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Toward Understanding Economic Behavior

The Contribution of Sociological and Psychological Research Methods to Economic Anaysis

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I

IT IS A COMMONPLACE by now that the great problems facing the social sciences today are mostly interdisciplinary problems [15, 18]. Actually, however, very little co-operation has been achieved among the social sciences, in spite of the fact that the need for integration is clearly recognized by all. There are, nevertheless, a few encouraging developments in the right direction. The specific problems with which this paper is concerned refer to certain aspects of co-operation between the discipline of economics on the one hand and the disciplines of sociology and psychology on the other hand. Economics is not only the most advanced of the social sciences, it has also for a long time exhibited the greatest reluctance to make any use of the reasearch work of other social sciences. Yet in recent years we have witnessed some developments in contemporary economics which make it quite necessary for economists to enlist the help of sociologists and psychologists. Moreover, in the instances discussed here, we are in the fortunate situation that sociology and psychology stand ready to supply economics with the assistance needed, and not, as usual, in the form of qualitative materials which economists find it exceedingly difficult to assimilate, but with specific research methods designed to furnish data in quantitative form so that they can be employed without difficulty in

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economic analysis.

But before entering upon the discussion of these research techniques it is necessary first to discuss briefly the history and the nature of economic theory. This review will have to cover ground which is quite familiar to economists; it is not so well known to other social scientists, however, and it is necessary to have some conception of the development and the present status of economic theory to understand what these recent developments mean and just where they fit into economic analysis.

The traditional reputation of economics rests upon the exposition of laws of free exchange worked out by the classical writers of economic theory. They stated the law of demand and supply in an exact form, thereby establishing a body of theory which is the envy of the other social sciences and the possession of which indeed distinguishes eonomics from its sister disciplines. It is very important to realize clearly, however, that the laws of exchange which make up classical economic theory embody explicitly or implicitly certain sociological and psychological assumptions. The validity of the laws of the market depends upon two fundamental postulates: (a) that every individual acts rationally, *i.e.* that he strives after a maximum money return, and (b) that perfect competition prevails in the market [13]. Now, how did the classical writers arrive at these particular assumptions? The answer is rather simple: they derived their sociological and psychological assumptions from an analysis of the society in which they themselves lived. Their economic theory was an attempt to describe the social reality of their time: the liberal society of early capitalism. It is quite true, of course, that the early classical works contained also a utopian element—a fully developed market society was still a postulate and the classical authors hoped to contribute to bring about its realization—but it is nevertheless correct to say that on the whole classical economic theory was a fairly adequate description of an economic and social reality, it was a realistic theory, even though the laws of the market were arrived at by deductive reasoning and were not empirically tested propositions.

Unfortunately, the social reality upon which classical economic theory was based did not endure, the phase of liberal capitalism passed, and the social transformations which occurred in the process of industrialization have presented us with a contemporary social and economic structure that is a far cry from the classical utopia. The small-scale organization of independent producers has given way to the integrated combines of modern mass production and mass distribution; their monopolistic tendencies have rendered competition quite imperfect; and the simple assumption that it is the principle of pain and pleasure which guides human action is certainly not adequate to explain the complex behavior of our contemporaries.

As it became increasingly evident during the second half of the nineteenth century that the sociological and psychological assumptions implied in the classical and post-classical writings no longer corresponded with the changing social reality of Western society, economists began to react to this situation in different ways. Recognizing the inadequacy of its sociological assumptions, some economists—the members of the German historical and of the American institutionalist schools—rejected the classical theories in summary fashion and tried to rebuild economics from the ground up through empirical research alone, playing down economic theory altogether in that process [13]. The more general reaction, however, was not an attempt to re-work the untenable classical assumptions in order to provide a sounder sociological and psychological basis for economic analysis. On the contrary: most economists turned away in disgust from sociological and psychological assumptions of any kind. They attempted explicitly to exclude all sociological and psychological considerations as irrelevant to the economist [16]. They tried to formulate a body of "pure" economic theory for which they could claim universal validity regardless of any specific sociological and psychological conditions.

