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PART II

Changes in Consumer Expectations and Their Origin

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Attitudes matter. The first task of psychological economics is to determine the circumstances under which certain attitudes, or changes in them, affect economic behavior. Several papers and comments in this volume are devoted to an analysis of whether economic behavior reflects attitudes. But to evaluate the quality of data on attitudes, expectations, and plans, one must also find out why the same people express different attitudes at different times.

The studies presented here deal mainly with short-run economic expectations.¹ Economic expectations, defined as subjective notions of things to come, are attitudes about the future rather than reports on information or reflections of deep-seated attitudes which tend to endure in spite of changing circumstances.²

Three major circumstances may account for changes in successive answers given by the same sample of respondents to attitudinal questions.

MISCLASSIFICATIONS

In addition to clerical errors, interviewing errors, misunderstanding of questions, and reporting errors, the term may include effects of a person's change in mood and changes resulting from a previous guess or *ad hoc* opinion given in reply to a question to which he did not know the answer.

¹ Most of the data presented here are results of a study carried out at the Survey Research Center under a grant to the Center from the Ford Foundation for studies, to be directed by the author, analyzing the origin and effects of economic attitudes. The sample used in these panel studies has been described in the paper, "Panel Mortality and Panel Bias," by Marion Gross Sobol, *Journal of the American Statistical Association*, 1959, Vol. 54, pp. 52-68. A greatly expanded version of this paper has been published under the title "Attitude Change: Instability of Response and Acquisition of Experience," in *Psychological Monographs*, Vol. 72, No. 10, American Psychological Association, 1958.

² George Katona, "Business Expectations in the Framework of Psychological Economics," in M. J. Bowman, ed., *Expectations, Uncertainty, and Business Behavior*, Social Science Research Council, 1958, pp. 59-74.

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PERSONAL EXPERIENCES

A person may change his answer because he has learned something since he was last asked the question. Loss of job or a promotion are examples of personal experiences that may change opinions and attitudes. These are "true changes," and important for the individual. Yet such changes may be unimportant in the aggregate because they often cancel out. Therefore personal experiences frequently do not alter the distribution of attitudes obtained in successive studies. The reverse was also found to be true: When two successive measurements of subjective notions yield similar aggregative distributions, then it is likely that many individuals have changed their attitude in one direction, and many others in the opposite direction.

SOCIAL LEARNING

Personal experiences must be distinguished from the acquisition of information by broad groups of people who receive, for example, widely circulated news about general price or wage increases or other new developments in their environment. Such widely transmitted information is comprehended by many people in a similar manner, is reinforced through personal contacts and discussions, and induces similar changes in attitudes. Even people with contrary personal experiences find it difficult to swim against the current. Therefore, when in the aggregate there is a substantial change in subjective notions, it is likely that individual changes will be predominantly in one direction, with the population composed of those who shifted in that direction and those who did not change at all. Then the total number of changers will be close to the minimum number required to bring about the aggregative change.

Forms of Attitude Change

When at two successive dates two different representative samples, drawn from the same universe, are asked the same question or given the same test, we will find that changes in attitude have been either none or insignificant (Table 1, case 1) or substantial (case 2). If several questions are asked both times, we can see whether the changes are internally consistent or related to the demographic or economic characteristics, such as age or income, of the persons answering. If, however, we wish to find out why the changes took place and what their consequences were, the same individuals should be asked the questions both times. The second procedure has disadvantages for measuring changes in distribution because of panel mortality and panel bias, but it has the great advantage of yielding information on the turnover of individuals.³

³ George Katona, "Federal Reserve Board Committee Reports on Consumer Expectations and Savings Statistics," *Review of Economics and Statistics*, Vol. 39, 1957, pp. 40-46; and George Katona and Eva Mueller, *Consumer Expectations*, Survey Research Center, University of Michigan, 1956.

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TABLE 1

Models of Marginal Change and Turnover of Individuals
(per cent)

RESPONSE	CASE 1: INSIGNIFICANT MARGINAL CHANGE Measurement			CASE 2: SUBSTANTIAL MARGINAL CHANGE Measurement		
	I	II		I	II	
	MARGINALS					
<i>A</i>	50	55		50	70	
<i>B</i>	50	45		50	30	
	<u>100</u>	<u>100</u>		<u>100</u>	<u>100</u>	
	<i>Initial A</i>	<i>Initial B</i>	<i>Total II</i>	<i>Initial A</i>	<i>Initial B</i>	<i>Total II</i>
	TURNOVER OF INDIVIDUALS					
	<i>Minimum</i>					
Second <i>A</i>	50	5	55	50	20	70
Second <i>B</i>	0	45	45	0	30	30
Total I	<u>50</u>	<u>50</u>	<u>100</u>	<u>50</u>	<u>50</u>	<u>100</u>
	<i>Intermediate</i>					
Second <i>A</i>	35	20	55	35	35	70
Second <i>B</i>	15	30	45	15	15	30
Total I	<u>50</u>	<u>50</u>	<u>100</u>	<u>50</u>	<u>50</u>	<u>100</u>
	<i>Maximum</i>					
Second <i>A</i>	5	50	55	20	50	70
Second <i>B</i>	45	0	45	30	0	30
Total I	<u>50</u>	<u>50</u>	<u>100</u>	<u>50</u>	<u>50</u>	<u>100</u>

I = first measurement, II = second measurement, *A* = frequency of response *A*, and *B* = frequency of response *B*.

Change in the distribution as a whole (marginal change), whatever its size, may arise from a few changes, all in the same direction, or from many changes, some offsetting others.⁴ For example, the 5 per cent marginal change in *A* responses in case 1 may be the result of 5 per cent of the people in the sample having changed their answers (minimum turnover) or of 95 per cent having done so (maximum turnover). Similarly,

⁴ This possibility has also been pointed out by Paul F. Lazarsfeld ("The Use of Panels in Social Research," reprinted in *Reader in Public Opinion and Communication*, B. Berelson and M. Janowitz, eds., Free Press, Glencoe, Ill., 1953) and Charles Y. Glock ("Some Applications of the Panel Method to the Study of Change," in *The Language of Social Research*, Paul F. Lazarsfeld and Morris Rosenberg, eds., Free Press, Glencoe, Ill., 1955, pp. 242-259).

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in case 2, the 20 per cent marginal change may result from 20 to 80 per cent individual changes. This scheme applies to a great variety of situations, among them experiments in the psychology of learning.

Is it possible to characterize the situations when a small or large marginal change will result from a "small" turnover (close to the minimum required to produce the marginal change) or from a "large" or "unnecessary" turnover (much larger than that minimum)? Changes in answers are a function of misclassifications or of true changes which reflect either personal experiences or social learning, as the three categories were defined at the beginning of the paper. In four possible relationships of marginal change and individual turnover, the factors making for change are likely to operate in the following ways.⁵

CASE 1a: SMALL MARGINAL CHANGE AND SMALL TURNOVER

This result may be expected when simple and easily understood questions call for well-established facts or attitudes, and when there is no true change in the period between the two measurements. For example, a question about their education to adults should yield almost the same marginal distributions in two successive surveys conducted a few months apart, with relatively few individuals changing their answers.

CASE 1b: SMALL MARGINAL CHANGE AND LARGE UNNECESSARY TURNOVER

When there has been no true change, but the question calls for guesses and hunches rather than for a well-established answer, many people may shift their guesses to the opposite of whichever way they had guessed originally. Presumably there are other instances of case 1b. True changes in both directions due to personal experiences where no guesses are involved may likewise bring forth small marginal change and large turnover.

CASE 2a: LARGE MARGINAL CHANGE AND SMALL TURNOVER

When there has been a significant environmental change and consequently social learning between two survey dates, case 2a is the probable result. Suppose people are asked once before and once after a general price increase, "Have prices of things you buy gone up, remained the same, or gone down during the last year?" The responses are likely to show a considerable increase in the proportion of people answering "gone up," and hardly any in the cell that represents shifts in the opposite direction except for misclassifications.

Will case 2a occur under other less obvious circumstances? This is a crucial question for attitude research. Substantial aggregate shifts in intentions and expectations—such as an increase in the proportion of people expecting to vote for a candidate or expecting prices to go up—

⁵ The following discussion has been based in part on the studies by Patricia Kendall (*Conflict and Mood*, Free Press, Glencoe, Ill., 1954).

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are often assigned some predictive value. Do such shifts arise through substantial turnover of individuals in both directions (case 2b)? Or do they involve few countershifts and so can be classified as a result of social learning?

CASE 2b: LARGE MARGINAL CHANGE AND LARGE UNNECESSARY TURNOVER

Unreliable measurements, with true change in one direction or with a preponderance of misclassifications in one direction, may bring about case 2b. One somewhat artificial example would be to ask, once on a beautiful summer day and once on a dark winter day, "A week from today will the weather be cloudy or sunny?" Many shifts in both directions are probable, but shifts from "sunny" in the summer test to "cloudy" in the winter test may predominate.

Alternatively, case 2b may occur even though people are not guessing. Assume that both public and private events take place between the surveys; there is news of an improvement in the business situation and some people have had income increases but others income declines. Will a substantial marginal change occur, together with a large turnover of responses?

Statistical Measures

One must first construct measures for the two crucial variables—marginal change and the rate of unnecessary turnover of individual responses. The measures should be applicable whether or not there is a true change in either or both directions. They should not be restricted to the deceptively simple dichotomous distributions presented so far (Table 1). The measures will be prepared for three-by-three distributions (attitudes measured twice on scales such as up-same-down or better-uncertain-worse) since most of the available data are of that kind. While the measures can be extended to more elaborate data, those used and discussed here will be restricted to the analysis of turnover in two successive tests.

In the following discussion, the marginal changes are denoted by small letters: those obtained in the first measurement by p , in the second, by q . There are three cells for individuals giving unchanged or consistent responses, C ; and six for those giving changed responses, G for gain and L for loss. Two represent two-step changes, G_2 and L_2 , the others one-step changes.⁶

⁶ The letters G and L are taken from information theory. The relation between information transmitted and information received has often been presented in a manner similar to that in our turnover tables (Tables 2 and 3, below). In our case one cannot speak of "true information" (information transmitted and received), but only of consistent information or consistent attitudes. Yet the use in information theory of "gain" for information not transmitted but received, and "loss" for information transmitted but not received, has some similarities to their present use for gaining or losing information over time.

