination that we tend to forget that it is not the only kind that is relevant. It may be admitted that, as far as scientific knowledge is concerned, a body of suitably chosen experts may be in the best position to command all the best knowledge available—though this is of course merely shifting the difficulty to the problem of selecting the experts. What I wish to point out is that, even assuming that this problem can be readily solved, it is only a small part of the wider problem.

Today it is almost heresy to suggest that scientific knowledge is not the sum of all knowledge. But a little reflection will show that there is beyond question a body of very important but unorganized knowledge which cannot possibly be called scientific in the sense of knowledge of general rules: the knowledge of the particular circumstances of time and place. It is with respect to this that practically every individual has some advantage over all others because he possesses unique information of which beneficial use might be made, but of which use can be made only if the decisions depending on it are left to him or are made with his active co-operation. We need to remember only how much we have to learn in any occupation after we have completed our theoretical training, how big a part of our working life we spend learning particular jobs, and how valuable an asset in all walks of life is knowledge of people, of local conditions, and of special circumstances. To know of and put to use a machine not fully employed, or somebody's skill which could be better utilized, or to be aware of a surplus stock which can be drawn upon during an interruption of supplies, is socially quite as useful as the knowledge of better alternative techniques. The shipper who earns his living from using otherwise empty or half-filled journeys of tramp-steamers, or the estate agent whose whole knowledge is almost exclusively one of temporary opportunities, or the *arbitrageur* who gains from local differences of commodity prices—are all performing eminently useful functions based on special knowledge of circumstances of the fleeting moment not known to others.

It is a curious fact that this sort of knowledge should today be generally regarded with a kind of contempt and that anyone who by such knowledge gains an advantage over somebody better equipped with theoretical or technical knowledge is thought to have acted almost disreputably. To gain an advantage from better knowledge of facilities of communication or transport is sometimes regarded as almost dishonest, although it is quite as important that society make use of the best opportunities in this respect as in using the latest scientific discoveries. This prejudice has in a considerable measure affected the attitude toward commerce in general compared with that toward production. Even economists who regard themselves as definitely immune to the crude materialist fallacies of the past constantly commit the same mistake where activities directed toward the acquisition of such practical knowledge are concerned—apparently because in their scheme of things all such knowledge is supposed to be "given." The common idea now seems to be that all such knowledge should as a matter of course be readily at the command of everybody, and the reproach of irrationality leveled against the existing economic order is frequently based on the fact that it is not so available. This view disregards the fact that the method by which such knowledge can be made as widely available as possible is precisely the problem to which we have to find an answer.

4

If it is fashionable today to minimize the importance of the knowledge of the particular circumstances of time and place, this is closely connected with the smaller importance which is now attached to change as such. Indeed, there are few points on which the assumptions made (usually only implicitly) by the "planners" differ from those of their opponents as much as with regard to the significance and frequency of changes which will make substantial alterations of production plans necessary. Of course, if detailed economic plans could be laid down for fairly long periods in advance and then closely adhered to, so that no further economic decisions of importance would be re-

quired, the task of drawing up a comprehensive plan governing all economic activity would be much less formidable.

It is, perhaps, worth stressing that economic problems arise always and only in consequence of change. As long as things continue as before, or at least as they were expected to, there arise no new problems requiring a decision, no need to form a new plan. The belief that changes, or at least day-to-day adjustments, have become less important in modern times implies the contention that economic problems also have become less important. This belief in the decreasing importance of change is, for that reason, usually held by the same people who argue that the importance of economic considerations has been driven into the background by the growing importance of technological knowledge.

Is it true that, with the elaborate apparatus of modern production, economic decisions are required only at long intervals, as when a new factory is to be erected or a new process to be introduced? Is it true that, once a plant has been built, the rest is all more or less mechanical, determined by the character of the plant, and leaving little to be changed in adapting to the ever changing circumstances of the moment?

The fairly widespread belief in the affirmative is not, as far as I can ascertain, borne out by the practical experience of the businessman. In a competitive industry at any rate—and such an industry alone can serve as a test—the task of keeping cost from rising requires constant struggle, absorbing a great part of the energy of the manager. How easy it is for an inefficient manager to dissipate the differentials on which profitability rests and that it is possible, with the same technical facilities, to produce with a great variety of costs are among the commonplaces of business experience which do not seem to be equally familiar in the study of the economist. The very strength of the desire, constantly voiced by producers and engineers, to be allowed to proceed untrammeled by considerations of money costs, is eloquent testimony to the extent to which these factors enter into their daily work.