They took the position that economic behavior is concerned merely with the disposition of scarce means for given ends. This, they believe, is a universal condition of the human race. "We have been turned out of Paradise," says Professor L. Robbins, one of the most lucid modern exponents of this position, "we have neither eternal life nor unlimited means of gratification. Everywhere we turn, if we choose one thing we must relinquish others, which in different circumstances we would not wish to have relinquished. Scarcity of means to satisfy ends of varying importance is an almost ubiquitous condition of human behavior" [19]. Thus the subject matter of economic science was conceived to be the disposal of scarce means for *given* ends; economic theory was concerned merely with the simple facts of choice or preference, while the explanation of the preference as well as the explanation of the quantity and quality of the available means was considered to be a matter of indifference to economic science [13, 16, 19].

II

Economics stands alone among the social sciences in having worked out a very respectable body of "pure" theory, but it paid a considerable price for this distinction. Taking ends and means as *given data*, propositions of "pure" theory can indeed explain the allocation of means: when subjective desires are given and objective resources are likewise given, propositions of pure theory can explain how these resources are allocated and combined. These explanations are independent of any specific social condition, they are independent of any empirical facts; they are universally valid, but because they do not apply to any actual social condition, they are devoid of all empirical content. All propositions of "pure" theory state only logical relationships, they do not say anything about concrete phenomena. Propositions of pure economic theory are pure logic, just like propositions of pure mathematics and pure geometry. They are unconditionally valid because they are independent of any empirical facts, but because of that they are all tautologies, they are concerned with symbols, not with concrete phenomena of life, and they cannot therefore tell us any new facts about the world [6].

Although propositions of "pure" economic theory cannot be proved or disproved by any empirical facts and cannot tell us anything about empirical economic phenomena, they still serve a very useful purpose in economic science. They enable us to clarify our concepts and to see interrelationships between empirical facts. For example, just as a proposition of pure arithmetic that $9 \times 8 = 72$ enables me to pass immediately from an empirical proposition like "My bookcase contains 8 rows with 9 books each" to the further empirical proposition "My bookcase contains 72 books," in the very same way a proposition of pure economics which states that "Under perfect competition business firms are of optimum size" enables me to pass at once from an empirical statement "Competition is perfect in this market" to another empirical fact "The business firms competing in this market are of optimum size." But please note that this proposition of pure economic theory as such cannot tell me anything whatsoever about whether or not my empirical statement that "Competition is perfect in this market" is true or false [6].

A few economists are quite explicitly aware of and welcome this development of economic theory into a mere system of logical inferences. They do not *want* to deal with the empirical facts of economic behavior of actual human beings; they assume these empirical facts as given and take them as data. But it is only fair to point out that these economists are in a minority. Most of their colleagues share with all other scientists the urgent desire to formulate empirical laws; they *do* want to investigate and explain the facts of actual economic behavior. In Professor Robbins' words: "The concern of the economist is the interpretation of reality. . . .

The perception and selection of the basis of economic analysis is as much economics as the analysis itself. Indeed it is this which gives analysis significance."

This is a very sound scientific position indeed; the only trouble is, that Professor Robbins and the rest of the pure theorists eschew the methods of inductive investigation which could alone lead to the establishment of empirical generalizations about reality. Instead they claim that their universally valid deductive propositions of pure theory "somehow" possess empirical content, that actual economic behavior *does* really take the forms or "tends" to take the forms which purely logical analysis describes. They overlook that by claiming empirical content for their propositions, they are necessarily re-admitting through the windows those implicit sociological and psychological assumptions which they have so magnificently kicked out the front door. If the propositions of pure theory are supposed to reflect reality, it is again a reality in which competitive conditions and rational conduct according to the classical maximum principle are assumed to prevail.

