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On the Predictive Value of Consumer Intentions and Attitudes

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The calculations reported in this note are designed to appraise the predictive value of consumer intentions and attitudes. The appraisal is made by comparing the intentions and attitudes expressed by individual households at the beginning of a year with their subsequent economic behavior. Are households who express favorable attitudes and positive intentions more likely to spend and less likely to save than other households? Do the answers to attitudinal and intentions questions provide information of value in predicting the buying behavior of households? If so, does this information supplement or merely repeat the predictive information contained in financial, economic, and demographic data concerning households?

The Relevance and Necessity of Cross-section Tests

A cross-section test involves a microscopic study of the correlation in a sample of households between attitudes and intentions, on the one hand, and economic action, on the other. The relevance of such a test to the general question of the predictive value of consumer attitudes and intentions seems to me self-evident. Indeed I do not see how the predictive value of these data can be adequately appraised without confronting the attitudes and intentions of individual households with the record of their subsequent behavior. But this point of view has been challenged by George Katona, the pioneer student and chief collector of consumer anticipations data,* and therefore I must

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* George Katona, "Federal Reserve Board Committee Reports on Consumer Expectations and Saving Statistics," Review of Economics and Statistics, 39, February 1957, pp. 42. Here Katona is criticizing the concern of the

Smithies Committee, of which I was a member, for insisting on confirmation of predictive value at the level of the individual household. It is a travesty of the Smithies Committee report to attribute to it "the assumption ... that the individual 'fulfillment' rate alone matters." Obviously what matters is the aggregate prediction. The question at issue is whether one can have confidence in aggregate predictions based on the over-all proportions of favorable attitudes in a sample, if these attitudes turn out to bear no relation to the behavior of the individuals who expressed them.

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begin by defending it.

First, concerning the relevance of a microscopic study of fulfillment of attitudes and intentions, I am indebted to my colleague Arthur Okun for formalizing the argument that lay behind the position of the Smithies Committee, to which Katona objects*.

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* "...it would surely be very difficult to construct a plausible model of human behavior, even allowing for much purely random and idiosyncratic differences among individuals, on which attitudes could influence subsequent behavior of large groups without influencing the behavior of those who were observed to hold them." **Report of Federal Reserve Consultant Committee on Consumer Survey Statistics (Smithies Committee), Washington 1955, p. 61.**

Suppose that, for a homogeneous population of consumer units, x_t is the proportion who take a certain action (e.g. buy durable goods) during period t. Let p_t be the proportion who express at the beginning of period t an attitude "favorable" to the action (e.g. it's a good time to buy). Let r_t be the proportion of the favorable respondents who take the action, and let s_t be the proportion of the unfavorable respondents who take the action. The following identity holds:

$$x_t = r_t p_t + s_t(1 - p_t) = (r_t - s_t)p_t + s_t$$

If the attitude is to have predictive value, for the whole population from year to year or quarter to quarter, there must be a positive correlation over time between x_t and p_t. Katona believes that he has observed such correlations.*

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* See G. Katona and E. Mueller, Consumer Expectations 1953-1956 (Ann Arbor : 1956)

A microscopic study of fulfillments by individual households is designed to discover for a given time period t whether r_t significantly exceeds s_t (e.g., whether consumers who say it's a good time to buy actually are more likely to buy than other consumers.) Can x_t and p_t be positively correlated when there is no significant difference between r_t and s_t? Katona apparently believes the answer is yes, and he therefore does not consider evidence on the relative magnitudes of r_t and s_t very important.