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	Measurement I			
	C_1	G_{1A}	G_2	q_1
Measurement	L_{1A}	C_2	G_{1B}	q_2
II	L_2	L_{1B}	C_3	q_3
	<hr style="width: 50%; margin: 0 auto;"/>			
	p_1	p_2	p_3	

G is used for changes that bring forth the marginal change, L for changes that detract from it. If the marginal change is viewed as a current, gains represent swimming with the current, losses swimming against it. By definition the gains are larger than the losses; that is, the turnover tables will be constructed to conform to the definition.

By differentiating between two-step changes and one-step changes and arbitrarily assigning a double value to the former, we have:

$$G = 2G_2 + G_{1A} + G_{1B}$$

$$L = 2L_2 + L_{1A} + L_{1B}$$

Marginal change ($M Ch$) can be expressed either in terms of marginals or in terms of turnover cells:

$$M Ch = G - L = (q_1 - q_3) - (p_1 - p_3) \quad \text{or} \quad (2q_1 + q_2) - (2p_1 + p_2)$$

The formula $100 + q_1 - q_3$ or $100 + p_1 - p_3$ has been frequently used to compute an index of attitudes.⁷ Clearly the difference between two successive index values represents the aggregate or marginal change in attitudes.

The proportion of changers ($G + L$) and the proportion of consistent people [$C = 100 - (G + L)$], disregarding the duplication of two-step changes, do not represent useful measures for the purpose of testing the relation of unnecessary turnover to marginal change. Obviously, the larger $M Ch$ ($G - L$), the larger is G (and therefore $G + L$). The crucial variable is L , as emphasized first by Lazarsfeld and Kendall. Yet it is not enough to measure turnover by L alone, which is negatively correlated with marginal change. The objective is to find out where, in actual observations, L lies in the continuum between the smallest possible instance (minimum L) and the largest possible instance (maximum L):

$$\text{Min } L \overset{L}{\text{---}} \text{Max } L$$

The turnover measure, T , represents the relation of the distance between L and Min L to the distance between Max L and Min L . Since Min L is zero in all the distributions, we get:

$$T = (L - \text{Min } L) / (\text{Max } L - \text{Min } L) = L / \text{Max } L$$

⁷ See for example, Katona and Mueller, p. 93, and the references given there to other diffusion indexes.

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This formula yields the value of 1 if $L = \text{Max } L$, and a value of 0 if $L = 0$. In other words, the smaller T , the smaller the proportion of changers beyond those necessary to bring forth the marginal change.

Given the marginal changes, one can always calculate $\text{Max } L$. In a simple, pragmatic way, $\text{Max } L$ is calculated differently when p_1 is larger than q_3 than when it is smaller. In the first case, $2q_3$ represents the maximum possible value for the q_3 row. To this must be added the maximum possible value of $L_{1,4}$, which is either q_2 or the difference between p_1 and q_3 , whichever is smaller. Therefore:

$$\begin{aligned} \text{Max } L &= 2q_3 + \min [(p_1 - q_3) \text{ or } q_2] & \text{if } p_1 \geq q_3 \\ \text{Max } L &= 2p_1 + \min [(q_3 - p_1) \text{ or } p_2] & \text{if } p_1 < q_3 \end{aligned}$$

Our measures do not represent a solution of the complex problem of developing *independent* indicators for extent of change in distributions (trend) and for the number of changers. For relating unnecessary turnover (rather than number of changers) to changes in distributions, T appears to be a useful formula.

TECHNICAL NOTE ON STATISTICAL MEASURES

The formulas can be worked out for three-by-three distributions with no distinction between one-step and two-step changes. Then L equals the sum of the three loss cells, while $\text{Max } L = [\min (p_1 + p_2) \text{ or } (q_2 + q_3) \text{ or } (p_1 + q_3) \text{ or } 50 \text{ per cent}]$. The data were also calculated by this method and indicated similar regularities, but the method involves loss of information and is therefore inferior to the first method.

The statistical measures prepared for three-by-three distributions with duplication of two-step changes can be readily generalized for more complex distributions.

$$\begin{aligned} M \text{ Ch} &= [(n-1)q_1 + (n-2)q_2 + \cdots + q_{n-1}] \\ &\quad - [(n-1)p_1 + (n-2)p_2 + \cdots + p_{n-1}] \end{aligned}$$

L can be calculated by multiplying the frequency of observed loss cells by the number of steps between them and the diagonal. $\text{Max } L$ can be calculated by preparing a turnover diagram with the maximum number of observations consistent with the given distribution of the two sets of marginal changes in the extreme lower left corner.

The T measure used here is one of several possibilities. For studying stability and instability of response Lazarsfeld developed a turnover index, x , which is applicable to dichotomous distributions only.⁸ The index is calculated from the equation $L = x(R - x)$, where R is the sum of the marginal values of the row and the column in which L falls.

⁸ Attributed to Lazarsfeld in Kendall, p. 180. Turnover, in Lazarsfeld's terminology, denotes the proportion of changers.

The Lazarsfeld index is derived from latent structure theory. The difference between latent or true and observed values is relevant for what are here called misclassifications. The index is used when there is a true change in one direction but, as expressly stated, not in both directions. However, a true change in one direction only "is not easily defended when talking about attitudes." The Lazarsfeld index is not unrelated to the T measure, which is positively correlated with x when the proportion of consistent cases is relatively stable over a set of items.

Ferber asked a small consumer panel identical questions several times at monthly intervals to determine how often the replies to the same question remained the same over different time periods.⁹ He used C , the proportion of people giving consistent responses, as a criterion. Since some C responses are expected by chance, Ferber used $(C/\text{Exp } C)$ as his statistical measure. $\text{Exp } C$ is the consistency which, given the frequency of the marginal changes, might be expected by chance if the two responses were entirely independent.

Although C is not a satisfactory measure for the present purposes, use of $(L/\text{Exp } L)$ as the statistical measure of turnover yielded regularities similar to those observed when T was used. But $\text{Exp } L$ will not be used as the criterion because the relation of observed frequency of losses to chance frequency is of little interest here, where the stability or change in answers is not random. It can be demonstrated that the second response is not independent of either the first or the developments occurring between the two measurements. The relative distance of observed L from $\text{Max } L$ and $\text{Min } L$ is more important. In addition, not only L but also $\text{Exp } L$ is by necessity negatively correlated with MCh . Sometimes, then, both L and $\text{Exp } L$ are close to $\text{Min } L$; at others, to $\text{Max } L$; a crucial difference not indicated by the measure $(L/\text{Exp } L)$.

The measure T was constructed without taking into account misclassifications, although an observed change is a function both of a true change and misclassifications. Eleanor E. Maccoby recently analyzed misclassifications in a perceptive article. She assumes that misclassifications are random; an error is equally likely to occur for any response.¹⁰ In each test, then, misclassifications are proportional to the number of answers. Since the L cells are smaller than the G cells (by definition), the observed L will always be an overestimate of the true loss (L without misclassifica-

⁹ Robert Ferber, "On the Stability of Consumer Expectations," *Review of Economics and Statistics*, August 1955, pp. 256-266. Only the part of Ferber's paper dealing with changes in response in two successive tests is considered here. Turnover in the course of several interviews has been discussed in the author's article, "Repetitiousness and Variability of Consumer Behavior," *Human Relations*, 1959, Vol. 12, pp. 35-47.

¹⁰ Eleanor E. Maccoby, "Pitfalls in the Analysis of Panel Data," *American Journal of Sociology*, Vol. 61, 1956, pp. 359-363. Randomness is properly assumed for clerical errors. Reporting errors are known to be biased for certain financial variables (e.g. amounts saved), but there is no evidence of bias for economic attitudes and expectations.

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tions).¹¹ L is farther away from Min L , or zero, than the true loss is. As demonstrated in the next section, the observed L tends to be closer to Min L in particular circumstances. It follows that the difference would be more marked if it were possible to eliminate misclassifications. Because of their presence, the data used represent a strong test of the hypothesis under study.

Marginal Change and Turnover of Individuals

Changes in three kinds of attitudes from one survey to the next can be studied:

1. Attitudes expected to be stable for a long time, such as sociocultural norms or tastes assumed to be innate or acquired in early childhood.
2. Habitual attitudes unlikely to change in the short time between test and retest.
3. Attitudes dependent on changing circumstances and likely to change in the short run.¹²

Miss Kendall studied the first type, the present study concentrates on the last. Fluctuations in economic motives, attitudes, and expectations have been studied by the Survey Research Center for the last ten years to determine their influence on changes in spending and saving. Miss Mueller and I recently constructed an index of consumer attitudes and studied the relationship of changes in that index to changes in purchases of durable goods. Because of their association with changes in behavior, the attitudes included in that index, as well as a few other related attitudes, are particularly suitable here.

In the study sponsored by the Ford Foundation which provided most of the data presented here, a representative sample of the urban population of the United States was interviewed at length in June and December 1954, in June and December 1955, and in February 1957. Members of the sample were asked for their attitudes toward their personal financial situations and toward national economic trends and market conditions, including their opinions on the recent past and short-range or longer-range expectations.¹³ The resulting thirty-one turnover tables, constructed from answers given by the same individuals each time, reflect attitudes expressed at different times, different attitudes, and varying time

¹¹ This is put by E. Maccoby as follows (p. 359 n.): "It will inevitably be true that a higher proportion of a minority group will shift."

¹² See S. M. Lipset, P. F. Lazarsfeld, A. H. Barton, and J. Linz, "The Psychology of Voting: An Analysis of Political Behavior," *Handbook of Social Psychology*, G. Lindzey, ed., Addison-Wesley, 1954, p. 1,150; Kendall, pp. 5ff.; and Katona, "Business Expectations . . . Psychological Economics," Chap. 3.

¹³ The reader will find the wording of most questions where data derived from individual questions are presented.

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spans between the measurements (from six to twenty months). In addition, parts of the Survey of Consumer Finances samples were interviewed twice at twelve-month intervals. A group of the 1948 sample were asked five attitude questions in 1948 and again in 1949, and a group of the 1952 sample were asked four such questions again in 1953. Thus nine turnover tables derived from the SCF sample are included in the present set of data.

Most of the attitude questions were answered in the respondent's own words, taken down by the interviewer as nearly verbatim as possible. Central office coders classified the answers according to pre-established categories, including "don't know" and "not ascertained." Individuals classified in either of those categories in test or retest were omitted from the turnover tables. Those included were ones classified as (1) up, better, good; (2) same, pro-con, or uncertain; and (3) down, worse, or bad.