The development of "pure" theory, then, has led economics into a difficult dilemma: economic theory can either remain "pure", which means it does not study the economic behavior of human beings at all, but makes deductions from formal propositions which have no factual empirical content. Or economic theory can claim empirical validity; then it cannot avoid dealing with sociological and psychological facts. But in this latter case it cannot content itself with implicit, untested and manifestly inadequate sociological and psychological assumptions.

III

IF ECONOMICS INTENDS to remain an empirical science, there is only one way out of the embarrassing dilemma: it must rework its sociological and psychological assumptions in order to arrive at a theory of economic behavior which will no longer be able to claim universal validity but which will enable it to grasp reality. This horn of the dilemma has been chosen in modern times by an increasing number of economists who have departed from some of the most sacred assumptions of classical and pure theory, such as the concept of equilibrium. It has always been the central assumption of classical analysis that there is a tendency toward equilibrium in the market and that all disturbances of this equilibrium are merely temporary frictions, that the market forces always tend to regain equilibrium "like water in a tank when disturbed" [6]. This static conception of the market has been given up as unrealistic by those economists who realized that contemporary economic reality is dynamic, not static. The movements in the market are not merely short-run departures from an equilibrium position, they are movements of a quite different order. The process of industrialization with its continuous technical changes has led to a growing immobilization of market forces accompanied by sharp market fluctuations which never come back to a resting point, and may not even tend to do so. We know these fluctuations as business cycles. The business cycle is the characteristic fact of our own industrial society. That is the reason why those modern economists who attempt to build a realistic theory tend to focus increasingly on the analysis of the business cycle. "Analyzing business cycles", says Professor Schumpeter, "means neither more nor less than analyzing the economic process of the capitalist era" [23].

We call these market fluctuations cycles because they exhibit a certain regularity of time-sequence: we find a recurrent pattern in which a depression is followed by a slow revival, leading to prosperity which culminates in a boom, followed by a violent turning point, the crisis, which leads again to a depression, and so on. This kind of pattern has characterized our Western civilization for the past 150 years, and it is hardly an exaggeration to say that it is a phenomenon of paramount practical importance. We are naturally curious to know what causes this cyclical pattern, especially what causes the transition from one stage to the next within this cycle. There is no lack of ingenious theories which attempt to explain the nature of the business cycle, but there is little basic agreement between the various theories, and economists are forced to admit that the nature of the cycle still remains quite obscure.

Most of the very recent attempts to explain the business cycle, however, show a characteristic common trend: they have shifted their focus away from analyzing only the market forces "in the large" and have instead begun to concentrate their attention on the economic behavior of the individual economic actor. The modern theories have begun to drop the unrealistic assumption that human beings react mechanically to economic forces. For instance, the traditional theory of money had assumed that the quantity of money existing at a given moment in some way determined the price level, and that the price level in turn determined whether businessmen would make profits or losses, which in turn determined whether they would expand or reduce their production which in turn would have repercussions on the volume of employment. This self-consistent theory could and did completely neglect the personality of the individual businessman. He was assumed to react almost automatically to any change in *current* prices and profits [24]. The most modern theories, on the other hand, realize that businessmen, like other humans, do not act that way. Businessmen form *decisions* about their actions by *interpreting* both the current situation as they see it, and by anticipating *future* developments. Therefore these modern theories recognize explicitly that what will happen in the business cycle, after all, largely depends upon the decisions taken by *individuals*, and that these individuals are influenced by certain *expectations* in arriving at their decisions [24].