It is possible to imagine situations in which x_t and p_t are correlated but $r_t - s_t$ is zero or negative. But the models are either so clearly inapplicable to consumer behavior or so artifical and special that they make the point quite eloguently -- it is not reasonable to expect correlation between x_t and p_t unless r_t exceeds s_t. If a sample of the United States population had been asked in January 1957 whether they expected to get Asian flu during the year, very few would have answered yes. Asked the same question in 1958, many more would respond affirmatively. Presumably the proportions of pessimistic expectations would be highly and positively correlated with actual incidence of flu in the two

years. But within the 1958 sample, there might well be no difference in incidence between the pessimists who predict they will become ill and the optimists who expect to escape. Here the probability of occurrence (p_t) is any year roughly uniform throughout the population. If for each individual the probability of a positive expectation depends directly on the probability of occurrence, there will be more positive expectations in 1958 than in 1957. But there is no reason to believe that probability of occurrence in any one year is associated with the qualities of optimism or pessimism that lead to differences in expectations. This is an example that meets Katona's specifications. But the voluntary economic decisions of households are quite a different phenomenon.

Suppose that each consumer has a constant threshold level of probability $\bar{\pi}$, so that if and only if the probability π of his buying exceeds $\bar{\pi}$ will he express a favorable anticipation. If there is a general increase in π's from one year to the next, there will be an increase in both x_t and p_t. If all individuals have the same threshold $\bar{\pi}$, or even if the thresholds are distributed independently of the probabilities π, in a cross-section of individuals in any year r_t would exceed s_t, i.e. there would be more buying by optimists than by pessimists. To avoid this conclusion, it is necessary to imagine that individuals with high probabilities of buying π also have high thresholds $\bar{\pi}$, and individuals with low buying probabilities π have low thresholds $\bar{\pi}$. In this case, differences between attitudinal answers by different consumers would tell more about their differences in thresholds than their differences in action.

This special kind of model would make Katona's case, but I doubt that he will care to stand on it. Not only is it a highly artificial and implausible construct; it also undermines the basis for expecting any connection between anticipation and action. If there is such a strong correlation between action probability and attitude threshold across individuals, the same mechanism may operate for a single individual over time. We could not then have confidence in the predictive value of year-to-year changes in p_t.

Second, the necessity of testing at the individual level the predictive value of attitudes and intentions follows inexorably from the inadequacy of any other kind of test. Aggregate statistics from successive surveys form a time series that can be compared to aggregate time series of consumer purchases or saving components. In his paper for this conference, Mr. Okun gives a thorough review of the evidence provided by comparing these aggregates. He finds the evidence inconclusive, and it could scarcely be otherwise. Only 11-13 observations are available. Since these are roughly quarterly observations, the notorious serial persistence of economic time makes it doubtful that there are as many as 11-13 independent observations. Proper allowance for seasonal effects and for the undeniable influences of other "objective" variables would further reduce the number of degrees of freedom available for testing the influence of attitudes and intentions. If Katona believes he has observed that changes in an attitudinal index lead changes in expenditures on durable goods,*.

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* See "Federal Reserve Board Committee Reports ...," p. 43, and Consumer Expectations 1953-1956, p. 99

he has not based this belief on any rigorous statistical test.

The Data and the Variables

In the 1953 Survey of Consumer Finances (conducted for the Board of Governors of the Federal Reserve System by the Survey Research Center of the University of Michigan), 1036 of the spending units interviewed were spending units who had also been interviewed in the 1952 Survey. For the spending units in this reinterview sample, it is possible to compare economic behavior during 1952, as reported in early 1953, with attitudes and intentions expressed in early 1952.*

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* Thanks are due the Center and the Board of Governors for permission to analyze these data.

The present report makes such comparisons for a part of the reinterview sample and for three specific kinds of economic behavior. Certain kinds of spending units have been excluded from the complete reinterview sample in order to eliminate some of the biggest sources of heterogeneity. After these exclusions there remain 652 spending units for analysis. The exclusions are as follows: (a) Farm households. (b) Secondary spending units. These are individuals who live in the dwelling unit of another (primary) spending unit but maintain significantly separate finances. This is a heterogeneous group, including aged parents, teen-age children, and resident servants. (c) Spending units with 1952 disposable income less than $1000. These spending units were segregated for separate analysis for a technical reason. Many of the variables used in the main analysis are proportions of income. The advantage of such

proportions is that dividing by income tends to standardize the variance of variables which otherwise display a larger variance at high incomes than at low incomes. However, this process also creates extreme values for spending units with incomes near zero. It seems better to analyze such observations separately, rather than to permit them to affect the results of the main analysis.