CHART I
Relation of Turnover Rates to Percentage Marginal Change

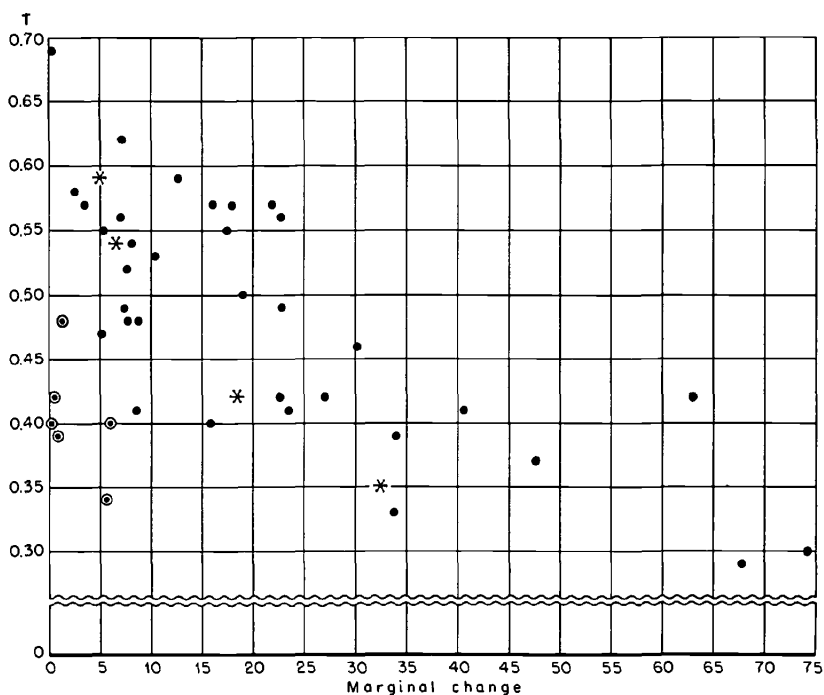


Chart 1 indicates the relation of marginal change to turnover for the forty repeated attitude measurements. Some data approach case 1a (small marginal change and small unnecessary turnover of individual responses). Take, for example, the point on the diagram with a *M Ch* of 0.8 and a

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T of 0.39, representing the turnover from June 1954 to June 1955, and the point with a $M Ch$ of 0.2 and a T of 0.40, the turnover from June 1955 to February 1957. The question read, "A few years from now, do you think you and your family will have a better position and income than you have now, or will you be in about the same situation, or even in a less satisfactory situation?" In all three surveys the distribution of the answers was practically the same, and relatively few individuals shifted. Among the 827 people who gave definite answers to the question in both 1954 and 1955, six shifted from better to worse and four from worse to better (possibly owing to misclassification). Although more shifted from same to better or from better to same, the rate of turnover was small; L was 18.5, much smaller than the highest possible L of 47.6. The data on the turnover from June 1955 to February 1957 are similar.

Secondly, a number of instances resemble case 1b (small marginal change and large turnover), for example, the point with $M Ch$ of 0.3 and a T value of 0.69. The question asked in June and December 1955 read, "Do you think that in the country as a whole during the next twelve months we'll have good times financially, or bad times, or what?" The two marginal distributions obtained could hardly be distinguished from each other. Nevertheless, among 757 people approximately a hundred expressed a more pessimistic opinion the second time than the first, and approximately a hundred a more optimistic opinion the second time. L was 15.5 and relatively close to the maximum possible L of 22.6.

Case 2a (large marginal change and small turnover) is illustrated by the point with $M Ch$ of 74.3 and the T of 0.30. The question read, "Would you say that at present business conditions in the country as a whole are better or worse than they were a year ago?" In June 1954, 17 per cent said better and 53 per cent worse; in June 1955, 51 per cent said better and 12 per cent worse. Among 818 respondents only eight shifted from better to worse. L was 8.7 and relatively distant from the maximum L of 29.3.

Similarly, we find a substantial marginal change in price expectations measured in 1948 and 1949 (67.8). Early in 1948 the majority of consumers thought that prices of things they buy would go up during the next year, while early in 1949 the majority thought that prices would go down. L was 10.8, Max L 37.8, and T 0.29.

No instances of very large marginal change coupled with large turnover (high T) are found in the turnover tables. But coming close to case 2b is the point with $M Ch$ of 21.8 and a T of 0.57. The question was, "What do you expect prices of household items and clothing will do during the next year or so, stay where they are, go up, or go down?" Many more said "down" in June 1954 than in June 1955; the shift occurred mainly from "down" to "same." There were also a number of shifts in the

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opposite direction. L was 16.2 or closer to the Max L of 28.3 than to zero. (The data presented in Table 8, below, with $M Ch$ of 17.9 and T of 0.57 also resemble case 2b.)

What determines the relationship between $M Ch$ and T ? Is it the attitude itself? The assumption that responses to certain attitude questions will always be either of case 1b or case 2a can be contradicted. The change in response to the question about expected business conditions in the country as a whole between June and December 1955 was given as an example of case 1b. The same question had also been asked of the same sample in June 1954. The data for June 1954–June 1955 yielded a marginal change of 40.6 (many more people being optimistic about the economic outlook in June 1955 than in June 1954), which was associated with a T value of 0.41, while the absence of a marginal change in the second half of 1955 ($M Ch=0.3$) was associated with a T of 0.69, as reported above. Thus the same question once yielded a large marginal change and a small turnover, and once from the same people a small marginal change and a large turnover.

Similar findings were obtained with several other questions asked at the same three dates, for example, "Do you think now is a good time or a bad time to buy large household items such as furniture, refrigerator, TV, and things like that?" From June 1954 to June 1955 $M Ch$ was 34.0 and from June to December 1955, it was 2.5. In the first period the T value was 0.39 and in the second 0.58.

On the other hand, there are good reasons to believe that fitting case 1a is a function of the attitude studied. For three questions one could have predicted a priori a yield of small marginal changes and small turnover rates. One was, "How do you people feel about your present income; do you think it is about what you ought to be getting, or not?" Asked three times and yielding two turnover tables, the question is easily understood and relates to relatively permanent or deep-seated notions, as unlikely to change greatly over short periods as are most people's incomes. The same is true of whether people think their position and income will be better or worse a few years from now, and the two resulting turnover tables were cited as instances of case 1a. The same category includes two turnover tables based on short-range personal expectations, "Do you think that a year from now you people will be better off financially, or worse off, or just about the same as now?" (The six observations resulting from the three questions are circled in Chart 1.)

That the three attitudes must be differentiated from the rest can be demonstrated by using the measure of consistency, C , described in the previous section, on the assumption that, unlike the answers to the other questions, the answers to questions on these attitudes are determined more by personality and less by situation. Consequently, the answers should show a higher rate of consistency than the others, and they do, with C

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yielding the highest values for the six circled observations and lower values for every one of the other thirty-four.¹⁴

The data grouped according to the size of marginal change are presented in Table 2. The first part gives a summary of all forty turnover tables, the

TABLE 2
Data on Marginal Change and Turnover

<i>Marginal Change</i>	SUMMARY OF ALL (40) TURNOVER TABLES			
	<i>Average of L</i>	<i>Average of Max L</i>	<i>Average of T</i>	<i>Number of Attitudes</i>
Less than 3.5	23.8	48.2	0.503	7
5 to 12.5	23.9	48.2	.509	14
16 to 30.5	17.8	37.5	.494	12
34 and larger	12.9	37.1	.358	7
				40
	SUMMARY OF TURNOVER TABLES (34) RELATING TO SHORT-RUN ATTITUDE ^a			
Less than 3.5	23.8	39.8	0.613	3
5 to 12.5	24.8	48.5	.518	12
16 to 30.5	17.8	37.5	.494	12
34 and larger	12.9	37.1	.358	7
				34

For an explanation of the units in this table and in Table 3, see text.

^a Rank correlation between *M Ch* and *T*: -0.689.

second of thirty-four. By omitting the six observations assigned to case 1a we can see that the larger the marginal change, the smaller the unnecessary turnover of individual responses on short-run attitudes. Subsets of the data (e.g. the 1954-55 or 1955-57 turnover tables considered separately) yield the same regularities.

Investigators analyzing attitude changes have often argued that changes in answers to individual questions are less reliable than changes derived from clusters of questions. Three such clusters were computed from the material available in June 1954 and June 1955: (1) six questions asking for *evaluations of present conditions*, (2) four questions for *one-year expectations*, and (3) three questions for *five-year expectations*. To these were added (4) the turnover in the *index of consumer attitudes* consisting

¹⁴ A statistical measure of repetitiousness yields the highest values for these six observations. The measure was presented in a paper published in *Human Relations* dealing with changes in attitudes over several surveys (see footnote 9) and with changes in action (spending, saving) over several years. The measure derives from a computation of coefficients of intraclass correlations. It reaches its maximum value when the frequency of identical answers (or of identical behavior) is maximized, a zero value when the actual observations correspond to what would be expected if the consecutive observations were independent of each other, and a minimum value when the frequency of identical answers (or behavior) is minimized. The measure has been developed by Leslie Kish of the Survey Research Center.

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of six questions, some of which fall into each of the three clusters.¹⁵ Table 3 contains the data on the turnover of the four group measures. Again the larger the marginal change, the smaller is *T*.

TABLE 3
Marginal Change and Turnover for Clusters of Attitudes

	<i>M Ch</i>	<i>M Ch</i> ^a	<i>L</i>	<i>Max L</i>	<i>T</i>
Five-year expectations ^b	12.7	5.0	354	602	0.588
One-year expectations ^c	36.1	6.6	534	996	.536
Present conditions ^c	179.4	32.6	325	929	.350
Index of consumer attitudes ^c	102.0	18.5	365	878	.416

^a *M Ch* recalculated to make it comparable with 3 × 3 tables. The data presented on the size of marginal change in the first column are not comparable to those presented in Table 2. In a 12 × 12 table the maximum number of steps with which changed responses are multiplied is 11; in a 3 × 3 table it is 2. If, then, we divide *M Ch* as presented in the first column of the table by $\frac{11}{2}$ (or in one instance by $\frac{2}{3}$), we obtain a *M Ch* of 5.0 for five-year expectations, of 6.6 for one-year expectations, of 18.5 for the index, and of 32.6 for present conditions. These data with their respective *T* values have been added to Chart 1 in the form of asterisks.

^b 6 × 6 Table.

^c 12 × 12 Table.

