

How Should We Measure Consumer Confidence?

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In April 2001, concern about the U. S. economy was evident in a *New York Times* headline declaring “Confidence of Consumers at 8-Year Low” (Leonhardt, 2001) and in an *Economist* story reporting, “Consumer confidence is now down to the same level as when America went into recession in 1990” (“The Kiss of Life,” 2001). Two years later, in February 2003, *Reuters* reported “Consumer Sentiment Hits 9-Year Low” (2003). The *Times*, *Economist* and *Reuters* reports stated that their conclusions were based on an index issued monthly by the University of Michigan, but did not describe the index. Apparently, the meaning and measurement of “consumer confidence” were considered sufficiently well-known so as not to require explanation. Indeed, the Michigan Index of Consumer Sentiment is reported regularly in the media, along with commentary on its significance for the economy. So is another measure, the Consumer Confidence Index issued monthly by the Conference Board.

The Michigan index was developed a half-century ago by George Katona and colleagues at the Survey Research Center of the University of Michigan (Curtin, 1982). The Conference Board index has been issued since 1967 (Linden, 1982). Notwithstanding their prominence in public discussions of the economy, the Michigan and Conference Board indices have little presence in modern economic research. Neither “consumer confidence” nor “consumer sentiment” appear in the *Journal of Economic Literature* Subject Index of Journal Articles. A search for the two terms in *EconLit* revealed 78 occurrences in the abstracts of articles and discussion

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papers published from 1969 through February 2003, but relatively few of these were in “mainstream” economics journals.

Despite the sparsity of modern research, economists of an earlier period scrutinized in some depth the methods and data used to produce consumer confidence indices. In the 1940s, the U.S. Federal Reserve Board began to fund an annual Survey of Consumer Finances, conducted by the University of Michigan Survey Research Center (SRC), that posed qualitative questions of the type used to form the Index of Consumer Sentiment. The idea was that the responses to these questions might be useful in predicting consumer spending and other economic variables. This proposition was controversial, and the Federal Reserve Board appointed a committee to assess the value of the SRC data. The Federal Reserve Consultant Committee on Consumer Survey Statistics (1955), known informally as the Smithies committee for its chair, Harvard economics professor Arthur Smithies, issued findings that questioned the predictive power of the SRC data. The negative findings of the committee were challenged by SRC researchers, notably Katona (1957). A contentious conference followed (National Bureau of Economic Research, 1960). Then Juster (1964) reported an intensive study, drawing largely negative conclusions, on the predictive usefulness of qualitative approaches to elicitation of consumer expectations. By the mid-1960s, opinion among mainstream economists was firmly negative. However, the SRC continued to perform its consumer surveys and to publish aggregated findings in its Index of Consumer Sentiment. Moreover, the Conference Board initiated its own index shortly thereafter.

The Index of Consumer Sentiment (ICS) is currently formed from the responses to five questions asked in the Michigan Survey of Consumers, a monthly nationwide telephone survey. These five questions concern two assessments of current outcomes—family finances and “buying conditions”—and three assessments of future outcomes—family finances in the year ahead, business conditions in the year ahead and aggregate economic conditions over the next five years. The monthly sample size includes approximately 500 adult men and women who live in the coterminous United States. Michigan has adopted a rotating panel design for this survey, in which the majority of individuals (approximately 300) are first-time respondents from whom re-interviews will be attempted six months thereafter. The re-interview response rate is typically about 70 percent.

Research on consumer confidence has mainly sought to evaluate the power of consumer confidence data to predict economic outcomes. Following Katona (1957) and Mueller (1957), researchers by and large have sought to evaluate the power of consumer confidence indices to predict aggregate consumption and other macroeconomic variables. Sydney Ludvigson discusses some recent evidence in a companion paper in this issue. The Smithies committee, as well as Tobin (1959) and Juster (1964), recommended that consumer confidence data be evaluated by the ability of individual survey responses to predict subsequent individual outcomes, like those on durable goods expenditures, reported later in re-interviews.