(d) Spending units from whom any of the following items of information was not obtained: income in 1951, and 1952; outstanding personal non-mortgage debt in early 1952, and in early 1953; liquid asset holdings in early 1952, and in early 1953; age of head of household; marital status.

The three kinds of behavior measured and investigated are (1) expenditures, E, during 1952 on cars and major household goods, as reported in the 1953 interview, (2) change in personal non-mortgage debt outstanding, ΔD, measured by subtracting debt reported in 1952 from the amount reported in 1953, and (3) change in liquid asset holdings, ΔL, during 1952, measured by subtracting the holdings reported in 1952 from the amount reported in 1953. Expenditures are purchases of new or used cars, appliances, and furniture net of the proceeds of sales or trade-ins. Expenditures may or may not involve equal cash outlays by the spending unit, to the extent that purchases are financed by incurring installment debt, they contribute both to variable (1), expenditures, and to variable (2), increase in debt. The debt involved in variable (2) is meant to include all debt for non-business purposes except home mortgages. It is mainly debt incurred for the purchase of consumer durable goods. Liquid asset holdings, the chnage in which is the third variable, comprise checking and savings accounts in banks and savings and loan associations

and holdings of government savings bonds.

In the analysis each of the variables enters as a proportion of the 1952 disposable income, $\dot{Y}$, (income less estimated federal income tax liability) of the spending unit. As mentioned above, the variances of such variables as E, ΔL, and ΔD is greater at higher income levels than at lower. Expressing the variables as proportions of income avoids some of the difficulties which this systematic heterogeneity in the variances would present for the application of analysis of variance and regression techniques to these data.

The fact that the analysis concerns proportions of 1952 income is important in interpreting the results of tests of the predictive value of attitudes expressed at the beginning of 1952. What is being tested is not the usefulness of these attitudes as predictors of the absolute levels of 1952 behavior variables. It is rather their usefulness as predictors of the levels of these behavior variables relative to 1952 incomes.

It is relative levels rather than absolute levels which attitudes and intentions data are likely to be asked to predict in short run forecasting of general economic activity. For the household sector as a whole, income depends to a large extent on occurrences and decisions in other sectors of the economy, governments and businesses. Household spending and saving during a year will be influenced by changes in household incomes, and these changes will frequently not be anticipated by households at the beginning of the year. So far as absolute levels of expenditures and savings are concerned, the indications of beginning-of-year attitudes and intentions may be cancelled by subsequent unanticipated changes in income. This will be true of many individual households even when aggregate household income is stable. And in years of changes in aggregate economic

activity, it will be true of the household sector as a whole. Prediction of absolute levels of behavior variables is thus too severe a test.

Prediction of relative levels demands less. The indications of beginning-of-year attitudes and intentions do not need to be translated into action regardless of income developments during the year. The low-income optimist need not turn out to spend more than the high-income pessimist. He need only turn out to spend more than the low-income pessimist.

A complete forecasting model will predict household income with the help of information about government and business activity. The forecaster does not want to know households' prospective spending on the assumptions that households themselves may be making about their incomes. He wants to know households' prospective spending on assumptions regarding household income that are consistent with his information about other economic sectors. Thus the forecaster is more interested in attitudes and intentions as predictors of levels relative to income than as predictors of absolute levels.