Thus the following generalization is applicable to subjective notions and expectations not representing deep-seated and enduring convictions. If two successive measurements yield similar aggregate distributions, it is likely that many individuals changed their attitudes in one direction and many others in the other. If in the aggregate there is a substantial change in attitudes, it is likely that the changes will be predominantly in one direction, the population tending to be divided between those who changed in one direction and those who did not change at all. These findings accord with the hypotheses formulated before embarking on the study, which were derived from assumptions about contagion and social learning and from earlier findings obtained without the use of the panel technique.¹⁶

From the point of view of using survey research, the present findings indicate, first, that small changes from one survey to the next in the distribution of subjective notions and expectations must be viewed with caution because they do not imply that only a few people changed their opinions. On the other hand, substantial shifts may be viewed less skeptically even without recourse to panel data to make certain that most individual shifts were in the same direction.

¹⁵ See the discussion of the index of attitudes in Katona and Mueller.

¹⁶ In earlier studies, when consumer attitudes showed large changes in the aggregate (as in 1950-51), all subgroups of the population showed similar changes. When, however, measurements with two successive samples indicated substantially unchanged distributions of attitudes (as in 1952), some occupational, regional, or income groups showed a shift in one direction and some other groups in the opposite direction.

To clarify the generalization, contrast it with the views of Lazarsfeld and Miss Kendall. In Lazarsfeld's theoretical scheme, "turnover," that is, the proportion of changers, is an index of uncertainty or instability.¹⁷ If large, it shows that clarification and education are required. Similarly Miss Kendall identifies "turnover" with instability of response due to vacillation by respondents.

No doubt the authors correctly describe one type of change in response. But the findings here indicate that response changes also occur under circumstances that suggest they may be due to acquisition of experience or learning on the part of many people at about the same time. If a high proportion of changes is associated with uncertainty or with contradictory developments of a personal nature, the data will resemble case 1b (relatively high T value). If a high proportion of changes is associated with social learning, the data will resemble case 2a (relatively low T value).¹⁸

On the Origin of Changes in Attitudes

When some people change their attitudes from one survey to the next and others do not, there are two approaches to finding out *why* they differed. Data from the first survey may show initial differences in the characteristics of the two groups that account for what happened to their attitudes later. And data from the second may show that there were developments in the interval that differentiated them. (Naturally questions to elicit the appropriate information must have been included in each survey.)

Observed changes in attitudes may be due to incorrect recording in one or the other survey, or, more important, to the firmness with which a given attitude was held. Among people who say "better" the first time, some may have quite different attitudes from those who say "same," but others may have true attitudes relatively close to those answering "same." If the attitudes are distinguished somewhat arbitrarily in a crude system of measurement, a recorded shift from "better" to "same" may not represent a significant change.¹⁹

¹⁷ P. F. Lazarsfeld, B. Berelson, and H. Gaudet, "Introduction," *The People's Choice* (2nd ed., 1948) reprinted in *The Language of Social Research*, Free Press, Glencoe, Ill., 1955, p. 232.

¹⁸ Turnover due to true changes rather than to vacillations has been considered by Lazarsfeld and his associates in connection with before-and-after experiments. In discussing, for instance, the showing of a film on anti-Semitism to people whose level of anti-Semitism was measured both before and after seeing the film, Glock speaks of "the effect of a stimulus in producing change" in attitudes (pp. 243ff.). The findings about the rate of turnover were often similar to our findings on attitude changes without experimental stimuli. Sometimes, however, even though the experimental stimulus brought forth a substantial marginal change, reverse changes were also observed and were called the "boomerang effect."

¹⁹ Eleanor Maccoby calls attention to this possibility and illustrates it with a graph (p. 361). Procedures similar to the first approach have been used in analyzing shifts by election panels. For instance, those whose intended vote shifted from the Republican

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The two approaches are not alternatives. A person who holds an attitude with little conviction may be more likely than others to have experiences that result in his changing that attitude. Thus we should expect to find circumstances in which both approaches contribute to an "explanation." Yet, interestingly enough, at least one case will be found in which the first will not result in an explanation and the second will.

ORIGIN OF CHANGES IN SPECIFIC ATTITUDES

Basic data for detailed studies carried out on two of the thirty-four turnover tables summarized in Table 2 are presented in Table 4. Both

TABLE 4
Basic Data for Studies of Origin of Changes in Expectations
(per cent)

EXPECTED PERSONAL FINANCIAL SITUATION DURING NEXT YEAR				
<i>June 1954</i>				
<i>June 1955</i>	<i>Better(O)</i>	<i>Same(M)</i>	<i>Worse(P)</i>	
<i>Better(O)</i>	20.5	14.7	1.3	36.5
<i>Same(M)</i>	13.3	40.6	3.6	57.5
<i>Worse(P)</i>	1.2	3.9	0.9	6.0
	35.0	59.2	5.8	100.0
	<i>M Ch</i> = 1.3		<i>N</i> = 850	
	<i>T</i> = 0.48			

OO group, 20.5 per cent, in first measurement to be compared with *OM* group (including *OP*) of 14.5 per cent. *MM* group, 40.6 per cent, in first measurement to be compared with *MO* group of 14.7 per cent.

EXPECTED NATIONAL BUSINESS CONDITIONS DURING NEXT YEAR

<i>June 1954</i>				
<i>June 1955</i>	<i>Good(O)</i>	<i>Pro-con(M)</i>	<i>Bad(P)</i>	
<i>Good(O)</i>	46.8	20.0	13.5	80.3
<i>Pro-con(M)</i>	6.0	7.0	3.2	16.2
<i>Bad(P)</i>	1.5	0.6	1.4	3.5
	54.3	27.6	18.1	100.0
	<i>M Ch</i> = 40.6		<i>N</i> = 844	
	<i>T</i> = 0.41			

OO group, 46.8 per cent, in first measurement to be compared with *OM* group (including *OP*) of 7.5 per cent. *MM* group, 8.4 per cent (including *PP*), in first measurement to be compared with *MO* group of 23.2 per cent (including *PM*).

to the Democratic candidate were studied regarding their "class interest" (see Glock, p. 247). It was found that people who planned to vote for one candidate were much more likely to abandon their candidate if their class interest was in conflict with their vote intention than those where such conflict did not arise. Such initial differences were sometimes called cross-pressures (Lazarsfeld, p. 512).

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questions were asked of the same sample, in June of 1954 and 1955. One was, "Do you think that a year from now you people will be better off financially, or worse off, or just about the same as now?" It resulted in a very small marginal change. The other resulted in a substantial marginal change, "Do you think that in the country as a whole during the next twelve months we will have good times financially, or bad times, or what?"

Table 5 contains the data obtained by applying the two approaches to

TABLE 5
Personal Financial Expectations, June 1954-June 1955

CHARACTERISTIC	GROUP			
	OO	OM	MO	MM
<i>First Approach: Condition at Time of First Test</i>				
1954 median income (\$)	6,570	5,500	5,300	4,870
Median age (years)	39	44	42	51
Education (%):				
Grade school	20	33	24	48
High school	48	51	53	35
College	32	16	23	17
Personal finances (%):				
Better off previously	56	39	32	21
Worse off previously	20	21	26	20
Difference	+36	+18	+6	+1
Average evaluation of current conditions (index)	7.2	5.7	6.1	5.9
<i>Second Approach: Change in Year between Two Tests</i>				
Personal finances (%):				
Better off	67	32	36	18
Worse off	8	21	18	18
Difference	+59	+10	+18	0
Income (%):				
Making more	55	29	40	22
Making less	9	21	19	12
Difference	+46	+8	+21	+10
Conditions in respondent's industry (%):				
Better	54	30	49	27
Worse	7	17	13	18
Difference	+47	+13	+36	+9
Correct information on developments in economy received (%):				
Hardly any	11	32	26	32
Some	60	52	54	50
Much	29	16	20	18
Mean questions answered correctly (no.)	4.45	3.44	3.89	3.48

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the first question. Groups *OO* and *OM*, as well as groups *MM* and *MO*, expressed the same attitudes in June 1954. Nevertheless, there were substantial differences between the pairs of groups. Those who became more pessimistic (*OM*) were poorer, had lower average incomes, were older, less educated, and less hopeful about present conditions than those who remained optimistic (*OO*). Similarly, those who became optimistic (*MO*) were richer, had somewhat higher incomes, were younger and more educated than those who remained pessimistic (*MM*). Thus data from the first survey help considerably to account for the difference between stable and changing expectations.

Additional explanations are provided by the second approach. The proportion of those of the *OO* group whose income rose and whose evaluation of their personal financial situation improved is much higher than the *OM* group's proportion. Between groups *MM* and *MO* we likewise find differences, but less pronounced, in the expected direction. People's opinions about conditions in the industries in which they worked also show differences indicating that results for the two pairs of groups are related to stability or change in their personal expectations.²⁰

To obtain the data in Table 5 on acquisition of information about business conditions in the nation, the members of the panel were asked several questions to determine how much "correct information" they had received.²¹ It appears that group *OO* was somewhat better informed than group *OM*. There are hardly any such differences between groups *MM* and *MO*.

²⁰ It must be stressed that the differences discussed and explained are group differences. As seen in Table 5, there are individuals in the *OM* group, which as a group became more pessimistic, who said they were better off and whose income increased. Accounting for changes in attitudes by individuals is a task not undertaken here; it would require a different kind of interviewing.

²¹ A printed card was handed to each respondent with the following instructions: "This card contains some answers we received when we asked people about what had happened during the last twelve months in the American economy. Please check those items which you agree have happened." One of three columns, labeled "happened," "did not happen," and "don't know," had to be checked for each statement. The answers were scored for correctness, "don't know" being taken as not having correct information.

The seven statements—some true, some false—given to the respondents in June 1955 were: "What happened during the last twelve months? (1) Business conditions improved. (2) The cost of living was stable. (3) Unemployment increased. (4) People have less money to spend than a year ago. (5) Stock prices went up. (6) Defense spending by the government declined. (7) The federal budget was balanced last year." Altogether, 27 per cent of the sample answered 0, 1, or 2 items correctly ("hardly any correct information"); 53 per cent, 3, 4, or 5 items ("some correct information"); and 20 per cent, 6 or 7 items ("much correct information"). The mean number of questions answered correctly was 3.73. Since the economy improved greatly in the year prior to June 1955, correct information refers to favorable developments.

The percentage of correct information received was highest for the cost of living (2) and relatively high also for four other items. Least was known about stock prices (5), which the majority checked "don't know," and about defense spending (6) with a frequency of "happened" and "did not happen" answers quite similar.