This article takes a different approach. Rather than use existing consumer confidence data to predict aggregate or individual economic outcomes, we consider how best to measure consumer confidence. In particular, we analyze the responses to eight expectations questions, each with a 12-month horizon, that have appeared on the Michigan Survey of Consumers in the period June 2002 through May 2003.¹ These questions are shown in Exhibits A and B.

The four questions in Exhibit A elicit micro- and macroeconomic expectations in the traditional qualitative manner. The first two questions are components of the Index of Consumer Sentiment, but the last two are not. (All questions have three response options, except for the first. Throughout this article we treat the first question about business conditions as a three-response question as well, by aggregating the “good” and “qualified good” responses and likewise aggregating the “bad” and “qualified bad” responses.)

The four questions in Exhibit B use a newer “percent chance” format designed to elicit interpersonally comparable expectations of well-defined events. These expectations are elicited in the form called for by modern economic theory: that is, in the form of subjective probabilities. Versions of these questions have previously appeared in our own Survey of Economic Expectations.² Examination of the responses to these eight questions suggests three practical implications for consumer confidence surveys. First, it makes more sense to ask for expectations of events directly relevant to individual economic decisions than for predictions of general “business conditions.” Second, confidence surveys should shift away from using qualitative questions in favor of questions that elicit specific subjective probability judgments. Third, while aggregating the answers to many questions given by all sample members into a single index may provide simple summary statistics, the results of confidence surveys should also be presented on a question-by-question basis for different subgroups of the population. We think that modifying data collection and analysis in these ways would lead to improved measurement of consumer confidence. Although our analysis pertains specifically to the Michigan survey, our conclusions apply with similar force to the Conference Board and similar surveys as well.

Temporal Fluctuations in Expectations

The main use of the Index of Consumer Sentiment has been to measure temporal fluctuations in consumer confidence. However, this is problematic because the index aggregates responses to disparate questions with qualitative

¹ A more detailed presentation of our analysis is available in Dominitz and Manski (2003).

² With the exception of the mutual fund question, these questions were asked in the Survey of Economic Expectations (SEE) from 1994 to 2002. We discuss the origins of these SEE questions in Dominitz and Manski (1997a, b). A set of mutual fund expectations questions, similar to those asked in the Michigan survey, were asked in SEE from 1999 through 2001.

*Exhibit A***Qualitative Expectations Questions on the Survey of Consumers**

BUS12 (ICS question): Now turning to business conditions in the country as a whole—do you think that during the next 12 months we'll have good times financially, or bad times, or what?

1. Good times
2. Good with qualifications
3. Pro-con
4. Bad with qualifications
5. Bad times

PEXP (ICS question): Now looking ahead—do you think that a year from now you (and your family living there) will be better off financially, or worse off, or just about the same as now?

1. Will be better off
3. Same
5. Will be worse off

BEXP: And how about a year from now, do you expect that in the country as a whole business conditions will be better, or worse than they are at present, or just about the same?

1. Better a year from now
3. About the same
5. Worse a year from now

INEXQ1: During the next 12 months, do you expect your (family) income to be higher or lower than during the past year?

1. Higher
 3. Same
 5. Lower
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*Exhibit B***“Percent Chance” Expectations Questions on the Survey of Consumers**

V250: The next question is about investing in the stock market. Please think about the type of mutual fund known as a diversified stock fund. This type of mutual fund holds stock in many different companies engaged in a wide variety of business activities. Suppose that tomorrow someone were to invest one thousand dollars in such a mutual fund. Please think about how much money this investment would be worth one year from now. What do you think is the percent chance that this one thousand dollar investment will increase in value in the year ahead, so that it is worth more than one thousand dollars one year from now?

V252: Next I would like to ask you about your OWN (personal) income prospects in the next twelve months. What do you think is the percent chance that your income in the next twelve months will be higher than your income in the past twelve months?

V255: What do you think is the percent chance that you will lose your job during the next twelve months?

V256: If you were to lose your job during the next twelve months, what do you think is the percent chance that the job you eventually find and accept would be at least as good as your current job in terms of wages and benefits?

response categories. Specifically, the ICS is constructed as follows: For each of the five questions in the index, the *relative score* is calculated as the difference between the percentage of respondents giving “favorable” responses and the percentage giving “unfavorable” responses, plus the value 100. Then, the index equals a) the sum of the five relative scores divided by 6.7558 (the sum of the relative scores in

1966), plus b) a constant to “correct for” changes in sample design over the history of the survey. Notice that the five components are given equal weight. With this methodology, there is no clear meaning to the magnitude of changes over time in the index. Indeed, even the direction of change in the ICS is not clearly interpretable if responses to the component questions move in different directions.