Current income is by no means the only variable that will affect households' behavior with respect to durable goods, liquid assets, and debt. There are numerous other relevant economic, financial, and demographic attributes of households. These "objective" variables may be of use in prediction if they are either (a) capable of being known or estimated in advance of the period for which forecast is to be made, or (b) like current income, endogenous to the complete economy-wide forecasting model being used. In assessing the predictive value of attitudes and intentions data, therefore, it is important to consider these "psychological" variables both as substitutes for and as comple-

ments to the objective variables. There are, then, three related but district questions:

(1) What is the predictive success of a psychological variable or set of psychological variables taken alone?

(2) To what extent can psychological variables take the place of objective predictors of household behavior? To put the same question another way, do objective variables contain any predictive information that is not contained in answers to questions about attitudes and intentions? The practical importance of this question is that attitudes and intentions may be easier and cheaper to collect.

(3) To what extent can objective variables take the place of psychological predictors of household behavior? In other words, do attitudes and intentions contain any predictive information that is not contained in economic, financial, and demographic characteristics?

To contribute to answers to these questions, I have computed regressions of the three behavior variables E/Y, $\Delta D/Y$, and $\Delta L/Y$ against a common set of objective variables: $\frac{Y_{-1}}{Y}$, $\frac{L}{Y}$, $\frac{D}{Y}$, A, and M, where

Y_{-1} 1951 income of the spending unit, after estimated federal tax liability, as reported in 1952 Survey.

L total holding of liquid assets January 1, 1952 reported by the spending unit in the 1952 Survey, including checking accounts, savings accounts, and savings bonds.

D outstanding personal debt (debt other than business and real estate indebtedness) as of January 1, 1952, as reported in the 1952 Survey.

A age of the head of the household as reported in the 1953 Survey, on the following scale:

Age	18-24	A = 1
	25-34	A = 2
	35-44	A = 3
	45-54	A = 4
	55-64	A = 5
	65-	A = 6

M marital status of the head of household:

M = 1 if married and spouse present,
M = 0 otherwise.

The three regressions are shown in Table 1. In each regression, income change from 1951 to 1952 enters in two forms: as a continuous variable, and as a three-way principle of classification. The reason for introducing it in the second form is to allow for interaction effects between income change and the other explanatory variables, as well as additive effects.

The Tests of Predictive Value

The psychological variables tested are listed in Table 2. For the most part, the "variable" is simply a classification of respondents according to their answers to the question indicated. Except for #4, all the questions are ones that were asked in early 1952. Number 4 refers to income expectation in early 1953, after the end of the year for which the behavior variables were measured. The reason for including this test is as follows: A whole year may be too long to expect attitudes to persist and to continue to exert such influence as they may have on behavior. The Survey Research Center, indeed, conducts attitudinal surveys at intervals of 3-6 months. Presumably many of the income expectations expressed in early 1953 were already formed sometime in 1952 and could have been influencing buying and saving in that

year. Such expectations might have been caught in an interim survey during 1952.

Rows 9 and 10 refer to an attitudinal index. When attitudinal questions, taken singly, have shown little predictive power, Katona has responded that it is the Gestalt or cluster of attitudes that matters.* Under his direction

* "Federal Reserve Committee Report," pp. 42-43.

the Survey Research Center has constructed a time series index of attitudes.*

* See Consumer Expectations 1953-1956, Chapter 6.

The relation over time between this index and actual expenditures on durable goods is the present basis for the claim that attitudinal indicators have predictive value; this relation is discussed by Okun in his paper for the conference. In order to make the same kind of test on cross-section data, a somewhat analogous index of attitudes for an individual respondent was constructed from questions 1, 2, 3, and 5, as follows: For each question, the answer of a respondent was valued as optimistic (+1), neutral or no answer (0), or pessimistic (-1). These values were summed over the four questions to give each respondent a score, some integer from -4 to +4 inclusive. A test for the significance of differences in the behavior variables for the nine possible scores was carried out, and reported in row 9 of Table 2. In row 10, a test of linear regression on the index score is reported.