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TABLE 6

One-Year Economic Outlook, June 1954-June 1955

CHARACTERISTIC	GROUP			
	OO	OM	MO	MM
<i>First Approach: Condition at Time of First Test</i>				
1954 median income (\$)	6,250	5,000	4,600	4,400
Median age (years)	46	49	46	48
Education (%):				
Grade school	29	39	42	44
High school	42	45	42	42
College	29	16	16	14
Average evaluation of current conditions (index)	7.1	5.7	5.8	5.5
<i>Second Approach: Change in Year between Two Tests</i>				
Personal finances (%):				
Better off	39	25	30	23
Worse off	14	25	15	28
Difference	+25	0	+15	-5
Income (%):				
Making more	37	22	32	23
Making less	10	25	12	33
Difference	+27	-3	+20	-10
Conversations on economic trends (%):				
Optimistic	15	6	8	6
Pessimistic	6	17	12	16
Difference	+9	-11	-4	-10
Correct information on developments in economy received (%):				
Hardly any	14	40	27	63
Some	56	55	55	33
Much	30	5	18	4
Mean questions answered correctly (no.)	4.39	3.04	3.64	2.15

In Table 6, an analysis of stability or change in the one-year economic outlook, the first approach reveals consistent differences between groups *OO* and *OM*. The small deviant group who became more pessimistic had lower incomes, and were somewhat older, less educated, and less hopeful about prevailing conditions than the group who remained optimistic. But the differences in income, age, and education between groups *MO* and *MM* were extremely small or nonexistent. The same is true of changes in personal financial conditions before the first test (not shown in the table). Thus improvement in the general economic outlook, which in this case brought about a substantial marginal change, cannot be accounted for by initial differences between the changers and nonchangers.

The second approach reveals that between the two surveys changes occurred in income and in people's evaluation of their personal financial

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situations which seem to help explain the attitude change. More pronounced still are the differences in how much correct information on economic developments each group received between the two tests. In the *OO* group many more people answered most questions correctly than answered hardly any correctly; in the *OM* group the reverse was true. Similarly, the *MO* group was much better informed than the *MM* group, the differences being more pronounced than those obtained in Table 5. More important still, one may discount the differences in information in Table 5 by assuming that they reflect primarily differences in education, but there is little difference in education between the groups *MM* and *MO* of Table 6 to account for the larger differences.

Further data pointing in the same direction are differences in answers to the question, "During the last few months have you discussed with other people whether business conditions are getting better or worse?" About the same proportion in each group said yes, but a follow-up question on the content of the conversations showed that the groups varied, in the expected direction, on how many of the conversations were optimistic or pessimistic.

Since correct information about developments in 1954-55 was all favorable, the findings may be restated as follows: The *OO* and *MO* groups acquired information between the surveys about favorable developments in the economy. Such learning, apparently reinforced through conversation, is a current hard to swim against. The acquisition of information by the *MO* group corresponds with a change in their attitudes. It probably also corresponds with a change in group *OO* attitudes, but our crude measurements cannot show this because they had already given the most optimistic answer in the first survey ("good") that the survey recognized.²²

Thus somewhat different explanations emerge for the frequent improvement in attitudes toward national business conditions (group *MO* in Table 6) and the less frequent improvement in attitudes of the same people at the same time toward their personal financial situation (group *MO* in Table 5). A further step in the analysis is possible, comparison of the changes in the two attitudes. Of particular interest are people whose personal financial expectations deteriorated from June 1954 to June 1955 (the *L* group in Table 4, 18.5 per cent of the sample). How did the business expectations of these people change between the same two dates?

1. In cell *OO*, 8 per cent fell (remained optimistic about business conditions).

²² What has been said about group *MO* also applies to group *PO* (13.5 per cent). Data on *PO* are not shown in Table 6 and are not conclusive because the corresponding *PP* group is too small for comparisons. Yet according to the first approach, *PO* did not differ from *MM*; income gains were less frequent among *PO* than among *MO*; but *PO* had a substantial amount of correct information.

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2. In cells *MO*, *PO*, or *PM*, 6.5 per cent fell (became more optimistic).
3. In cells *MM* and *PP*, 2 per cent fell (remained relatively pessimistic).
4. In cells *OM*, *OP*, or *MP*, 2 per cent fell (became more pessimistic).

Among people classified under (4) and possibly under (3) we can discern a correspondence between the two changes, or even an influence of personal financial expectations on business expectations. In (1) and (2), however, fell most people whose personal financial attitudes deteriorated; they maintained or even strengthened their optimistic business opinions. A pessimistic turn in opinions about personal finances lost out in competition with good business news.

Of those whose personal financial expectations remained unchanged in their lack of optimism (groups *MM* and *PP* in Table 4, 41 per cent of the sample), 17.5 per cent were optimistic about the national business outlook both times, 16.5 per cent became more optimistic, and only 7.5 per cent remained or became pessimistic. Again business attitudes developed differently from personal financial attitudes. The same conclusion is reached by studying personal financial experiences rather than changes in personal financial expectations. The business expectations of most people who said they were worse off financially were unaffected by their personal experiences.

INDEX OF CONSUMER ATTITUDES

The answers to the six questions that make up the cluster of attitudes represented in the index of consumer attitudes, including the two questions analyzed separately in Tables 5 and 6, were studied to find out which factors made for stability, which for change. Each optimistic answer was given a value of two; a pro-con or "middle" answer, one; and a pessimistic answer, zero; giving a twelve-point scale with twelve the most optimistic value. The turnover from the first to the second survey was classified in eight groups:

1. Three groups were made up of people who were consistent, with consistency defined as a change of 1 point or less from the June 1954 to the June 1955 survey; for example, a change from 8 to 7 or 9 as well as no change. Group *OO* had scored 10, 11, or 12 in the first survey; group *MM*, 7, 8, or 9; and group *PP*, 6 or less.

2. Three groups were made up of people who became more optimistic. In group *PM* people increased by 2 to 4 points from 6 or less in the first survey; in group *PO* by 5 or more points. Group *MO* was made up of people who increased by 2 or more points from the middle position. As before, those who were *O* initially could not show gains.

3. Two groups were made up of people who became more pessimistic by 2 or more points: group *OM* from original values of 10, 11, or 12; group *MP*, a small one, from original values of 7, 8, or 9.

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TABLE 7

Index of Economic Attitudes, Six Questions, June 1954-June 1955

CHARACTERISTIC	GROUP							
	OO	OM	MO	MM	MP	PO	PM	PP
Number of cases	136	64	140	160	28	55	87	30
Per cent of sample	19.9	9.2	19.8	22.9	3.9	7.9	12.2	4.2
<i>First Approach: Condition at Time of First Test</i>								
1954 median income (\$)	7,750	5,950	5,900	5,220	4,600	4,450	4,450	3,970
Median age (years)	49	46	43	47	50	40	49	53
Education (%):								
Grade school	21	32	18	40	50	26	47	53
High school	45	44	53	40	26	65	38	44
College	34	24	29	20	14	9	15	3
Average evaluation of current conditions (index)	8.5	7.9	6.4	6.5	6.0	2.9	4.0	3.7
<i>Second Approach: Change in Year between Two Tests</i>								
Income (%):								
Making more	46	29	53	27	11	44	22	13
Making less	6	17	6	13	46	16	16	43
Difference	+40	+12	+47	+14	-35	+28	+6	-30
Conditions in respondent's industry (%):								
Better	46	35	43	33	11	32	22	10
Worse	8	21	4	12	25	14	13	17
Difference	+38	+14	+39	+21	-14	+18	+9	-7
Conversations on economic trends (%):								
Optimistic	23	15	10	10	0	11	10	3
Pessimistic	6	9	11	7	29	5	10	17
Difference	+17	+6	-1	+3	-29	+6	0	-14
Correct information on developments in economy received (%):								
Hardly any	10	14	13	24	64	35	42	40
Some	53	62	63	55	29	58	39	53
Much	37	24	24	21	7	7	19	7
Mean questions answered correctly (no.)	4.68	4.29	4.35	3.82	2.13	3.32	3.29	2.77

Initial characteristics help to explain stability or change (Table 7). The differences in income are especially large among those who were either *O* or *M* in the first survey, and in age among the *P* groups. Wide educational differences are found among all the groups, yet the differences in the evaluation of present conditions are small or, for the *P* groups, contrary to expectations.

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The data obtained in the second survey show that personal income changes during the interval and respondents' appraisals of changes in the condition of their industries both were substantial and always contribute to an explanation of stability or change in attitudes. Differences in the nature of conversations on economic trends indicate that loss groups had more pessimistic conversations than consistent groups or gain groups. Finally, the data on information received show large differences in the three initial *M* groups.

Thus the data in Table 7 indicate that initial differences among the groups, personal developments in the interval, and information obtained on national economic developments may account for stability or change in the index of consumer attitudes. Some differences, such as some originally pessimistic people becoming more optimistic, others not, seem to hinge primarily on income changes and related personal developments. Other changes seem to result more from the interaction of various influences. This is not surprising because the index is constructed from questions about both personal finances and expected economic conditions.

Some Effects of Attitude Change

Attitudes are predispositions to action, and their relation to actual behavior is a major purpose of studying opinion and expectations data. A few comparisons of purchases by people who were or became optimistic with those by people who were or became pessimistic will be presented in this section. Individual tests can be expected to show a weaker relation of attitudes to purchases than aggregative tests, partly because factors that may cancel out in an aggregative test will not do so here.²³

The simple and crude measure of durable goods purchases used in the test, described in detail by Miss Mueller in her paper in this volume, was the number of transactions by each family between the June 1954 and June 1955 surveys and during the second half of 1955. Transactions included purchases of one or more automobiles, major household goods, certain luxury or hobby items, and extensive house repairs or additions. On a scale ranging from zero to five, the average family made about one and a half transactions in the year, about one in the following half year.

If we assume that changes in attitudes were evenly distributed over the twelve-month period, or even occurred chiefly near its beginning, we should expect that a group that became more optimistic (for example, *MO*) will have made more purchases during the year than a group that did not change its attitudes (*MM*). ("Expected purchases" were calculated by

²³ For an analysis of aggregative tests, see especially Katona and Mueller; for individual tests, see Eva Mueller, "Effects of Consumer Attitudes on Purchases," *American Economic Review*, December 1957, pp. 946ff.; and Katona, "Federal Reserve Board Committee Reports. . . ."