To obtain a sense of temporal fluctuations, we examined the month-to-month variation in responses to each question, one at a time. We also compared the responses to related qualitative and percent-chance questions.

Higher Volatility in National Business Questions

In a pattern that recurred throughout our analysis of qualitative expectations, we found much greater month-to-month volatility in responses to the macroeconomic expectations question concerning national business conditions (BUS12) than to the personal expectations question concerning family finances (PEXP). In Table 1, we show the range of frequencies (as a percentage of the sample) giving favorable or unfavorable responses and the difference in these percentages plus 100 (that is, the Index of Consumer Sentiment relative score) during the 12 months from June 2002 to May 2003.

The relative score for the national business conditions question BUS12 rose from a 12-month minimum of 65.5 in March 2003 to a 12-month maximum of 118.4 in May 2003, just two months later. In contrast, the relative score for personal expectations of family finances PEXP varied only between 125.4 and 137.1 during the entire 12-month period. We also found greater nonresponse to BUS12 (9 percent) than to PEXP (3 percent).

The greater time series volatility of responses to the question about national business conditions and the higher nonresponse rate could have several explanations. It could be that the macroeconomic and personal financial outcomes are equally variable, but that respondents are less informed about the economy than about personal finances and, hence, have expectations that fluctuate more over time and are less willing to answer. Or the economy may really be more volatile than are personal finances. Or the volatility of responses and higher nonresponse rate to the business conditions question may arise from the vagueness of the wording, which asks whether “business conditions” are “good” or “bad.”

The result of this variation, whatever its cause, is that fluctuation in the Index of Consumer Sentiment is more strongly determined by changing expectations about national business conditions than by changing expectations about personal finances. Historical evidence shows that this is a longstanding feature of the ICS. The Survey of Consumers website at (<http://www.sca.isr.umich.edu/>) makes available quarterly reports of the relative score for each component of the ICS since 1960. Over the past 42 years, the personal finances PEXP relative score varied from a minimum of 92 to a maximum of 141, with a standard deviation of 9.9. The national business conditions BUS12 relative score varied from 35 to 168, with a standard deviation of 31.7.

Table 1

Range of Responses to Two Questions from the Index of Consumer Sentiment

		<i>Minimum</i>	<i>(Month)</i>	<i>Maximum</i>	<i>(Month)</i>
(BUS12) Now turning to business conditions in the country as a whole—do you think that during the next 12 months we'll have good times financially, or bad times, or what?	% good	26.6	Feb 2003	54.4	May 2003
	% bad	34.7	Jun 2002	62.1	Mar 2003
1. Good times	% good –	65.5	Mar 2003	118.4	May 2003
2. Good with qualifications	% bad + 100				
3. Pro-con					
4. Bad with qualifications					
5. Bad times					
(PEXP): Now looking ahead—do you think that a year from now you (and your family living there) will be better off financially, or worse off, or just about the same as now?	% better	37.9	Jan 2003	43.8	May 2003
	% worse	5.6	Jun 2002	12.6	Jan 2003
1. Will be better off	% better –	125.4	Jan 2003	137.1	Jun 2002
3. Same	% worse + 100				
5. Will be worse off					

We next considered responses to two other qualitative questions from the Survey of Consumers that may help identify why responses to the question on business conditions fluctuate more. Another question about national business conditions, BEXP, seeks a “better” versus “worse” response rather than the “good” versus “bad” response sought in BUS12. The survey also asks another question, INEXQ1, which focuses on family income rather than personal finances in general. Questions BEXP and INEXQ1 do not suffer from as much vagueness in wording as do BUS12 and PEXP. Hence, their responses may be somewhat more interpretable. Table 2 shows the peaks and troughs for these questions from June 2002 to May 2003. Nonresponse for both of these questions was very low: the national business question BEXP was 2 percent overall, and the family income question INEXQ1 was 1 percent overall.