We find, therefore, that modern business cycle analysis, particularly after the appearance of the now famous treatise by Lord Keynes thirteen years ago [10], has become actively concerned with the rôle which anticipations and expectations play in economic life. The introduction of these concepts into modern economic theory has truly opened up new vistas for the economist [11]. Of course, this does not imply that the study of expectations alone will provide the open sesame for the understanding of business cycles, for it is *not* true that anything can actually happen in economic life merely because enough people expect it to happen. The effectiveness of individual and group decisions is at all times severely restricted by those economic forces at large, which up to recently were the sole object of study for the economist. But within these limiting conditions, the anticipations and expectations of businessmen as well as of consumers do indeed play an important rôle; within those limits the way in which the present constellation of objective market forces is interpreted by individuals and groups, and the way in which they expect these conditions to change is indeed the major factor which determines future developments. That is the reason why "nearly every modern writer on the business cycle speaks of 'waves of optimism' or of 'pessimism' sweeping the business world, or of 'loss of confidence' in the future, or of relative 'liquidity preference'" [5]. There is little doubt that we could understand and predict—and maybe control—the fluctuations of the business cycle much better if, in addition to the aggregate statistical data indicating the momentary constellation of the market forces, we had some information about the way in which people are interpreting a current situation and what they expect to do about it and why. At any rate, we cannot possibly explain the turning points in the business cycle without a knowledge of the sociological and psychological factors involved.

It is thus not surprising that modern economic theorists are beginning to realize clearly that the social and psychological processes which influence the minds of individuals and groups must be taken into account quite explicitly. As Professor Schumpeter has put it: "We must discontinue the practice of treating expectations as if they were ultimate data and treat them as what they are—variables which it is our task to explain," and "unless we know why people expect what they expect, any argument is completely valueless which appeals to expectations as *causae efficientes.*"

It would appear, then, that such frank recognition of the importance of psychological and sociological elements for the understanding of the business cycle would have led modern economists to turn with alacrity to their colleagues in the fields of sociology and psychology for help and cooperation. Such has not been their procedure at all, however. Instead they have taken a different road: they have indeed discarded the inadequate assumptions implicit in traditional theory and have replaced them with explicit sociological and psychological generalizations. But so steeped are they in the traditional method of deductive reasoning that instead of basing their statements on inductive, empirical investigations, they are again deriving their new assumptions on the basis of deductive reasoning. Keynes, Schumpeter, Hicks and others have developed their own brands of sociology and psychology and have not bothered to check their hypotheses empirically in an established scientific manner. Indeed, some of their followers are already hard at work to establish a full-fledged "pure" theory of expectations, exploring in a most exquisite manner and with the usual highly sophisticated apparatus of curves and mathematical formulae, the full range of *hypothetical* situations [11, 24]. Thus once again we find our economists trying to dodge the arduous task of the empirical look-see approach and instead we see them, succumbing to sweet wont and use, once more taking refuge in the pleasant valley of pure reasoning.

IV

TRADITIONAL DISINCLINATIONS are, of course, not the only reason why economists are reluctant to embark on empirical methods of verifying their theoretical assumptions about sociological and psychological phenomena. The crux of the difficulty lies in the assumption underlying the "maximum principle"—from which most of economic theory has been deduced from the classical days on—that rational economic behavior consists in the attempt of every participant in the market to maximize his profits *in the short run.* This assumption may or may not be an empirically adequate generalization in a fully competitive economy of small producers. It certainly is insufficient to explain economic conduct in our modern social reality which is characterized by uncertainty, imperfect foresight and very imperfect competition. We find that in their attempts to maximize returns in our complex modern world people frequently engage in economic behavior which differs sharply from theoretical assumptions. Contrary to the traditional propositions of economic theory we see that "in spite of falling wages workers have in many cases increased the supply of labor; a reduction in the rate of interest has sometimes stimulated savings; and the supply of agricultural products has frequently varied inversely with their price. And yet, in the special circumstances that surround them, these occurrences certainly represent adequate means of maximizing money income" [14].