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income level to eliminate the effect of income on number of purchases.) And we should expect the *MO* group also to have made more purchases in the following half year since their attitudes were more optimistic than those of the *MM* group in June 1955, although in so doing we are disregarding the influence of possible changes in attitudes between June and December.

Table 8 shows that changes in personal financial expectations did affect purchases in both periods. Group *OO* purchased more than *OM*, group

TABLE 8
Number of Durable Goods Purchases

	JUNE 1954-JUNE 1955		SECOND HALF OF 1955	
	<i>Actual</i>	<i>Actual as Percentage of Expected</i>	<i>Actual</i>	<i>Actual as Percentage of Expected</i>
<i>Personal Financial Expectations (see Table 5)</i>				
Group <i>OO</i>	1.82	110	1.20	114
Group <i>OM</i>	1.45	94	0.93	94
Group <i>MO</i>	1.69	109	1.05	105
Group <i>MM</i>	1.46	93	0.88	92
<i>General Business Expectations (see Table 6)</i>				
Group <i>OO</i>	1.53	99	1.09	105
Group <i>OM</i>	1.49	104	0.80	85
Group <i>MO</i>	1.42	103	0.99	106
Group <i>MM</i>	1.45	105	0.85	90

MO more than *MM*. The differences in the second half of 1955 indicate that attitudes did matter. The differences in the year 1954-55 may be related also to the data in Table 5 that show that indications for the forthcoming attitude changes were already available in June 1954, which suggests that some attitude changes took place shortly after the first measurement.

As to the effect of changes in general business expectations, the purchases of the four groups were substantially the same in 1954-55, but there were sizable differences in the second half of 1955. The first finding is explained if one assumes that the information about the changes in business conditions came late in the twelve-month period, an assumption supported by evidence from surveys conducted toward the end of 1954 and from an analysis of business-cycle developments. Also pertinent is the finding of a lack of initial differences between groups *MO* and *MM* in Table 6, which points toward a relatively late shift in attitudes.

According to Table 8, the 1954-55 purchase rates of the initial *O* groups were no higher than those of initial *M* groups. But the more comprehensive index of consumer attitudes shows that in the same period the initial *O*

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groups had a purchase rate of 107 per cent, the initial *M* groups of 102 per cent, and the initial *P* groups of 86 per cent (see Miss Mueller's Table A-2 in this volume).

Implications of the Findings

Writers on business cycles constantly refer to waves of confidence or waves of distrust. And in analyzing specific developments—the great crash of 1929, the upswing in the postwar years—they frequently discuss psychological forces. Usually economists have not considered the optimism or pessimism of businessmen or consumers as major causal forces but rather as reinforcing factors compatible with any economic theory of business cycles.²⁴ But changes in those attitudes have often been invoked to explain how relatively minor causes have had major effects or to account for the timing of turning points in cyclical fluctuations. Yet the treatment of attitudes has usually been a priori or anecdotal.

A contribution of research in economic psychology to business-cycle studies is the demonstration that changes in the economic attitudes of consumers and businessmen are measurable. Through surveys such as those described here information has been obtained about the direction of changes in sentiment or their absence.²⁵ Sometimes such information has served only as confirmation of what was generally known or widely expected from data on national income, retail sales, production rates, and the like. But at other times observed changes in consumer attitudes have contradicted trends derived from economic data that reflected past activities of the economy. Three times during the past ten years—in 1949, 1951, and 1954—changes in consumer sentiment proved to be advance indications of otherwise unforeseen changes in consumer buying behavior.

The present studies go beyond previous contributions in two ways. First, they add a second measure to our store of tools, the measure *T*, which indicates whether the marginal change in attitudes coincides with frequent offsetting shifts or results from similar influences that have affected most people similarly. The finding of a tendency toward an association between large marginal changes and small *T* rates strengthens the reliability of the first measure—the presence or absence of substantial marginal changes in the distribution of attitudes.

Secondly, investigation of the origin of substantial changes in consumer sentiment indicates that uniform acquisition of experience is possible and may be effective. Lord Keynes argued that consumer income expectations are likely to average out for the country as a whole.²⁶ If this should be

²⁴ See, for example, Gottfried Haberler, *Prosperity and Depression*, Geneva, League of Nations, 1937, Chap. 6.

²⁵ See Katona and Mueller.

²⁶ J. M. Keynes, *General Theory of Employment, Interest, and Money*, Harcourt Brace, 1936, p. 95.

generally true, the economist's neglect of consumer expectations would be justified, for he is not interested in explaining the antecedents of action by individuals unless the number who increase their rate of consumption is much larger than the number who reduce it. Only then will the economy be affected and the factors inducing changes in the behavior of the masses concern economists.

I have argued before that changes in consumer sentiment usually do not cancel out but rather resemble a contagious disease, tending to spread widely, an argument derived from general socio-psychological principles and not based on specific studies of the origin of economic attitudes.²⁷ The empirical research reported here confirms the occurrence of non-offsetting changes in economic attitudes. Its aim is the identification of circumstances under which it is probable or not probable that changes in the attitudes of some people in one direction will cancel the changes in the attitudes of others in the opposite direction. Cancellation is not to be expected when—to oversimplify—uniform acquisition of information has taken place.

This finding leads to new questions the consideration of which will help to clarify the finding. First, why bother with attitudes? Why not rely on the information that changed the attitudes? If attitude change is the result of the transmission of information about economic or political developments, consideration of those developments may be more rewarding. This notion must be rejected. Even complete knowledge of all events and developments would amount to only a listing of possible stimuli; we would still not know which items of news are effective or how they are apprehended. Such knowledge can be gained only by starting with the prevailing attitudes and their recent changes and connecting them with events and developments. Then we will be in a position to select the relevant stimuli.

Possible exceptions are developments of overwhelming significance, especially catastrophes, although consumer and business reactions to the outbreak of war have not always been correctly assessed. But aside from radical changes that we know a priori will affect people in a definite manner, measurement of information cannot serve as a substitute for measurement of attitudes. For example, we cannot conclude that income increases will necessarily make people feel "better off," or that they will view price increases as a "good thing" or "bad thing."

From the conclusion that measurement of attitude changes is needed, it does not follow that such measurement always yields significant new insights for business-cycle studies. It is not possible to discover a priori whether attitude changes are autonomous or reflect past trends. Only after determining that prevailing attitudes indicate no significant new developments can one conclude that the measurement contributed no new knowledge and that one can rely on extrapolation of past trends.

²⁷ George Katona, *Psychological Analysis of Economic Behavior*, McGraw-Hill, 1951.

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Before World War II, business and government were usually viewed as the sectors of the economy responsible for changes in economic activity. If business investment or government spending generate higher national income and thereupon consumers add to their expenditures, the consumer sector cannot be considered autonomous. Three times, however, during the last few years, autonomously caused changes in consumption were observed. In 1949 a moderate decline in economic activity originating outside the consumer sector failed to influence consumers, who maintained their optimistic attitudes and, by their increased rate of spending, pulled the economy out of the slight recession.²⁸ In 1951, at a time of rapidly increasing incomes, consumer resentment against price increases and their uncertainty or anxiety about the cold war resulted in restrained buying.²⁹ And in 1954 a plateau in economic activity ended because consumers were impressed by the small damage done by the widely advertised recession of 1953, by price stability, and by the availability of "good buys."³⁰ Consumer optimism then led to upgrading of possessions even if this meant increasing their installment debt burden. On the other hand, late in 1955 consumer sentiment and behavior reflected improved business conditions and growing income and did not provide new incentives to the economy.³¹

These experiences lead to the conclusion that the consumer sector, like the business sector, may act autonomously—a finding that gives rise to further questions.

Two new facts confront us today: the increase in the availability of information about even minor difficulties or tendencies and the increase in the number of decision-makers whose actions may influence economic development. Is mass communication conducive to exaggerated and excessive reactions and therefore to a spread and snowballing of either inflationary or deflationary tendencies? And does it make a difference that several million household units, rather than a few thousand large business units, may influence economic activity? In sum, will too much information received by too many people be detrimental to economic stability?

It has often been said that expectations may spread rapidly and become self-reinforcing and self-justifying. In the early thirties banks were said to fail because they were expected to fail; even strong banks could not resist rumors about their difficulties. In the same period a slight reduction

²⁸ See *ibid.*, Chap. 13.

²⁹ George Katona and Eva Mueller, *Consumer Attitudes and Demand*, Survey Research Center, University of Michigan, 1953.

³⁰ Katona and Mueller, *Consumer Expectations*.

³¹ Consumer attitude surveys conducted by the Survey Research Center in December 1955 as well as in December 1956 indicated optimistic sentiment and a fair rate of buying intentions yet no gains in either respect as against previous measurements. The conclusion from these findings was, "The consumer sector cannot be counted upon to provide any new strength or impetus to the economy." The conclusion was substantiated by subsequent economic developments. According to a survey conducted in June 1957 consumer optimism was weakening at that time.

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in demand led to cutbacks in production, then to fear of unemployment and the expectation of lower incomes, which in turn made more and more people reduce their expenditures, and incomes declined because of curtailed demand. Conversely, when inflationary fever affected Germany, France, and other countries, people expected prices to go up, therefore spent their money rapidly, and so prices rose. Finding their expectations fulfilled, they expected further price increases and hastened to hoard goods, and the cumulative process of self-realization of expectations was again set in motion.

But we also have experience with recessions and inflationary movements that were arrested early. Indeed during the past ten years in the United States small recessions and small inflationary movements were the rule rather than the exception. The theory of self-justifying expectations does not represent typical human reactions to common situations; it applies to only a rather rare type of experience and does not help to explain reversals of expectations.

Although present evidence is fragmentary, it appears justified to set forth the assumption that the economic thinking of the masses is fundamentally conservative and sane, with cumulative and self-justifying expectations a form of catastrophic behavior. People resist speculative fever as well as despondency unless their sanity is shaken by repeated shocks. News and rumors without foundation may be accepted for a short while by some but will not sustain action by many for long.

Mass sanity rests upon the desire to understand the reasons underlying events. Expectations may originate from either projecting past trends or seeing good reasons for new trends.³² Expectations of price increases may arise not only following price increases but also in periods of price stability when people perceive underlying factors that would give rise to a new development. When the expectations are fulfilled—that is, when prices go up—people may note that what was called for has happened and that the forces are exhausted. Similarly, when expectations are based upon simple projections, people search to understand why, and if they do not find reasons, will change their expectations.