These results indicate again that expectations for national business conditions are more volatile than are those for personal outcomes. However, the “better/worse” responses to this business conditions question BEXP are considerably less volatile than are the “good/bad” responses to the previous question BUS12. Noting that nonresponse to the better/worse question BEXP is much less common than to the good/bad question BUS12, we conjecture that ambiguous wording is the primary explanation for the greater volatility of responses to the latter question. However, it is also logically possible that beliefs about the level of economic activity are more volatile than are beliefs about changes in the level of activity.

Table 2

Range of Responses in Comparable Qualitative Questions

		Minimum	(Month)	Maximum	(Month)
<i>BEXP</i> : And how about a year from now, do you expect that in the country as a whole business conditions will be better, or worse than they are at present, or just about the same?	% better	28.3	Jan 2003	45.2	May 2003
	% worse	12.4	Jun 2002	26.2	Mar 2003
1. Better a year from now	% better –	102.8	Jan 2003	132.2	May 2003
3. About the same	% worse + 100				
5. Worse a year from now					
<i>INEXQ1</i> : During the next 12 months, do you expect your (family) income to be higher or lower than during the past year?	% higher	58.8	Apr/May 2003	63.5	Sep 2002
	% lower	12.0	Sep 2002	17.0	Jan 2003
1. Higher	% higher –	142.7	Jan 2003	151.5	Sep 2002
3. Same	% lower + 100				
5. Lower					

Finally, compare the two questions asking about personal events, family finances *PEXP* or family income *INEXQ1*. The responses to both of these questions exhibit much less time series variation than do the responses to either of the business conditions questions; the minimum and maximum values of the relative score for *INEXQ1* (*PEXP*) varied by only 8.8 (11.7) points during the 12-month period. Again, it appears that expectations for national business conditions actually are more volatile than are expectations for personal finances.

Qualitative versus Probabilistic Questions

Unlike the qualitative questions, the “percent chance” questions concern relatively well-specified events and have consistent wording across these events. The discussion in this section focuses on two probabilistic questions that are related to the Michigan qualitative questions. The full text of the questions was given earlier in Exhibit B. Question V250, which asks about the percent chance that an investment in a diversified stock mutual fund will increase in the next year, can be viewed as a more concrete question about business conditions. V252, which asks for the percent chance that personal income in the next 12 months will be higher than in the previous 12 months, is a more concrete question about personal finances.

Analyzing these probabilistic questions, we did not find the wide range of response that was evident in the responses to the qualitative questions over the 12-month period from June 2002 to May 2003. The mean likelihood of a positive

return to a mutual fund investment ranged from a 39.3 percent chance in October 2002 to 45.3 in June 2002. The mean likelihood of an increase in personal income ranged from 47.9 percent in May 2003 to 54.2 percent in December 2002. The median chance of mutual fund growth varied from 40 to 50 percent over the 12-month period, whereas the median chance of personal income growth remained constant at 50 percent each month. We did find more nonresponse to the mutual fund question (8 percent) than to the personal finance question (4 percent). We conjecture that respondents are less informed about the stock market than about personal income and, hence, less likely to respond.³

We compared the monthly mean percent chance of mutual fund growth reported in the Survey of Consumers question against the monthly time series of the Standard and Poor's 500.⁴ The two series clearly move together. The Spearman rank correlation, which measures the ordinal covariation of the two monthly time series, is 0.80. We think it premature with only one year of data to attempt to assess whether expectations of mutual fund growth lead, coincide with or lag the Standard and Poor's realizations. However, it may become possible to assess this relationship when a longer time series becomes available.

Other Personal Economic Experience: Job Expectations

The five questions that make up the Index of Consumer Sentiment ask qualitative questions about family finances (present and future), "buying conditions," business conditions and aggregate economic conditions. They do not ask about other economic information that people can report based on their personal experience, like job expectations.

Respondents to the Survey of Consumers who are currently working were posed two probabilistic questions about job prospects. Question V255 asks for the percent chance that the respondent will lose his or her current job in the next 12 months. Question V256 asks the respondent for the percent chance, should the current job be lost, that a new job would provide at least the same level of wages and benefits.