It would appear, then, that there is more than one "maximum principle" and that in order to deal adequately with modern reality economic theory must recognize that fact. In our world of uncertainty and risk there is more than one way to achieve "maximum possible satisfaction with the least possible sacrifice." The "maximum principle" in its traditional formulation, however, cannot tell us anything specific about the way in which people are, in fact, trying to maximize their returns. We cannot possibly deduce the actual reactions of businessmen, or of consumers from the broadly stated traditional "maximum principle." If we want to know how people actually form expectations and how they react to expectations in a complex world of uncertainty, the only way is to go out and ask them.

That mean arduous field work and it involves the use of complicated research techniques such as interviews, questionnaires, case studies and so on, procedures which are not only expensive but which also call for specialized training. It is not surprising therefore that only a handful of studies employing such survey techniques have been undertaken to date in the economic field. What is surprising, however, is that some of the economists who have pioneered in such undertakings have not found it necessary to acquaint themselves with the fact that these research techniques are being used in sociological and psychological field work continuously and extensively and have been perfected to a high degree. They have rushed out into the field employing some home-made questionnaires and interview guides which violate nearly every rule of field research, yet they have not hesitated to base important generalizations upon their makeshift research methods.[1] Such a procedure, which manifests strikingly how completely unaware even realistic, modern economists are of what

[1] See for instance Richard A. Lester, "Shortcomings of Marginal Analysis for Wage Employment Problems," *American Economic Review*, March 1946; and the ensuing controversy between Lester and Fritz Machlup in the September 1946 and March 1947 issues of the *American Economic Review*. Another example of flagrant violations of research rules is represented by the study of Paul W. Ellis, "Effects of Taxes Upon Corporate Policy," National Industrial Conference Board, New York, 1943. Very primitive methods were also used in the pioneer studies by J. E. Meade and P. W. S. Andrews, "Summary of Replies to Questions on Effects of Interest Rates," *Oxford Economic Papers*, No. 1, October 1938; and by R. L. Hall and C. J. Hitch, "Price Theory and Business Behavior," *Oxford Economic Papers*, No. 2, May 1939.

goes on in neighboring disciplines, seriously threatens to discredit the entire field work approach and to destroy in its infancy one of the most hopeful developments in modern economic analysis.

Fortunately, however, not all of this recent field work suffers from such glaring methodological shortcomings. During the past couple of years the ball has been picked up and carried forward by George Katona and a group of associates at the Survey Research Center of the University of Michigan. These researchers, who are well trained in both the fields of economics and psychology, have already presented us with several field studies of business decisions and expectations and of consumer attitudes and anticipations [4, 7, 25].

The main method used by this research group is the sample interview survey, a technique which is frequently employed in sociological and social-psychological field work and which consists of four major steps [9]:

1) A representative sample is drawn from a given universe. This is a standard statistical procedure which has been so perfected that it presents no unusual difficulties.
2) "Specific questions are formulated so that they can be asked of all respondents in a uniform manner and can be answered by them in their own words, expressing shades of opinions and degrees of certainty or uncertainty, and giving reasons for the opinions or attitudes they have." This procedure is known among social researchers as the open-ended, detailed interview. This method, while still in a developmental stage, has been improved quite a little in recent years so that we have in it an instrument which permits incisive and reliable insights into very complex and highly personal attitudes, motives and expectations.
3) The interviews are administered by well-trained interviewers who manage to establish easy and good rapport with the respondents. Here also numerous devices have been worked out to guard against pitfalls and interviewer bias.
4) The final step consists of the evaluation of the interview. Here "coding techniques are developed for the quantification of the opinions expressed in the respondent's own words, and analysis techniques are worked out that yield objective checks of the survey data."

The interview survey technique is not the only one that can be used. In some cases mailed questionnaires will prove more effective, for other problems case studies may be needed, for yet other problems the most fruitful method will consist in participant observation. What is common to all these social research techniques is that they go directly to the individual and manage to obtain from him information not only about his past economic decisions which have already added up into the surface manifestations of large statistical aggregates, but they also furnish information about his expectations and intentions of future behavior. These methods enable us to measure expectations, "that is to determine their direction, elasticity, and frequency distribution," and to explain them by relating them to other factors that arouse them.