Obviously “understanding,” as used here, does not involve sophisticated knowledge about economic relationships but rather a feeling about what leads to what. This sort of understanding not only is within the capacity of broad middle-income groups, but is also a prerequisite for the discussions of economic events essential to the spreading of opinions and attitudes. When interviewed, most people who express opinions about the prospective trends of prices or economic activity also promptly answer such questions as, “Why do you say so?” or “Why do you think so?” The answers are frequently simple statements: “everybody is buying,” “there is more demand than supply,” “the buyers are in control,” “there’s

³² Katona, *Psychological Analysis of Economic Behavior*, Chap. 4.

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lots of money around." The explanations may not satisfy economic analysts, but those who make them see a connection between their experience and their expectations. One fundamentally conservative notion held by broad groups of people is that the forces that generate trends are not inexhaustible. Often the longer a trend continues, the more people are inclined to look for reversals. Thus, in the economic area, mass reactions may tend toward self-regulation rather than toward excess.

Since World War II, in a period when most people have been confident that their personal financial situations and standards of living would improve, purchases of new cars or television sets have stimulated a desire for further purchases rather than saturation among people quite well off already. Are these expectations and desires without limit? Will they necessarily result in overbuying and subsequent collapse?

Consumer purchases are dependent both on felt needs or desires and on ability to buy. For many years economic forecasts of saturation have proved to be wrong because younger consumers in middle and upper income brackets were willing to enlarge their installment debt burden for the sake of upgrading their possessions. When in 1955 the proportion of incomes mortgaged for debt repayment rose substantially, government experts called for a regulation of installment credit. No regulation was enacted, and the next two years showed it to have been unnecessary—the consumers themselves regulated their financial positions. No doubt some families overreached themselves, and many more figured their permissible debt burdens on the basis of expected future income rather than on current income, thereby exposing themselves and the economy to serious risks if the expected income increases had failed to materialize. But as the slower rate of automobile purchases in the very good years 1956 and 1957 showed, consumers on the whole realized there were limits to how heavy their monthly contractual charges could be. They also kept in mind the possibility of unexpected developments; their desire to save remained strong at the same time when great emphasis was placed on improving their standards of living.³³

Thus many millions of decision-makers who obtain prompt and similar information about economic developments may add to the stability rather than the instability of the economy. Possibly the more decision-makers there are, the less probable are excessive reactions. It can be argued that dynamic forces may more easily sway an entire group when the group is small—as, for instance, big business—and has the power to control economic activity. With the much more diffuse mass of consumers, early reactions and reversals are more probable.

³³ In my "Attitudes toward Saving and Borrowing" (in *Consumer Instalment Credit*, Part II, National Bureau of Economic Research and Board of Governors of the Federal Reserve System, 1957, Vol. 1, pp. 450-487) I showed that the importance attached to saving and the desire to save did not decline at all during the ten prosperous years following World War II.

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The fact that many groups of consumers may acquire the same new economic information at the same time and may accordingly change their attitudes and behavior all at once can occasionally lead to the vicious circle of deflation or the mass hysteria of runaway inflation. Yet knowledge of what influenced consumer attitudes aids our understanding of developments of the past ten years, when consumers contributed to economic stability either by serving as a brake on inflationary trends by refraining from buying or by increasing their demand when the economy needed new incentives.

Summary

THE MODEL

Change in expectations results from (1) the acquisition of widely transmitted information of a general nature, (2) personal experiences, or (3) errors of measurement.

At any given time there will be individuals with whom variables 2 and 3 operate in one direction, and individuals with whom they operate in the opposite direction. On the other hand, most commonly, variable 1 is either noninfluential or operates in the same direction with many people.

DERIVATIONS FROM THE MODEL MADE PROBABLE BY EMPIRICAL FINDINGS

If variable 1 is not influential, aggregate changes in expectations will be small because most changes in individual expectations cancel out. When substantially unchanged distributions are observed, one may not assume that most individuals have maintained their previous expectations. On the contrary, it is probable that among individuals there have been frequent changes in both directions. (This statement does not hold for relatively deep-seated and enduring attitudes, when very small changes in aggregate distributions were observed together with infrequent cross-shifts by individuals.)

If variable 1 is effective and substantial, aggregate changes in expectations will likewise be substantial. Under these circumstances contrary effects of variables of type 2 are suppressed or lessened. Substantial aggregate changes in expectations should then be attributed to variables of type 1. This final derivation from the model, implying causal relations, is suggested (rather than demonstrated) by data on information acquired by different groups as well as by an association between high marginal change rates and low rates of unnecessary turnover.

C O M M E N T

ROBERT EISNER, Northwestern University

George Katona here discusses a problem of importance to economic analysis as well as to forecasting. His inquiry is into the structure of

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aggregates or distributions of individual consumer expectations and into some of the factors that effect changes in the distributions.

Except for a few obiter dicta, the paper does not touch on the economic *behavior* of consumers or the possible role of consumer expectations or changes in expectations in recent economic theory about the consumption function. The Modigliani-Brumberg models of consumption, for example, raise searching questions with regard to the relationship between consumers' present and expected future income and the role of this relationship in consumption. It seems a pity that attitude surveys are not better coordinated with the questions raised by economic theory. But in fairness to Katona, everything cannot be done in one paper, or by one man.

Katona's focus is that of a social psychologist interested in the learning process and in statistical tools and data with which to examine it. His data are answers to the same or similar questions on successive surveys of panels of identical respondents. It is thus possible to compare not only shifts in aggregate distribution of attitudes (what Katona denotes as "marginal" distribution), but also shifts in the attitudes of individuals.

Katona's interest is the stability and changeability of individual attitudes, in relation to and apart from shifts of the aggregates. To measure the changeability he constructs a concept of "unnecessary turnover," T , defined as the ratio of the actual frequency of shift in attitudes of individuals in a direction *opposite* to the aggregate shift (L , "losses") to the greatest such frequency possible consistent with the aggregates. In writing $T=L/\text{Max } L$, Katona specifically rejects the variable $L/\text{Exp } L$, where $\text{Exp } L$ is the value of L which "might be expected by chance if the two responses were entirely independent given the frequency of the marginals" (p. 60). And here, if I understand Katona, I have a fundamental difference.

For Katona devotes much of his analysis to relating T to the marginal (aggregate) change in attitudes. He generalizes on page 65, "The larger the marginal change, the smaller the unnecessary turnover of individual responses." And further (p. 66), "If in the aggregate there is a substantial change in attitudes, it is likely that the changes will be predominantly in one direction, the population tending to be divided between those who changed in one direction and those who did not change at all." These "hypotheses were derived from socio-psychological assumptions about contagion and social learning, as well as from earlier findings obtained without the use of panel technique." I believe I can demonstrate, however, that the nature of Katona's T is such that his data would *appear* to confirm these hypotheses whether they really do so or not.

Specifically, I can show that if the distribution of attitudes on successive surveys involving independent responses were a purely random function of the marginal probabilities, T would manifest the negative relationship to "marginal change" ($M Ch$) that Katona ascribes to "socio-psychological assumptions about contagion and social learning." To do this

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I define $E(L)$ as the expected probability of losses or expected value of L , when individuals' responses on the second survey are unrelated to their responses on the first survey and $E(T)$, accordingly, as $\frac{E(L)}{\text{Max } L}$. I shall illustrate the point first with simplified tables (in effect reducing Katona's 3×3 tables to 2×2 tables) and for these we can easily draw a few striking exact formulations of the relationship between $E(T)$ and $M Ch$. In all of the tables the expected probability of loss within a cell is shown above the cell's diagonal and the maximum possible loss contribution of the cell below it.¹ Expected probabilities within a cell are the products of the

TABLE 1

Expected (Random) Value of "Unnecessary Turnover," $E(T)$, and Marginal Change ($M Ch$): Hypothetical Marginal Probabilities, $P_2 = Q_2 = 0$

		(1)						(1)					
		+	0	-				+	0	-			
	+	0.08	0	0.02 / 0.1	0.1	(Q ₁)		+	0.03	0	0.07 / 0.1	0.1	(Q ₁)
(2)	0	0	0	0	0	(Q ₂)	(2)	0	0	0	0	0	(Q ₂)
	-	0.72	0	0.18	0.9	(Q ₃)		-	0.27	0	0.63	0.9	(Q ₃)
		0.8	0	0.2				0.3	0	0.7			
		(P ₁)	(P ₂)	(P ₃)				(P ₁)	(P ₂)	(P ₃)			
	$M Ch = 1.4$			$E(T) = 0.2$				$M Ch = 0.4$			$E(T) = 0.7$		

General assumptions and relations:

Assume $P_1 > Q_1$; $P_2 = Q_2 = 0$; $Q_1 < P_3 = 1 - P_1$.

Then

$$E(T) = 1 - P_1 = P_3,$$

$$M Ch = 2|P_3 - Q_3|$$

$$E(T) = Q_3 - \frac{M Ch}{2}$$

$$\frac{dE(T)}{dM Ch} = -\frac{1}{2}$$

¹ The form of these tables differs from Katona's presentation both in these double entries and in the use of the upper-right boxes as loss cells. Katona, for reasons not clear to me, would have us always arrange the rows and columns so that losses would appear in the lower left-hand cells. It seems better to preserve similar ordering of the rows and columns regardless of the direction of the marginal change, as I have done, and allow the loss cells to appear where they may. This accounts, however, for the inapplicability to our tables of Katona's computational formulas for deriving the value of $\text{Max } L$ from the marginals. There is of course no difference between Katona's definitions of L and $\text{Max } L$ and mine.

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probabilities of occurrences falling in the cell's row and the cell's column. The maximum possible loss contribution is the cell probability entry which would maximize the value of L .