Tests of specific buying intentions, as distinguished from more diffuse attitudes, are given in rows 7 and 8. Buying intentions are the result of

answers to two questions: "Do you expect to buy a car this year, in 1952?" and "Do you expect to buy any large items such as furniture, a refrigerator, radio, television set, household appliances and so on -- during this year, 1952? .... Anything else? ...." In each case, if the answer was affirmative or "it depends," the respondent was asked how much he thought he would spend. For test 7, responses to these two questions were divided into three classes: Will buy (including everyone who gave a non-zero dollar amount as expected expenditure), will not buy (negative answers to both questions), and Other responses (not ascertained, etc.). For test 8, the dollar amounts given in answer to the two questions were added together to give the variable P expected expenditure. This was then expressed as a ratio of 1952 disposable income, P/Y. Linear regressions on P/Y were computed for each of the six dependent variables, three original variables and three residuals from the Table 1 regressions.

The nature of the tests reported in Table 2 may be illustrated by considering the first one in detail. The 652 cases were classified according to their answers to the question "Would you say you folks are better off or worse off financially now than you were a year ago?," asked in early 1952. The numbers falling into each class are shown in the first column of Table 3. In the second column the average value of E/Y is shown for each class. In this case, it is noteworthy that the mean for the first class, respondents who are feeling better off, is extraordinarily high. But the question arises whether the differences among the class means represent real differences attributable to the principle of classification, or whether they are differences that could have arisen by chance, from a random division of the 652 cases into five classes of

these sizes. This question can be answered, for any arbitrary level of statistical significance, by comparing the differences among class means with the dispersion of values of individual observations. If the differences among means are large relative to the variances of individual observations around the means, then it seems unlikely that the differences among means could arise by chance. But if the differences among class means are small and individual observations scatter widely about the means, it seems likely that the differences among means reflect nothing more than the inherent wide variability of the phenomenon being measured. The F-ratio reported in Table 2 is a measure of the size of the differences among class means relative to the variation of the individual observations. In this case its value, 6.6, is significant at the 1% level. That is, there is no more than 1 chance in 100 that differences among means of the magnitude observed (and shown in column 2 of Table 3) would have arisen by chance from a population in which there were really no differences in behavior as between respondents who answered this question differently. (In calculating this F ratio, it was considered that the data were classified into four groups rather than five; a similar reduction of the number of classes was assumed for other attitudinal questions. This was done in order to avoid counting the inevitable residual classes like "Not ascertained" against the performance of the question.)

In interpreting the results shown in Table 2, the tests of buying intentions, numbers 7 and 8, should be considered separately from the tests of other attitudinal questions. The higher F-ratios shown in test 8 compared with test 7 indicate that the quantitative information on expected purchases is important; the simple classification into "will buy" or "will not buy" does not explain as much of the variation of the dependent variables E/Y and ΔD/Y,

as regression on P/Y. For these variables E/Y and ΔD/Y, both the original variables and the residuals, regression on P/Y has by far the highest F-ratio of all the tests in Table 2. It is the only test where a significant relation to debt behavior appeared. For both variables, it is interesting that the regression on P/Y is more significant for the residuals than for the original variables. Intended expenditure is complementary to the "objective" variables included in the regression; it contains more information when used in conjunction with "objective" variables than when used alone. It is the only test in Table 2 of which this is true.

Clearly, buying intentions provide predictive information regarding durable goods expenditures and debt behavior that is not contained in the objective characteristics of the household. This is shown by the significance of the relation of residual E/Y and residual ΔD/Y to the variable P/Y. If the regressions of Table 1 are expanded to include P/Y as an additional explanatory variable, the coefficients indicate the best way to use expected expenditure in combination with the objective variables. The expanded regressions are shown in Table 4. According to these regressions, a dollar increase in expected expenditure indicates a thirty-cent increase in actual expenditure and a fifteen-cent increase in debt accumulation.