V

MOREOVER, THE ECONOMIST FINDS himself in the fortunate position that he does not have to start from scratch in the application of these research techniques. Instead he will find that the assistance which the sociologist and psychologist can render him also extends to the contribution of specific findings which have been gained from other fields of behavior through the use of such techniques. "Findings made in empirical studies of non-economic behavior are often applicable to economic behavior." For an illustration we can draw upon Katona's field study of the pricing procedures of businessmen under price control during the last war [7]. In an analysis of this investigation Katona has applied some findings from experimental studies of the psychology of learning to the formation of business decisions and expectations [8].

Katona shows there that business behavior like other human behavior is in most cases learned behavior, which means that we find different businessmen responding differently to the same stimulus, depending on how the stimulus is understood by the individual businessman. For example, if the price of a specific commodity goes up, the response to this increase will depend upon whether it is interpreted as a part of an enduring upward movement, or as an unjustified departure from the normal, or still another reaction may follow if it is uncertain what this price increase means. What determines the reaction of the individual businessman is the way he interprets the meaning of this specific increase, and this in turn depends upon his understanding of the total context in which this specific increase occurred.

As a result we find that we cannot understand actual business behavior as solely determined by automatic reactions to impersonal market forces, nor can we understand it as consisting of a continuous revision of expectations. In reality we find that business actions are often habitual, routine behavior in which expectations or changes of expectations hardly play any rôle at all. That does not mean that routine business actions do not rest on well-defined principles and policies, but such policies and principles, once well understood in their original context, tend to be carried over from one situation to another without change because the larger context often does not appear changed.

An example which Katona reports illustrates this point. In many retail lines seasonal clearance sales have been customary for a long time. Katona found that most stores in these lines still adhered to that customary policy throughout 1942, and even in January 1943, at a time when the buyer's market had already turned into a seller's market and the retailer's problem had become one of obtaining merchandise rather than selling it. The investigation showed that the storekeepers had continued their routine ways of running a store not because of any rational deliberation, but simply because they did not clearly realize that circumstances had changed radically, and that therefore their old-established policies were now out of place.

However, a short time later, these same merchants did change their policy radically, discarding all discounts. This happened when the introduction of shoe rationing in February 1943 brought about buying waves of clothing on the part of the public and announcements of forthcoming shortages on the part of government officials. These events first brought it home to the retailers that the whole situation had changed decisively, and this led them to abandon their traditional policies. Thus, expectations and business policies can and do change radically, but this happens infrequently and only when spectacular events occur which force the individual to revise his entire interpretation of the total context.

Katona came to the further conclusion "that when expectations do change, they are likely to change at about the same time and in the same direction for many individual businessmen. The subjective feeling of a changed situation and the need for reorientation in one's thinking are usually dependent upon general economic, social and political events which many businessmen experience at the same time." Now, with this statement we come to a crucial problem which points up the limitations of the investigations undertaken so far and proves the necessity to broaden the basis of future research studies. For psychological concepts alone prove insufficient for the explanation of expectations, because businessmen, just like other human beings, never act as isolated individuals but always as members of groups. Just as it would be inadequate to interpret their behavior as automatic reactions to external stimuli, it would be equally inadequate to believe that they act as lone, isolated individuals. They do not reflect upon the general situation, and then arrive, each by himself, at conclusions.

Katona partly recognizes this when he says elsewhere that "attitudes and expectations which are enduring and powerful in framing actions do not arise without cause. They are intermediate variables, molding the understanding of economic events and their effects on people's reactions, elicited by economic stimuli." However, he implies that economic factors alone influence these intervening psychological variables when he goes on to say that "Psychological factors and traditional economic factors are interwoven in one unified pattern and must be studied together to understand economic behavior" [9]. He omits to mention another set of factors which are also necessary conditions for the explanation of changes of expectations, namely the sociological variables. When "reorientations occur among many businessmen at the same time" [8] they are not merely the effects of economic stimuli playing upon individual personalities, but there are always certain group factors involved which are independent variables.

