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# *A Communication: Consumer Durable Spending*

WE AT THE SURVEY RESEARCH CENTER were greatly pleased to find included in *Brookings Papers on Economic Activity* a study that “appraises the contribution of the Survey Research Center’s Index of Consumer Sentiment to forecasts of automobile demand.”<sup>1</sup> Saul Hymans makes a valuable contribution in attempting to incorporate the consumer sentiment variable in a stock adjustment forecasting model and thus to bridge the gap between econometrics and the analysis of psychological factors relevant for consumer behavior. But certain procedures used by Hymans and numerous remarks made by him and the discussants call for a reply by those who have measured the changes in consumer sentiment, so that the reader may be given a fuller understanding of the issues raised.

Hymans searches for economic variables that may be substituted in regression equations for the index of consumer sentiment. He finds that a combination of three variables—earlier changes in real disposable income, in common stock prices, and in consumer prices—“taken together with the lagged index . . . explain nearly 80 percent of the variation in [the in-

\* I am grateful to my colleagues Jay Schmiedeskamp and Burkhard Strumpel, whose suggestions contributed to this paper.

1. “Editors’ Introduction,” *Brookings Papers on Economic Activity* (2:1970), p. 164. Page numbers in the text of this communication refer to Saul H. Hymans, “Consumer Durable Spending: Explanation and Prediction,” and to the discussion that follows it (pp. 173–206 in the same journal).

dex]’ over the period 1956 to 1968 (p. 176). By substituting the explanatory variables for the index, Hymans predicts index values for 1971 and 1972. The index itself is said to contribute to forecasts of auto demand for a couple of quarters, primarily in a filtered form as suggested by Thomas Juster.<sup>2</sup> The following observations are in order.<sup>3</sup>

1. The construction of the index stems from a model of human behavior that postulates that the response ( $R$ —for example, changes in certain forms of consumer spending or saving) is not a function of the stimulus alone ( $S$ , consisting, for instance, of information received on changes in income, prices, supply conditions). Intervening variables ( $I$ ), such as people’s motives, attitudes, expectations, and aspirations, influence the perception of  $S$  as well as  $R$ . Changes in  $I$  occur earlier than changes in  $R$ . The role of  $I$  in consumer behavior is particularly powerful in an affluent economy in which the majority of consumers have some discretion of action. Consumers’ discretionary expenditures (on cars, housing, leisure-time pursuits, and so on) are a function of both their ability and their willingness to buy. Movements of the index of consumer sentiment are intended to reflect changes in  $I$  and therefore in willingness to buy. They serve to indicate changes in the direction of prospective discretionary expenditures. For the purpose of forecasting the extent of discretionary expenditures, a joint measure of ability and willingness to buy, the product of the index and income, has been developed.

Personal experiences and information received on economic matters influence changes in willingness to buy. The underlying model of behavior postulates that the factors bringing about a change in intervening variables vary from time to time. While changes in  $I$  are measurable, and these measures help to predict  $R$ , the relation of  $I$  to  $S$  is much more complicated. The specific items of experience or news that are primarily responsible for a change in consumer attitudes and expectations at a given time, and the influence they exert, are not known in advance, although they can be de-

2. See National Bureau of Economic Research, *1970 Annual Report*, p. 42. The filtered index was used by Juster in the quarterly forecasts published by the Commercial Credit Company.

3. The observations are based on the following publications: George Katona, *Psychological Analysis of Economic Behavior* (McGraw-Hill, 1951); Katona, *The Powerful Consumer* (McGraw-Hill, 1960); Katona, *Mass Consumption Society* (McGraw-Hill, 1964); G. Katona, B. Strumpel, and E. Zahn, *Aspirations and Affluence* (McGraw-Hill, 1971); and annual monographs entitled *Survey of Consumer Finances*, published by The University of Michigan, Institute for Social Research, Survey Research Center.

terminated after the change in attitudes is known. Therefore we rely on the consumers, interviewed at quarterly intervals, to provide information on how *S* influences *I* and therefore *R*, rather than searching for “candidates” that are “systematic and measurable determinants of changes in consumer mood” (p. 175).