³ An equivalent mutual fund question was asked on three waves of the Survey of Economic Expectations conducted in the period 1999–2001, also by telephone with a national sample of respondents. The results from that survey indicate that investment expectations in the period June 2002 to May 2003 were sharply lower than they were in the earlier period July 1999 to March 2001. However, this comparison does not demonstrate that stock market expectations typically have a much wider range of response than other questions. After all, broad stock market indexes dropped after 2000, so it is not surprising that expectations of returns dropped as well. Also, comparisons should be made with care because the nonresponse rate to the Survey of Economic Expectations question was 27 percent, considerably higher than the 8 percent experienced when a similar question has been administered on the Survey of Consumers.

⁴ For the monthly value of the Standard and Poor's 500, we use the mean closing value across the trading days in the month.

We found that these expectations vary little month-to-month.⁵ The mean percent chance of job loss ranged from 19.0 in September 2002 to 24.7 in February 2003, and the median ranged from 5 to 10 percent. The mean likelihood of finding and accepting a job “at least as good” as the current one ranged from 45.2 percent in April 2003 to 49.6 percent in August 2002, and the median remained constant at 50 percent. Nonresponse was minimal: 1 percent for job loss and 3 percent for the re-employment question. These results provide further evidence that personal expectations are not very volatile.

Covariation Among Expectations

We also examined how the various time series covaried over the 12-month period. The Spearman rank correlation describes the ordinal covariation between each pair of time series. For the qualitative questions, we used the relative scores to summarize the responses and ranked the monthly relative scores from the minimum of 1 to the maximum of 12 during the 12 months from June 2002 to May 2003. For the probabilistic questions, we used the mean percent chance to summarize the responses and again ranked the monthly scores from 1 to 12. The Spearman calculations presented in Table 3 show the extent to which the rankings of the responses to the questions, from lowest to highest, are correlated with each other.

We found that the monthly responses to the qualitative questions covaried very strongly with each other, as shown in the upper left portion of Table 3. The rank correlations of all pairs of the qualitative variables lie in the range [0.72, 0.93]. Thus, from an ordinal perspective, the four qualitative questions provide largely overlapping information on consumers’ expectations. In contrast, the responses to the four probabilistic questions covaried weakly, if at all, with one another, as shown by the bottom right portion of Table 3. The rank correlations of all pairs of the probabilistic variables lie in the range [−0.12, 0.23]. Thus, each of these four questions appears to provide distinct information on consumers’ expectations.

Finally, consider the covariation of responses to the qualitative and probabilistic questions, shown in the bottom left portion of Table 3. Responses to the qualitative macroeconomic questions—the business conditions question BUS12 and the personal finances question BEXP—covaried moderately with responses to the mutual-fund investment question (V250); the rank correlations are 0.58 and 0.46, respectively. However, responses to the two qualitative questions BUS12 and

⁵ The composition of employment changes over time for various reasons: regular seasonal variation in employment, business-cycle fluctuations and long-term changes associated with changes in the demographic composition of the population. For these reasons, care needs to be taken in interpretation of the time series variation in responses to the job questions. Volatility in the responses could reflect changes in the composition of the respondents. To remove a particularly important source of cyclical fluctuation in composition, we assigned to the currently unemployed a 100 percent chance of job loss, as we did in the Dominitz and Manski (1997b) analysis of SEE data on job expectations.

Table 3

Spearman Rank Correlations Among Aggregated Expectations

		<i>Relative score (monthly)</i>				<i>Mean response (monthly)</i>			
		<i>BUS12</i>	<i>PEXP</i>	<i>BEXP</i>	<i>INEXQ1</i>	<i>v250</i>	<i>v252</i>	<i>v255</i>	<i>v256</i>
Relative score (monthly)	BUS12	1.00							
	PEXP	0.78	1.00						
	BEXP	0.93	0.78	1.00					
	INEXQ1	0.74	0.73	0.72	1.00				
Mean response (monthly)	V250	0.58	0.50	0.46	0.32	1.00			
	V252	0.23	0.49	0.16	0.65	0.08	1.00		
	V255	-0.41	-0.25	-0.29	-0.21	0.20	-0.12	1.00	
	V256	0.25	0.60	0.39	0.40	0.23	0.18	0.03	1.00

BEXP covaried only weakly with responses to the probabilistic question about personal income growth (V252); these rank correlations are 0.23 and 0.16. The responses to the probability question V252 on personal income growth covaried more strongly with those to the two qualitative personal finance questions. Viewed in their entirety, these findings make good sense; the highest rank correlations occur between variables that inquire about the most closely related events.