The immediate area where the interplay of economic conditions with both the specific group structures and the psychological factors can best be studied empirically is the *informal* group. Informal organizations have recently received increasing attention in sociological research, and detailed studies of informal groups of industrial workers [20], of informal structures among business executives [1, 2] and of informal relations among racketeers have appeared [26]. We suggest that both the methods and certain concepts gained from these studies may prove to be applicable to the empirical investigation of informal interaction among business enterprisers, as it manifests itself in such processes as mutual stimulation among businessmen in the same line of business, or in the influence pattern and opinion leadership exercised by prominent individuals, by trade associations, by trade papers, by government authorities, and so on. These group phenomena must be empirically investigated if we want to understand the rôle which sociological intervening variables play in business expectations and business decisions. If we omit such group factors as opinion leadership, influence structures, etc. from explicit investigation, we would not thereby exclude them but would again treat them as given data; that is, we would implicitly assume that we can treat economic and psychological categories as variables while treating sociological categories as constants. Such a procedure would once again lead to unrealistic economic assumptions

VI

THE RANGE of empirical investigations of business behavior is, of course, not restricted to pricing procedures, although price theory is probably the most intensely cultivated part of economic theory. Field investigations will also prove very fruitful in the analysis of investment decisions "because investment opportunities are not given but are perceived or not perceived according to the subjective evaluation of past and current data and the presence or absence of certain expectations" [8]. Similarly, empirical studies of wage policies, or the influence of interest rates and of taxation on business policies may also prove valuable.

What has been said here about expectations and business decisions of entrepreneurs applies also to other groups active in economic life. As mentioned before, several empirical studies of consumer expectations have also been made in recent years. These investigations, which were undertaken for the Federal Reserve Board [4, 24], have shown conclusively that we cannot explain consumer savings and expenditures as simple functions of disposable income and its distribution, as certain economic theories would have it, but that sociological variables such as age groups, occupation, educational level, and so on, also play an important rôle. Nor would it be realistic to regard consumer expenditures as influenced at all times by definite expectations.

Another field where special research techniques would seem to be applicable is labor economics where recently some theoretical attempts have been made to conceive labor unions as mere monopolistic sellers of labor trying to maximize "something" [3, 21, 22]. Here, again the empirical investigation of the sociological and psychological factors involved in union leadership will probably yield a more realistic picture.

Sociological and psychological research techniques can thus make considerable contributions to economic analysis. It should be clearly understood, however, that these methods are not substitutions for the collection of statistical aggregates and economic analysis, they merely supplement them. It is true, of course, that both statistical methods and survey techniques are subject to a high degree of inaccuracy, and survey methods probably even more so than statistical methods. It is also true that survey techniques are quite expensive, yet both these methods are indispensable if economics is to remain an empirical science; they are the only scientific methods available.

Finally, we should like to guard against any misunderstanding: in urging economists to employ empirical methods we do *not* mean to advocate radical empiricism. Empirical economic research should not rival but should complete economic theory [13]. Economics happens to be in a particularly fortunate position, precisely because it possesses such a well-developed body of theory which can be tested empirically and which can guide field work, whereas other social sciences like sociology and social psychology have suffered gravely because of an over-rapid development of their research techniques without a corresponding advance in theory [17]. Thus, if sociology and psychology are able to make valuable contributions to economic analysis, they will in turn reap their rewards. For sociology as well as psychology must in their turn draw upon economic data as one of their major sources, because the economic process is the dominant factor in our modern industrial society. By advancing to a more realistic description of actual economic behavior, then, economics as Lowe argues, will "give back in some measure what it receives from sociology (and psychology) for its own completion."

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