One reason why economists are increasingly apt to forget about the constant small changes which make up the whole economic pic-

ture is probably their growing preoccupation with statistical aggregates, which show a very much greater stability than the movements of the detail. The comparative stability of the aggregates cannot, however, be accounted for—as the statisticians occasionally seem to be inclined to do—by the "law of large numbers" or the mutual compensation of random changes. The number of elements with which we have to deal is not large enough for such accidental forces to produce stability. The continuous flow of goods and services is maintained by constant deliberate adjustments, by new dispositions made every day in the light of circumstances not known the day before, by B stepping in at once when A fails to deliver. Even the large and highly mechanized plant keeps going largely because of an environment upon which it can draw for all sorts of unexpected needs: tiles for its roof, stationery or its forms, and all the thousand and one kinds of equipment in which it cannot be self-contained and which the plans for the operation of the plant require to be readily available in the market.

This is, perhaps, also the point where I should briefly mention the fact that the sort of knowledge with which I have been concerned is knowledge of the kind which by its nature cannot enter into statistics and therefore cannot be conveyed to any central authority in statistical form. The statistics which such a central authority would have to use would have to be arrived at precisely by abstracting from minor differences between the things, by lumping together, as resources of one kind, items which differ as regards location, quality, and other particulars, in a way which may be very significant for the specific decision. It follows from this that central planning based on statistical information by its nature cannot take direct account of these circumstances of time and place and that the central planner will have to find some way or other in which the decisions depending on them can be left to the "man on the spot."

5

If we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be

left to the people who are familiar with these circumstances, who know directly of the relevant changes and of the resources immediately available to meet them. We cannot expect that this problem will be solved by first communicating all this knowledge to a central board which, after integrating all knowledge, issues its orders. We must solve it by some form of decentralization. But this answers only part of our problem. We need decentralization because only thus can we insure that the knowledge of the particular circumstances of time and place will be promptly used. But the "man on the spot" cannot decide solely on the basis of his limited but intimate knowledge of the facts of his immediate surroundings. There still remains the problem of communicating to him such further information as he needs to fit his decisions into the whole pattern of changes of the larger economic system.

How much knowledge does he need to do so successfully? Which of the events which happen beyond the horizon of his immediate knowledge are of relevance to his immediate decision, and how much of them need he know?

There is hardly anything that happens anywhere in the world that *might* not have an effect on the decision he ought to make. But he need not know of these events as such, nor of *all* their effects. It does not matter for him *why* at the particular moment more screws of one size than of another are wanted, *why* paper bags are more readily available than canvas bags, or *why* skilled labor, or particular machine tools, have for the moment become more difficult to obtain. All that is significant for him is *how much more or less* difficult to procure they have become compared with other things with which he is also concerned, or how much more or less urgently wanted are the alternative things he produces or uses. It is always a question of the relative importance of the particular things with which he is concerned, and the causes which alter their relative importance are of no interest to him beyond the effect on those concrete things of his own environment.

It is in this connection that what I have called the "economic calcu-

lus" (or the Pure Logic of Choice) helps us, at least by analogy, to see how this problem can be solved, and in fact is being solved, by the price system. Even the single controlling mind, in possession of all the data for some small, self-contained economic system, would not—every time some small adjustment in the allocation of resources had to be made—go explicitly through all the relations between ends and means which might possibly be affected. It is indeed the great contribution of the Pure Logic of Choice that it has demonstrated conclusively that even such a single mind could solve this kind of problem only by constructing and constantly using rates of equivalence (or "values," or "marginal rates of substitution"), that is, by attaching to each kind of scarce resource a numerical index which cannot be derived from any property possessed by that particular thing, but which reflects, or in which is condensed, its significance in view of the whole means-end structure. In any small change he will have to consider only these quantitative indices (or "values") in which all the relevant information is concentrated; and, by adjusting the quantities one by one, he can appropriately rearrange his dispositions without having to solve the whole puzzle *ab initio* or without needing at any stage to survey it at once in all its ramifications.

Fundamentally, in a system in which the knowledge of the relevant facts is dispersed among many people, prices can act to co-ordinate the separate actions of different people in the same way as subjective values help the individual to co-ordinate the parts of his plan. It is worth contemplating for a moment a very simple and commonplace instance of the action of the price system to see what precisely it accomplishes. Assume that somewhere in the world a new opportunity for the use of some raw material, say tin, has arisen, or that one of the sources of supply of tin has been eliminated. It does not matter for our purpose—and it is significant that it does not matter—which of these two causes has made tin more scarce. All that the users of tin need to know is that some of the tin they used to consume is now more profitably employed elsewhere and that, in consequence, they must economize tin. There is no need for the great majority of them