Temporal Fluctuations in Individual Expectations

The above analysis has examined how the monthly distribution of expectations changes over time. Another perspective on temporal fluctuations can be obtained from analysis of changes over time in individual expectations. Although the Michigan survey does not sample all of the same individuals month after month, it does sample some individuals twice, at six-month intervals. In this section, we restrict attention to those who completed both an initial interview during the period June 2002 through November 2002 and a re-interview during the period December 2002 through May 2003. These data enable study of fluctuations in individual expectations.

Considering the percent chance questions, we performed linear autoregressions of individual expectations on the same expectations lagged six months. We found that all autoregressions have substantial predictive power, lagged expectations being a strongly positive predictor of expectations six months later. Thus, we found considerable stability over time in individual expectations. The slopes of the autoregressions of expectations for personal events were steeper than those for investment outcomes. This finding suggests greater volatility in the latter expectations.

Table 4 shows transition matrices for responses to the two questions from the Index of Consumer Sentiment, question BUS12 on business conditions and question PEXP on personal financial situation. Each matrix presents the probability that a person gives each of the three possible responses in the re-interview conducted

Table 4A

**Transition Probabilities for Index of Consumer Sentiment
Qualitative Expectations for Business Conditions (BUS12)**

<i>Initial response</i>	<i>Re-interview response (six months later)</i>			
	<i>Good</i>	<i>Pro-con</i>	<i>Bad</i>	<i>All</i>
Good	0.58	0.05	0.36	1.00
Pro-con	0.32	0.09	0.59	1.00
Bad	0.21	0.04	0.75	1.00

Note: Transition probabilities for the 1084 individuals who gave positive (470), neutral (66) or negative (548) responses in the initial interview and such a response in the re-interview.

Table 4B

**Transition Probabilities for Index of Consumer Sentiment
Qualitative Expectations for Family Finances (PEXP)**

<i>Initial response</i>	<i>Re-interview response (six months later)</i>			
	<i>Better off</i>	<i>Same</i>	<i>Worse off</i>	<i>All</i>
Better off	0.60	0.35	0.05	1.00
Same	0.26	0.65	0.09	1.00
Worse off	0.16	0.47	0.37	1.00

Note: Transition probabilities for the 1202 individuals who gave positive (469), neutral (598) or negative (135) responses in the initial interview and such a response in the re-interview.

between December 2002 and May 2003, conditional on that person's response six months earlier. We find that the probability of repeating the same response exceeds one-half in all cases except two rarely chosen options—"pro-con" for the business conditions question BUS12 and "worse" for the personal finance question PEXP.

Observe that the transition probabilities between positive and negative assessments of the future are much higher for responses to the business conditions question BUS12 than to the personal finances question PEXP. In particular, 36 percent of those who initially foresaw "good" business conditions subsequently reported "bad," and 21 percent of those who initially foresaw "bad" conditions subsequently reported "good." In contrast, just 5 percent of those who initially thought their family finances will improve subsequently expected them to worsen, and just 16 percent with an initial report of "worse" later said "better." These results add yet further evidence that the qualitative expectations of macroeconomic events elicited in the Survey of Consumers are more volatile than the expectations of personal events.

Cross-Sectional Variation in Expectations

The Index of Consumer Sentiment, which presents an aggregated population-wide view of consumer confidence, obscures the fact that confidence actually varies substantially across the population. We have found that, in each month, a substantial fraction of respondents answering the qualitative questions in the Survey of Consumers reported that conditions, be they microeconomic or macroeconomic, will improve, whereas a substantial fraction reported that conditions will worsen. Similarly, probabilistic expectations varied substantially across respondents.