A large part of each of our quarterly surveys is devoted to discovering why the index has moved up or down at a given time. For instance, in the first half of 1969 inflation and disappointment about the continuation of the war in Vietnam, in contrast with some optimism generated by the opening of the Paris negotiations in 1968, played a large role in making consumers apprehensive. In the second half of 1969 and in 1970, unemployment and layoffs, as well as high interest rates, were identified as the major adverse news. To be sure, there are perennial issues, but their impact is not systematic. Only data on perceptions and attitudes indicate whether income increases, for one example, are felt to be satisfactory and therefore will exert a stimulative influence, or, for another, whether price increases are felt strongly enough to depress sentiment.

If it is true that changes in consumer sentiment often originate in different considerations in consecutive periods, then a satisfactory fit resulting from the use of specific variables in a past period cannot be expected to insure success with the same variables in the future.

2. The predictive value of the index should not be evaluated solely on the basis of its performance over the entire twenty years for which the index is available, because they cover two kinds of periods. There are periods in which the prevailing trend continues (for example, 1963–65) and others that are characterized by turning points (1957–58 and 1969–70). In the first kind of period a naïve model predicting that “tomorrow’s weather will be the same as today’s” would have yielded correct predictions. Even under these circumstances scientific forecasting has an important function because it is known only post hoc that the economic trend would not change. Nevertheless, only for periods of substantial change, and especially for those crucial periods in which the direction of consumer activity shifted, can it be demonstrated that attitudinal data did indeed foreshadow large changes in the economy and were indispensable for that purpose.

As an illustration of the predictive value of attitudes in the crucial period of the last two years, the index began to decline as early as May 1969 (prior to the downturn on the stock market). It fell precipitately in the third and fourth quarters of 1969 and declined moderately in the first and second

quarters of 1970 (when stock prices fell sharply).<sup>4</sup> The joint measure of ability and willingness to buy declined all through 1969, but was substantially stable in 1970. In 1969–70, as in some other earlier crucial periods, a prediction of the index or of auto demand, based on “real” variables rather than on the index, appears to be less satisfactory than it is over a longer span that includes years in which the prevailing trend continued.

3. Similarly, a stock adjustment model may be most applicable in periods in which consumer sentiment has not changed much. Calculations of the relation of actual auto stock to desired stock become problematical when there are great changes in sentiment and in economic trends that make for changes in the desired stock. The relation of car demand in the recent past, from which the actual stock variable is derived, to future demand is very complex: Low automobile demand in a given period may stem either from a reduction of the desired stock or from postponement of purchases under the impact of what is felt to be a temporary adverse development. Large auto sales in a given year may result in saturation but, alternatively, wants and aspirations may grow with accomplishments.

These considerations do not imply that we should be satisfied with the simple equation used by the Survey Research Center in the past, which relies on just two explanatory variables (the index and past income, or changes in these two variables). Even though the index is not well designed to be used in a stock adjustment model, work on its appropriate transformation and its inclusion in a more sophisticated model should continue. This is, however, not the place to present attempts to overcome what Hymans calls the “dichotomy” between econometric and psychological studies.

4. Some form of a filtered version of the index is justified because, naturally, there were many quarters during the last twenty years in which the changes in the index were not statistically significant. (A difference between two successive index values of 1.3 points is significant at the 67 percent level, and of 2.6 points at the 95 percent level.) Juster and Hymans go much further by proposing, in essence, to disregard all but rather large changes in the index, and also to disregard changes in one direction in one quarter if followed by changes in the reverse direction in the next quarter. An alternative solution to this problem is reliance on small index changes

4. The index of consumer sentiment (February 1966 = 100) stood at 95.1 in February 1969, 91.6 in May, 86.4 in August, 79.7 in November, 78.1 in February 1970, and 75.4 in May 1970;

(a) when they result from changes in most rather than a few index components, and (b) when answers to other relevant questions, not yet incorporated in the index but fully reported by the Survey Research Center, support the change in the index. In addition, the level of sentiment should not be disregarded; it may exert an influence even at times when sentiment does not change (for instance, in the second half of 1970).