Buying intentions do not begin to be an adequate substitute for the "objective" variables. By itself the variable P/Y explains only 3 1/2% of the original variance of E/Y. This indicates a significant relationship, but the objective variables of the Table 1 regression account for 23% of the original variance and make a highly significant supplement to P/Y. The same conclusion is even stronger for ΔD/Y and ΔL/Y. One might have hoped that

buying intentions themselves would embody all the effects of economic, financial, and demographic circumstances, that the respondents themselves, in expressing intentions, would fully reflect these as well as other less systematic determinants of their own behavior. Were this hope justified, short term forecasting would be greatly simplified. It would suffice to collect buying intentions from a sample of households; the respondents themselves would do the otherwise laborious jobs of data collection, analysis, and calculation necessary to make predictions from "objective" variables. The evidence shows that this hope is far from realized. Buying intentions contain useful predictive information, but they are complementary to objective variables, **not** substitutable for them.

The more diffuse attitudinal questions are strikingly less successful as predictors than the buying intentions questions. This is true, as Table 2 shows, whether these questions are tested separately (tests 1-6) or combined in an index (tests 9-10.) Although several of the F-ratios are significant on the original variables E/Y and $\Delta L/Y$, none of them is strikingly large. Moreover, almost invariably the F-ratio is lower for the residuals than for the original variables, indicating that the predictive information contained in the attitudinal answers duplicates some of the information contained in the "objective" variables. In two cases, tests 1 and 2, a significant effect on residual $\Delta L/Y$ remains. But the direction of this effect is contrary to the direction one would expect on Katona's general hypothesis that optimism and feelings of well-being favor spending while pessimism and feeling worse off lead to saving. In this case, those who felt "better off" or reported that they were

"making more" tended to add more to their liquid assets than those who felt "worse off" or reported "making less." The only other significant F-ratio for the residuals concerns the effect of end-of-year income expectations on durable goods expenditure. I would be more inclined to attach importance to this result if beginning-of-year income expectations had shown a similar result.

Buying intentions have predictive value, other attitudinal questions do not. This conclusion is the inescapable testimony of the evidence of this reinterview sample. It was also the conclusion of a previous analysis employing a different approach on the same sample.* Other evidence, based on

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* Klein, L.R. and Lansing, J.B., "Decisions to Purchase Consumer Durable Goods," Journal of Marketing, XX (October, 1955), 109-132.

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different survey data or different techniques of analysis, may point to different conclusions.** But no such evidence has yet been presented

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** "It is always possible, however, that the results would look different if somewhat different procedures were used. In particular, a separation of the dependent purchase variable into cars and other durables, perhaps even dividing other durables into specific items might yield less impressive results for purchase intentions and more significant results for the more diffuse attitudes. In the analyses we have been summarizing, the pooling of all items, in both actual and intended purchases, means that the intentions variable must be interpreted less as reflecting the execution of definite specific plans than as reflecting a rather diffuse disposition to buy durable goods. It is also quite possible that attitudes are multiplicative rather than additive in their effects, that the "interactions" of attitudinal variables with each other and with other variables would turn out to be more important than the "main effects." Thinking it is a good time to buy durable goods may, for example, do nothing to the purchases of an aged low-income consumer with pessimistic income expectations, but it may make a considerable difference for a young and optimistic high-income consumer. " Report of Consultant Committee on Consumer Survey Statistics, p. 65.

Katona has reacted strongly to the report of the Smithies Committee for distinguishing, in its conclusions about predictive value, between intentions data and other attitudinal questions in the same manner as this paper has done.*

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* **"Federal Reserve Committee Reports ...," p. 43.**

The burden of proof seems to be on him to support the statement: "Some available evidence about isolated buying intentions is relatively 'good,' some "not so good"; the same is true of other expectations and attitudes. First of all, however, the two are theoretically and practically so closely related that their separation is not justified."