This section examines how expectations varied with respondent attributes. Our analysis pools the samples of initial interviews from June 2002 through May 2003, leaving out anyone who is being re-interviewed from any earlier survey. The initial interviews are independent random samples of the population.

Cross-sectional variation may reflect differences in the way that persons interpret the questions posed, rather than differences in their expectations, *per se*. This possibility seems most acute for the qualitative questions, as respondents may reasonably differ in how they interpret the term “business conditions” or “better off financially.” We focus primarily on the percent chance questions, which should be less susceptible to variation in interpretation.

Investment Expectations

Table 5 shows the cross-sectional variation in investment and income expectations with each of several personal attributes. The results on investment expectations elicited in question V250 about expectations of mutual fund returns are particularly intriguing. We conjecture that most people have no meaningful private information about diversified stock mutual funds. If so, then the observed variation in expectations mainly reflects differences in the way people access or process the available public information. The mean answer to question V250 is that there is a 42.0 percent chance of an increase in the value of a mutual fund, but the standard deviation of the responses is 28.6. The empirical existence of such strong heterogeneity in investment expectations runs counter to the conventional rational expectations assumption that all persons access and process public information in the same way.

Some of this heterogeneity is systematic, in the sense that persons with different demographic attributes have different distributions of expectations. Males tended to be more optimistic than females. Optimism increased with schooling. Younger persons were more optimistic than older ones, and most of this decline occurs at the highest age group (65 and older). We also found variation by marital status, which we conjecture to reflect variation by age. Most optimistic were the never-married, who tend to be young, and least optimistic were the widowed, who tend to be old. Finally, we found that nonresponse was highest in the parts of the population that tended to be least optimistic.

These findings raise important behavioral questions: Why do investment expectations vary so sharply and so systematically across the population? How does the

Table 5
Variation in Expectations with Personal Attributes

<i>Group</i>	<i>A. Percent chance of mutual fund investment increase, by attributes (V250)</i>				<i>B. Percent chance of personal income increase, by attributes (V252)</i>			
	<i>N respondents</i>	<i>Mean</i>	<i>Std dev</i>	<i>N nonrespondents</i>	<i>N respondents</i>	<i>Mean</i>	<i>Std dev</i>	<i>N nonrespondents</i>
All	3257	42.0	28.6	286	3394	50.9	37.0	139
Male	1480	45.4	29.3	74	1507	55.7	36.2	47
Female	1777	39.1	27.7	212	1887	47.1	37.2	92
Non-Hispanic white	2633	42.5	28.5	196	2736	51.4	37.5	86
Non-Hispanic black	260	39.2	28.6	43	282	52.9	34.4	20
Hispanic	183	40.9	29.7	27	187	41.9	32.2	22
American Indian	25	30.4	25.6	0	24	47.4	33.6	1
Asian	65	43.3	31.4	5	68	52.6	37.2	1
Married	1910	42.9	28.7	122	1969	52.2	36.7	55
Divorced	488	40.8	29.1	40	513	50.6	36.8	14
Widowed	241	31.1	29.4	74	273	25.4	33.3	42
Never married	609	44.4	26.5	47	630	58.4	34.9	25
Age 18–34	808	46.3	26.1	48	835	62.3	33.1	20
Age 35–49	1151	43.2	27.9	59	1184	57.4	35.0	21
Age 50–64	788	41.1	30.4	55	814	47.1	37.3	26
Age 65+	510	33.5	29.4	124	561	26.0	33.6	72
Schooling 0–12	1113	38.4	27.8	174	1195	41.8	35.9	86
Schooling 13–15	878	41.9	28.4	61	910	51.4	37.0	26
Schooling 16+	1251	45.3	29.1	51	1273	59.3	36.1	27

observed variation in expectations affect investment behavior? The data available in the Survey of Consumers do not enable us to answer these questions here, but we think them important subjects for future research.