even to know where the more urgent need has arisen, or in favor of what other needs they ought to husband the supply. If only some of them know directly of the new demand, and switch resources over to it, and if the people who are aware of the new gap thus created in turn fill it from still other sources, the effect will rapidly spread throughout the whole economic system and influence not only all the uses of tin but also those of its substitutes and the substitutes of these substitutes, the supply of all the things made of tin, and their substitutes, and so on; and all his without the great majority of those instrumental in bringing about these substitutions knowing anything at all about the original cause of these changes. The whole acts as one market, not because any of its members survey the whole field, but because their limited individual fields of vision sufficiently overlap so that through many intermediaries the relevant information is communicated to all. The mere fact that there is one price for any commodity—or rather that local prices are connected in a manner determined by the cost of transport, etc.—brings about the solution which (it is just conceptually possible) might have been arrived at by one single mind possessing all the information which is in fact dispersed among all the people involved in the process.

6

We must look at the price system as such a mechanism for communicating information if we want to understand its real function—a function which, of course, it fulfils less perfectly as prices grow more rigid. (Even when quoted prices have become quite rigid, however, the forces which would operate through changes in price still operate to a considerable extent through changes in the other terms of the contract.) The most significant fact about this system is the economy of knowledge with which it operates, or how little the individual participants need to know in order to be able to take the right action. In abbreviated form, by a kind of symbol, only the most essential information is passed on and passed on only to those concerned. It is

more than a metaphor to describe the price system as a kind of machinery for registering change, or a system of telecommunications which enables individual producers to watch merely the movement of a few pointers, as an engineer might watch the hands of a few dials, in order to adjust their activities to changes of which they may never know more than is reflected in the price movement.

Of course, these adjustments are probably never "perfect" in the sense in which the economist conceives of them in his equilibrium analysis. But I fear that our theoretical habits of approaching the problem with the assumption of more or less perfect knowledge on the part of almost everyone has made us somewhat blind to the true function of the price mechanism and led us to apply rather misleading standards in judging its efficiency. The marvel is that in a case like that of a scarcity of one raw material, without an order being issued, without more than perhaps a handful of people knowing the cause, tens of thousands of people whose identity could not be ascertained by months of investigation, are made to use the material or its products more sparingly; that is, they move in the right direction. This is enough of a marvel even if, in a constantly changing world, not all will hit it off so perfectly that their profit rates will always be maintained at the same even or "normal" level.

I have deliberately used the word "marvel" to shock the reader out of the complacency with which we often take the working of this mechanism for granted. I am convinced that if it were the result of deliberate human design, and if the people guided by the price changes understood that their decisions have significance far beyond their immediate aim, this mechanism would have been acclaimed as one of the greatest triumphs of the human mind. Its misfortune is the double one that it is not the product of human design and that the people guided by it usually do not know why they are made to do what they do. But those who clamor for "conscious direction"—and who cannot believe that anything which has evolved without design (and even without our understanding it) should solve problems which we should not be able to solve consciously—should remember

this: The problem is precisely how to extend the span of our utilization of resources beyond the span of the control of any one mind; and, therefore, how to dispense with the need of conscious control and how to provide inducements which will make the individuals do the desirable things without anyone having to tell them what to do.

The problem which we meet here is by no means peculiar to economics but arises in connection with nearly all truly social phenomena, with language and with most of our cultural inheritance, and constitutes really the central theoretical problem of all social science. As Alfred Whitehead has said in another connection, "It is a profoundly erroneous truism, repeated by all copy-books and by eminent people when they are making speeches, that we should cultivate the habit of thinking what we are doing. The precise opposite is the case. Civilization advances by extending the number of important operations which we can perform without thinking about them." This is of profound significance in the social field. We make constant use of formulas, symbols, and rules whose meaning we do not understand and through the use of which we avail ourselves of the assistance of knowledge which individually we do not possess. We have developed these practices and institutions by building upon habits and institutions which have proved successful in their own sphere and which have in turn become the foundation of the civilization we have built up.

The price system is just one of those formations which man has learned to use (though he is still very far from having learned to make the best use of it) after he had stumbled upon it without understanding it. Through it not only a division of labor but also a co-ordinated utilization of resources based on an equally divided knowledge has become possible. The people who like to deride any suggestion that this may be so usually distort the argument by insinuating that it asserts that by some miracle just that sort of system has spontaneously grown up which is best suited to modern civilization. It is the other way round: man has been able to develop that division of labor on which our civilization is based because he happened to stumble upon

a method which made it possible. Had he not done so, he might still have developed some other, altogether different, type of civilization, something like the "state" of the termite ants, or some other altogether unimaginable type. All that we can say is that nobody has yet succeeded in designing an alternative system in which certain features of the existing one can be preserved which are dear even to those who most violently assail it—such as particularly the extent to which the individual can choose his pursuits and consequently freely use his own knowledge and skill.