5. Hymans speaks of the stock market "as a possible source of changes in consumer sentiment" (p. 173). However, studies on the reasons why the index has changed, carried out primarily in 1962 and in 1969–70, do not support Hymans' opinion.<sup>5</sup> Most Americans know what is happening in the stock market only when very great changes in stock prices are occurring. Even at times of major stock movements, relatively few people—and even relatively few stockholders—explained their opinions about economic trends by stock market movements, and the majority said that events in the market were unrelated to the course of the economy.

6. Studies have been carried out over the past ten years to extend the forecasting horizon of psychological variables. First, principles have been developed on the habituation to news. Good as well as bad news has a much greater impact when it first arises than when it continues. Inflation, for instance, influenced consumers more in 1969 than in 1970 and may add still less to consumer apprehension in 1971. Second, data have been collected on longer-run expectations and aspirations. They remained optimistic in 1969 and 1970, when short-run expectations deteriorated sharply.<sup>6</sup> From these considerations and findings about an absence of consumer saturation, in the fall of 1970 the Survey Research Center concluded that consumers' willingness to buy and automobile demand would improve during the second half of 1971.

Third, studies of the origin of changes in consumer sentiment often permit conditional longer-run forecasts. For instance, in 1970 it was found that apprehension about the social problems of the day—racial conflict, inner-city problems and poverty, violence and riots, as well as pollution—contributed to a low level of willingness to buy. If one assumes that these problems will remain with us in 1971–72, it is possible to conclude that in those years a return of the index to its high level of, say, 1965 is improbable.

5. See *1962 Survey of Consumer Finances*, Chap. 11; *1969 Survey of Consumer Finances*, Chap. 13; and the forthcoming volume, *1970 Survey of Consumer Finances*.

6. On habituation see Katona, *Mass Consumption Society*, Chap. 17, and on longer-range expectations, *1967 Survey of Consumer Finances*, Chap. 8, and especially Katona and others, *Aspirations and Affluence*.

But even if the studies leading to longer-range forecasting are neglected, Hymans' judgment that one or two quarters "may be the practical limit to the usefulness of the sentiment index" (p. 205) is of doubtful validity. Especially in crucial periods of downturn longer lead times were observed: As mentioned above, the recession of early 1970 was indicated in the spring of 1969; similarly, in 1957 the lead time of the index over the decline in auto buying was three to four quarters. In any case, continuous surveys, conducted preferably at more frequent intervals than every quarter, are needed to test the length of lead time, which may vary under different conditions.

The longer-range the forecast the greater the risk, because something new and unexpected may happen during the period for which the forecast is made. This is true of all forecasting methods, but psychological forecasting has an advantage. It is often possible to indicate in advance how consumers would react to unexpected developments. (For instance, in 1969–70 consumers' potential reactions to peace in Vietnam were predicted on the basis of extensive studies of attitudes.)

The essence of these remarks is that the index of consumer sentiment, and its forecasting value, should be appraised within the framework of an evaluation of behavioral economics. The time has come to disregard some traditional distinctions between endogenous and exogenous factors and to make less use of the *ceteris paribus* clause in economic analysis. Changes in economic attitudes and expectations, which are measurable, belong in the body of economics. Hymans' distinction between predictable and unpredictable (for instance, psychological) components of measures of willingness to buy (p. 177) represents an attempt to exclude psychological considerations from economics and thus to turn the clock back. Juster's statement that "the sentiment index really stands for uncertainty" (p. 201) contradicts the theory of intervening variables from which the index has evolved.<sup>7</sup>

Behavioral economics is a young discipline that must advance substantially in order to fulfill its promise to broaden the range of economic inquiry. By considering the human element in economic affairs, I believe, it will be possible to shed light on a variety of social problems and also to improve our forecasting tools.

7. In addition, why should Juster's statement that "uncertainty is either narrowing or broadening" (p. 201) be preferable to a statement that either optimism and confidence or pessimism and malaise are spreading?