In view of the negative conclusions about the predictive value of attitudinal data other than buying intentions, "it is time to emphasize," to quote the Smithies Committee,**"... that prediction, at least in the fairly direct sense in which

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** Report of Consultant Committee on Consumer Survey Statistics, pp. 65-66.

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we have been discussing it, is by no means the only use of attitudinal data, although it is the use which the Survey Research Center itself has almost exclusively emphasized. These data have considerable descriptive interest in themselves, as measures of households' assessments of their own well-being, as clues to the sources of popular feeling of anxiety and security. It may well be as important for the social scientist to explain fluctuations in measures of this kind as to try to use such measures to explain spending and saving behavior. Moreover, if spending units are to be interviewed for other purposes anyway, as

in the case of the Surveys of Consumer Finances, the additional cost of attitudinal data is negligible. Indeed questions of this kind have considerable value just in arousing the cooperative interest of the respondent. Interim surveys, which collect solely attitudinal data, require more substantial justification."

I would not conclude without stressing the very considerable debt the profession owes George Katona and his colleagues at the Survey Research Center for their imaginative and pioneering work in the collection and interpretation of attitudinal data. Without their leadership, we might still be talking about the importance of consumer psychology for short-term business fluctuations and bemoaning our inability to observe and measure it. Thanks to the experience they are accumulating, we can investigate the questions which attitudes are the most important ones to collect in periodic surveys and what is the best way to use these data in combination with other economic information.

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Table 1

Regression Coefficients (Estimated Standard Errors)													
D/Y				Y_{-1}/Y			Constants			R^2	Standard error of estimate
$\leq Y_{-1}/Y$	$Y_{-1}/Y < .8$	$.8 \leq Y_{-1}/Y < 1.3$	$1.3 \leq Y_{-1}/Y$	$Y_{-1}/Y < .8$	$.8 \leq Y_{-1}/Y < 1.3$	$1.3 \leq Y_{-1}/Y$	$Y_{-1}/Y < .8$	$.8 \leq Y_{-1}/Y < 1.3$	$1.3 \leq Y_{-1}/Y$		
.012 .010)	+.056 (.093)	+.010 (.029)	+.006 (.097)	+.026 (.077)	-.117* (.052)	+.032* (.008)	+.113* (**)	+.240* (**)	+.070* (**)	.23	.125
.214* .095)	-2.64* (0.58)	-.075 (.200)	-.212 (.232)	-.113 (.633)	-.097 (.270)	+.367* (.044)	+.377* (**)	+.186* (**)	-.560* (**)	.38	.768
.024 .020)	-.733* (.059)	-.573* (.051)	-.886* (.104)	-.070* (.041)	-.032 (.023)	+.010 (.011)	+.117 (**)	+.093 (**)	+.104 (**)	.35	.155

testing the hypothesis that they are, except for change does not really affect the level of the io of 5.2 with 2 and 638 degrees of freedom) and nnot be rejected for $\Delta D/Y$ (F-ratio of .05).

Primary Non-farm Spending Units with l

Dependent Variable	Income Change	M	A	$Y_{-1}/Y < .8$	.8
E/Y	Up	+.020 (.014)	-.020* (.004)	-.003 (.010)	
	Little Change				
	Down				
ΔL/Y	Up	-.213* (.082)	+.072* (.025)	-.311* (.082)	
	Little Change				
	Down				
ΔD/Y	Up	+.019 (.012)	-.006* (.002)	-.027* (.009)	
	Little Change				
	Down				

* Significant at 10% level.

* * The significance of the three constants may be
sampling variation, equal, i.e. that cl
relationship. This hypothesis would be
ΔL/Y (F-ratio of 7.3, 2 and 638 degrees

Table 2

Tests of significance of relation of E/Y, ΔD/Y and ΔL/Y to selected variables.