7

It is in many ways fortunate that the dispute about the indispensability of the price system for any rational calculation in a complex society is now no longer conducted entirely between camps holding different political views. The thesis that without the price system we could not preserve a society based on such extensive division of labor as ours was greeted with a howl of derision when it was first advanced by Von Mises twenty-five years ago. Today the difficulties which some still find in accepting it are no longer mainly political, and this makes for an atmosphere much more conducive to reasonable discussion. When we find Leon Trotsky arguing that "economic accounting is unthinkable without market relations"; when Professor Oscar Lange promises Professor von Mises a statue in the marble halls of the future Central Planning Board; and when Professor Abba P. Lerner rediscovers Adam Smith and emphasizes that the essential utility of the price system consists in inducing the individual, while seeking his own interest, to do what is in the general interest, the differences can indeed no longer be ascribed to political prejudice. The remaining dissent seems clearly to be due to purely intellectual, and more particularly methodological, differences.

A recent statement by Joseph Schumpeter in his *Capitalism, Socialism, and Democracy* provides a clear illustration of one of the methodological differences which I have in mind. Its author is pre-eminent

among those economists who approach economic phenomena in the light of a certain branch of positivism. To him these phenomena accordingly appear as objectively given quantities of commodities impinging directly upon each other, almost, it would seem, without any intervention of human minds. Only against this background can I account for the following (to me startling) pronouncement. Professor Schumpeter argues that the possibility of a rational calculation in the absence of markets for the factors of production follows for the theorist "from the elementary proposition that consumers in evaluating ('demanding') consumers' goods *ipso facto* also evaluate the means of production which enter into the production of these goods."[1]

Taken literally, this statement is simply untrue. The consumers do nothing of the kind. What Professor Schumpeter's "*ipso facto*" presumably means is that the valuation of the factors of production is implied in, or follows necessarily from, the valuation of consumers' goods. But this, too, is not correct. Implication is a logical relationship which can be meaningfully asserted only of propositions simultaneously present to one and the same mind. It is evident, however, that the values of the factors of production do not depend solely on the valuation of the consumers' goods but also on the conditions of supply of the various factors of production. Only to a mind to which all these facts were simultaneously known would the answer necessarily follow from the facts given to it. The practical problem, however, arises precisely because these facts are never so given to a single mind, and

[1] *Capitalism, Socialism, and Democracy* (New York: Harper & Bros., 1942), p. 175. Professor Schumpeter is, I believe, also the original author of the myth that Pareto and Barone have "solved" the problem of socialist calculation. What they, and many others, did was merely to state the conditions which a rational allocation of resources would have to satisfy and to point out that these were essentially the same as the conditions of equilibrium of a competitive market. This is something altogether different from showing how the allocation of resources satisfying these conditions can be found in practice. Pareto himself (from whom Barone has taken practically everything he has to say), far from claiming to have solved the practical problem, in fact explicitly denies that it can be solved without the help of the market. See his *Manuel d'économie pure* (2d ed., 1927), pp. 233–34. The relevant passage is quoted in an English translation at the beginning of my article on "Socialist Calculation: The Competitive 'Solution,'" in *Economica*, VIII, No. 26 (new ser., 1940), 125; reprinted below as chapter viii.

because, in consequence, it is necessary that in the solution of the problem knowledge should be used that is dispersed among many people.

The problem is thus in no way solved if we can show that all the facts, *if* they were known to a single mind (as we hypothetically assume them to be given to the observing economist), would uniquely determine the solution; instead we must show how a solution is produced by the interactions of people each of whom possesses only partial knowledge. To assume all the knowledge to be given to a single mind in the same manner in which we assume it to be given to us as the explaining economists is to assume the problem away and to disregard everything that is important and significant in the real world.

That an economist of Professor Schumpeter's standing should thus have fallen into a trap which the ambiguity of the term "datum" sets to the unwary can hardly be explained as a simple error. It suggests rather that there is something fundamentally wrong with an approach which habitually disregards an essential part of the phenomena with which we have to deal: the unavoidable imperfection of man's knowledge and the consequent need for a process by which knowledge is constantly communicated and acquired. Any approach, such as that of much of mathematical economics with its simultaneous equations, which in effect starts from the assumption that people's *knowledge* corresponds with the objective *facts* of the situation, systematically leaves out what is our main task to explain. I am far from denying that in our system equilibrium analysis has a useful function to perform. But when it comes to the point where it misleads some of our leading thinkers into believing that the situation which it describes has direct relevance to the solution of practical problems, it is high time that we remember that it does not deal with the social process at all and that it is no more than a useful preliminary to the study of the main problem.