In Table 1, as $M Ch$ declines from 1.4 to 0.4, the *expected* value of T , which would be generated on a random probability basis (with no psychology or learning), rises from $E(T)=0.2$ to $E(T)=0.7$. And at the bottom appear the specific assumptions under which we can derive an exact relationship between $E(T)$ and $M Ch$, with a slope of -0.5 , strikingly similar to the slope in Katona's Chart 1. With less special assumptions (a non-zero 3×3 distribution) a similar relationship between marginal change and the expected value of T is illustrated in Table 2. Katona's data

TABLE 2

Expected (Random) Value of "Unnecessary Turnover," $E(T)$ and Marginal Change ($M Ch$): Non-zero Hypothetical Marginal Probabilities

		(1)			
		+	0	-	
	+	0.07	0.01 / 0	0.02 / 0.1	0.1 (Q_1)
(2)	0	0.14	0.02 / 0.1	0.04 / 0.1	0.2 (Q_2)
	-	0.49	0.07	0.14	0.7 (Q_3)
		0.7	0.1	0.2	
		(P_1)	(P_2)	(P_3)	

		(1)			
		+	0	-	
	+	0.02	0.01 / 0	0.07 / 0.1	0.1 (Q_1)
(2)	0	0.04	0.02 / 0.2	0.14 / 0.2	0.2 (Q_2)
	-	0.14	0.07	0.49	0.7 (Q_3)
		0.2	0.1	0.7	
		(P_1)	(P_2)	(P_3)	

$L_e = 0.01 + 2(0.02) + 0.04 = 0.09$
 $\text{Max } L = 0 + 2(0.1) + 0.1 = 0.3$
 $E(T) = 0.09/0.3 = 0.3$
 $M Ch = |0.1 - 0.7 - (0.7 - 0.2)| = 1.1$

$L_e = 0.01 + 2(0.07) + 0.14 = 0.29$
 $\text{Max } L = 0 + 2(0.1) + 0.2 = 0.4$
 $E(T) = 0.29/0.4 = 0.725$
 $M Ch = |0.1 - 0.7 - (0.2 - 0.7)| = 0.1$

$$\frac{\Delta E(T)}{\Delta M Ch} = \frac{E(T)_B - E(T)_A}{M Ch_B - M Ch_A} = -0.425$$

may well possess the characteristics he asserts. I submit that he can hardly claim to demonstrate it with the turnover variable he defines.

I have indeed another quarrel with T , in how it is likely to respond to variations in the proportion of "same" or "no change" answers. Table 3 illustrates that two distributions with the same marginal change yield different expected values of T when the non-extreme marginals (P_2 and Q_2) change. In this example, where the same or no-change categories are higher, the *expected* value of T is higher for distributions with equal marginal changes.

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TABLE 3

Effect on $E(T)$ of Increasing Middle Row and Middle Column Probabilities
 (Effect of same and no-change answers on expected value of
 "unnecessary turnover")

		(1)			
		+	0	-	
	+	0.08	0.04 / 0	0.08 / 0.2	(Q ₁)
(2)	0	0.12	0.06 / 0.2	0.12 / 0.3	(Q ₂)
	-	0.20	0.10 / 0.2	0.20 / 0.5	(Q ₃)
		0.4	0.2	0.4	
		(P ₁)	(P ₂)	(P ₃)	

		(1)			
		+	0	-	
	+	0.03	0.04 / 0	0.03 / 0.1	(Q ₁)
(2)	0	0.15	0.20 / 0.2	0.15 / 0.5	(Q ₂)
	-	0.12	0.16 / 0.2	0.12 / 0.4	(Q ₃)
		0.3	0.4	0.3	
		(P ₁)	(P ₂)	(P ₃)	

$$E(L) = 0.04 + 2(0.08) + 0.12 = 0.32$$

$$\text{Max } L = 0 + 2(0.2) + 0.2 = 0.6$$

$$E(T) = 0.32/0.6 = 0.533$$

$$MCh = |0.2 - 0.5 - (0.4 - 0.4)| = 0.3$$

$$E(L) = 0.04 + 2(0.03) + 0.15 = 0.25$$

$$\text{Max } L = 0 + 2(0.1) + 0.2 = 0.4$$

$$E(T) = 0.25/0.4 = 0.625$$

$$MCh = |0.1 - 0.4 - (0.3 - 0.3)| = 0.3$$

I shall close on a general methodological note. Katona argues, with pardonable professional pride, that information on consumer attitudes has proved particularly useful on several recent occasions in warranting predictions of consumer spending that were not obvious in terms of economic theory. He implies that economists tend to treat consumption as an endogenous, nonautonomous variable in their system and hence miss critical developments and turning points that are caused by changing human behavior. But however useful surveys of consumer attitudes may be for forecasting, they cannot substitute for economic theory in explaining economic phenomena. As a practical man of affairs I may have to admit that we can at times make better predictions by treating consumption, or any other variable, as "autonomous" and determined outside of my system of economic variables. But to the extent that, as economists, we make important variables "autonomous," we are abandoning areas of our science. And perhaps we are setting back the fundamental goal of all scientific inquiry, the goal of embracing more and more phenomena in a unified theory developed from a minimum of "autonomous" axioms.

REPLY BY MR. KATONA

Eisner objects to my not using the measure L/L_e (which is the same as T/T_e) or, generally, A/R (A =actual value, R =random expectancy). Naturally, there are many problems the solution of which requires that

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the relation of A to R should be taken into account. Even then we should use formulas other than A/R , for instance, coefficients of intraclass correlation. This will be done in a forthcoming study of repeat behavior over three years (see footnote 9 to my paper).

What is wrong with the formula A/R ? Take as a simple example the following identical data obtained in two tests:

		<i>First Test</i>		
		<i>A</i>	<i>B</i>	
<i>Second Test</i>	<i>A</i>	90	0	90
	<i>B</i>	0	10	10
		90	10	

The A/R value for AA is 1.11 and for BB it is 10.0, although both instances are perfectly repetitious. The measure A/R has an undesirable relation to the size of percentages involved. Or take measurements of unnecessary turnover. In both of the following two cases the unnecessary turnover is maximized. Yet L/L_e is 1.67 in the first case and 1.11 in the second case.

50	40	90	0	60	60
10	0	10	40	0	40
60	40		40	60	

The statistic used depends on the purposes for which it is used. Mine was to find out whether unnecessary turnover was close to its minimum or its maximum possible value. Therefore I wished to consider the relation of L to the entire distance from $\text{Min } L$ to $\text{Max } L$. L_e is by necessity smaller than $\text{Max } L$. If we use the measure L/L_e we consider only the distance from $\text{Min } L$ to L_e . Furthermore, L and L_e are intercorrelated. The relation between the two does vary some. But most commonly, when L is close to $\text{Max } L$, L_e is also close to $\text{Max } L$; and when L is close to $\text{Min } L$, L_e is also close to $\text{Min } L$. Thus L/L_e may have the same values, once when both are rather high and another time when both are rather low. If my purpose is to differentiate between these two cases, I must use a different measure.

To illustrate this point I may refer to the turnover in the replies to the same question obtained at different times (complete data concerning the 1954-55 turnover were presented in Table 4 of my paper). The relevant data are:

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Turnover in Business Expectations

	From June 1954 to June 1955	From December 1955 to March 1957
<i>M Ch</i>	40.6	17.9
Max <i>L</i>	23.2	23.6
<i>L</i>	9.6	13.4
<i>L_e</i>	13.6	17.3
<i>L/L_e</i>	0.706	0.775
<i>T</i>	0.41	0.57

The measure *T* serves certain purposes, for which it is used, and does not warrant other inferences. Eisner is, of course, right in pointing out that *L_e* is negatively correlated with marginal change. (So is *L*, as I noted, and both correlations are in the nature of arithmetical necessities.) Therefore he argues that I would have got negative correlations with *M Ch* if I had two sets of random throws rather than two sets of measurements of expectations. *L_e* is the standard of *independence* between the two successive tests. It may be questioned whether *L_e* should be regarded as the appropriate criterion for "random change" since it is not reasonable to expect that two identical tests of identical respondents should be in fact independent. What is true of random independent throws of a coin need not be true of measurements of expectations of the same people in two successive testings.

In spite of these objections to *L_e* I have calculated the values for *L/L_e* and present them, in the manner used in my Table 2 (Part B):

<i>M Ch</i>	<i>L/L_e</i>
Less than 3.5	0.802
5 to 12.5	.762
16 to 30.5	.749
34 and larger	.696

Comparison of this table with my Table 2 indicates that there is somewhat more relation between *M Ch* and *L* than between *M Ch* and *L_e*.

Central issues of psychological economics are raised by Eisner when he says that I imply that "economists tend to treat consumption as an endogenous, nonautonomous variable in their system and hence miss critical developments and turning points that are caused by changing human behavior." This argument has been expressed fully, though in somewhat different terms, in *Consumer Expectations*, where Miss Mueller and I used the following definitions by Alvin Hansen: "Autonomous investment means investment unrelated to income changes or income levels. Similarly, autonomously caused changes in consumption relate not to

income changes, but to changed attitudes of consumers."¹ Disregarding other variables (some of which should not be disregarded) and error terms, one may then differentiate between a theory postulating $C=fY$ or $C=fY_{-1}$ (where C stands for consumer expenditures on durable goods, Y for income, and Y_{-1} for last year's income) and a theory postulating $C=f(Y_{-1}, A)$ (where A stands for attitudes). At the Survey Research Center we adhere to the second type of theory because we believe that attitudes are significant, nonrandom variables necessary for an explanation and prediction of human behavior. Is it correct to say that by making "important variables autonomous we are abandoning areas of our science" and "setting back the fundamental goal of all scientific inquiry"? Motives, attitudes, expectations, and related psychological variables are not fully determined within a narrowly conceived system of economic interrelationships, but contrary to the notion of some (I believe, today, few) students it is not correct to treat them as given, as not susceptible to scientific analysis, or even as mysterious. In psychological or behavioral economics, which is part of "our science" (to repeat Eisner's expression), an attempt is made to measure these variables and to establish functional relationships between them and financial variables.

One aim of economics as a behavioral science is, then, to account for variations in economic behavior which have remained unexplained at earlier times, rather than to increase the number of "autonomous axioms." Through such a procedure we come closer to the goal of establishing a "unified theory," which can hardly be accomplished by disregarding socio-psychological variables.²

The greatest difference between Eisner's views and mine is his statement that "surveys of consumer attitudes . . . cannot substitute for economic theory in explaining economic phenomena." I do not know anybody who conducts economic surveys who has this aim. I, myself, have repeatedly shown that psychological economics derives hypotheses from economic theory. Yet I do not regard economic theory as something finished, which has to be either accepted or discarded, but as an integrated body of principles and validated generalizations which need to be made more general, more complete, and more applicable.

¹ Pp. 108ff. Also earlier in Chapter 7 of my *Psychological Analysis of Economic Behavior*, where the wanderings of the consumption function were discussed.

² Eisner's point may also be viewed as an application of the law of parsimony. I discussed this "counter-argument" to psychological economics in my appendix to Howard R. Bowen's *The Business Enterprise as Subject for Research*, Social Science Research Council, 1955, pp. 42ff.