Variable	Number of classes into which observations were divided (k)	F-ratios *Significant at 5% level. **Significant at 1% level. Original variables (d.f. k-1 and 652-k)			Residuals from Table 1 regressions (d.f. k-1 and 638-k)		
		E/Y	ΔD/Y	ΔL/Y	E/Y	ΔD/Y	ΔL/Y
1. Would you say you folks are better off or worse off financially now than you were a year ago? Asked in 1952.	4	6.6**	0.4	1.0	2.4	0.1	2.7*
2. Are you folks making as much money now as you were a year ago, or more or less? Asked in early 1952.	4	5.4**	1.0	9.8**	1.2	0.5	6.5**
3. How about a year from now -- do you think you people will be making more money or less money than you are now, or what do you expect? Asked in early 1952.	4	1.7	0.1	4.3**	0.5	0.5	2.4
4. Same question as 3 but asked in early 1953.	4	10.2**	1.4	3.9**	6.3**	1.0	2.6
5. Do you think this is a good time or a bad time to buy automobiles and large household items? Asked in early 1952.	6	1.9	0.9	0.8	1.6	0.8	0.8

Table 2 continued

Variable	Number of classes into which observations were divided (k)	F-Ratios *Significant at 5% level. **Significant at 1% level.					
		Orginal variable (d.f. k-1 and 652-k)			Residuals from Table 1 regression (d.f. k-1 and 638-k)		
		E/Y	ΔD/Y	ΔL/Y	E/Y	ΔD/Y	ΔL/Y
6. Now, speaking of prices in general, I mean the prices of the things you buy, do you think they will generally go up during 1952, or go down, or stay about where they are now? Asked in early 1952.	9	1.1	0.8	0.6	0.7	0.7	0.6
7. Do you plan to buy a car or any large household items in 1952? Asked in early 1952.	3	15.1	1.3	0.1	13.3	1.7	1.0
8. Linear regression on ratio of total anticipated 1952 expenditure on cars and large household items to realized 1952 income.	2 parameters estimated	20.6**	5.8*	0.0	72.0**	9.5**	0.7
9. Attitudinal index (see text)	9	2.3	1.9	1.3	0.8	1.1	0.7
10. Linear regression on attitudinal index (see text)	2 parameters estimated	9.8**	0.5	0.9	1.1	0.0	2.0

Table 3

	Number of cases	Mean E/Y	Mean Residual E/Y
Better off; slightly better	208	.114	.018
No better; no worse	221	.068	-.004
Worse off; slightly worse	203	.058	-.011
Undecided; don't know	3	.068	-.006
Not ascertained	17	.048	-.031
All	652	.079	.000

Primary Non-farm Spending Units with 1952 Incomes $1000 or greater

Table 4

Regression Coefficients

Dependent Variable	Income Change	M	A	L/Y			D/Y			Y_{-1}/Y			Constants	
				$Y_{-1}/Y < .8$	$.8 \leq Y_{-1}/Y < 1.3$	$1.3 \leq Y_{-1}/Y$	$Y_{-1}/Y < .8$	$.8 \leq Y_{-1}/Y < 1.3$	$1.3 \leq Y_{-1}/Y$	$Y_{-1}/Y < .8$	$.8 \leq Y_{-1}/Y < 1.3$	$1.3 \leq Y_{-1}/Y$	$Y_{-1}/Y < .8$	$.8 \leq Y_{-1}/Y < 1.3$
E/Y	Up	+.022	-.015	-.001	-.000	+.012	+.039	+.014	+.016	+.021	-.137	+.032	+.083	+.231
	Little Change													
	Down													
$\Delta L/Y$	Up	-.212	+.075	-.316	-.289	-.214	-2.65	-.072	-.204	-.136	-.115	+.367	+.356	+.179
	Little Change													
	Down													
$\Delta D/Y$	Up	+.019	-.004	-.030	-.011	-.024	-.746	-.571	-.879	-.072	-.045	+.010	+.102	+.089
	Little Change													
	Down													

$1.3 \leq Y_{-1}/Y$	P/Y
+.030	+.305
-.587	+.212
+.084	+.149