Other Findings

Much of the variation in income expectations described in Table 5 resembles that found in investment expectations. Males tended to be more optimistic than females, the young were more optimistic than the old, and optimism increased with schooling. Unlike the case of a mutual fund investment, income realizations actually do vary cross-sectionally. Moreover, income growth does tend to be higher for males, the young and the better educated. Thus, the findings on income expectations broadly conform to the observed variation in realizations.⁶

We also examined the cross-sectional variation in responses to qualitative questions. For example, the responses to question BEXP, the more precisely

⁶ Evidence from the Survey of Economic Expectations has also found that differences in expectations of personal economic events match the probable occurrence of those events. See, for example, Manski and Straub (2000) on job expectations and Dominitz (2001) on income expectations.

worded of the two qualitative questions on national business conditions, showed the same ordinal patterns as the responses to investment question V250. Males were more optimistic than females. Whites were more optimistic than others. Younger persons were more optimistic than older ones. Optimism increased with schooling. Similarly, the variation in family income expectations (INEXQ1) resembled that found for probabilistic expectations of personal income growth.

To describe how expectations vary jointly with multiple personal attributes and over time, we computed best linear predictors under square loss of the probabilistic responses to the investment and income questions. All but one of the ordinal patterns found in our univariate analysis remained intact in this multivariate analysis. The one ordinal pattern that notably waned was the substantial variation in expectations with marital status, which corroborates our conjecture that the univariate marital status pattern actually reflects a pattern of variation with age.

Conclusion

Almost 50 years ago, one of the principal investigators of the Index of Consumer Sentiment called for careful reconsideration of the index in the concluding paragraph of her article: “The index of consumer attitudes which was related here to individual purchases is still in an experimental stage. Ahead is the challenging problem of seeing whether closer correlations with purchases can be established by improving the index—by adding new series, revising the weighting of components, and refining the attitudinal measures themselves” (Mueller, 1957, p. 965). Yet except for eliminating a question on price expectations, the questions in the index and how they are aggregated have been essentially unchanged. The findings reported in this article suggest that improvement is feasible along three main dimensions.

First, we do not see an obvious rationale for asking consumers about such distant, ambiguous phenomena as “business conditions.” The respondents are not expert economic forecasters, as in the Livingston panel and the Survey of Professional Forecasters.⁷ If the objective is to use expectations data to predict personal consumption, expectations for business conditions should be relevant only to the extent that they are an input into formation of personal expectations. Hence, why not ask more questions that probe personal expectations directly and eliminate the questions on business conditions? The case for this change is especially strong if the month-to-month changes in the Index of Consumer Sentiment are being driven largely by spurious volatility in the responses to the national business conditions question BUS12.

We do think that consumers may usefully be queried about well-defined

⁷ For discussion of the Livingston survey, see the website (<http://www.phil.frb.org/econ/liv/>) or Caskey (1985). For the Survey of Professional Forecasters, see (<http://www.phil.frb.org/econ/spf/index.html>) or Keane and Runkle (1990).

macroeconomic events that are directly relevant to their personal lives. The question eliciting expectations for growth in the value of a mutual fund investment exemplifies what we have in mind. One might similarly elicit expectations for aspects of government policy that directly affect consumer finances, like tax policy and Social Security policy.

Second, we think that the traditional qualitative questions of consumer confidence surveys should at least be complemented by, and perhaps replaced by, probabilistic questions inquiring about well-defined events. Economists had little experience with probabilistic questioning before the early 1990s, and skepticism about its feasibility was rampant. However, substantial experience has accumulated in the past ten years through the administration of probabilistic questions in the Survey of Economic Expectations and in major national surveys such as the Health and Retirement Study (Hurd and McGarry, 1995, 2002) and the National Longitudinal Study of Youth-1997 Cohort (Fischhoff et al., 2000; Dominitz, Manski and Fischhoff, 2001). This experience, plus the findings on the Survey of Consumers reported in this article, make plain that probabilistic questioning is feasible and yields richer information on consumer beliefs than is obtainable with traditional qualitative questions.

Third, we suggest that the producers of consumer confidence statistics prominently report their findings for separate questions and for different subgroups of the population. We do not go so far as to suggest a halt to reports of indices; simple summaries of masses of data often are a practical necessity. However, the responses to separate questions are much more readily interpretable than are monthly reports of an index constructed from disparate, noncommensurate elements. Moreover, it is important to understand how consumer confidence varies across persons with different socioeconomic and demographic characteristics.

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