CHAPTER 5

Psychology and Macroeconomics

Richard T. Curtin

Born for Peace

The Economic Behavior Program at the Survey Research Center (SRC) began in troubled times. Its agenda was focused on understanding the role of the consumer in the transition from a wartime economy to what all hoped would be a new era of peace and prosperity. Many feared that the post–World War II economy would again give rise to the same type of deflationary spiral and mass unemployment that characterized the Great Depression of the 1930s. Press headlines in mid-1945 proclaimed "Government Economists Predict Eight Million Unemployed by 1946." What actually occurred was quite different. In the first half of 1946 the unemployed numbered three, not eight, million, and instead of deflation the economy faced very strong inflationary pressures. Unlike economists, consumers exhibited a great deal of confidence about the postwar economy. Acting on that confidence, consumers spent an increasing fraction of their incomes, as the savings rate plunged from 11.7 percent at the start of 1946 to just 2.2 percent by mid-1947—a low in the savings rate that would not again be recorded for fifty years.

In a postmortem on the forecast error, Nobel laureate Lawrence Klein (1946, 291) noted, "It is immediately obvious where this forecast failed—in the prediction of consumer expenditures. . . . The order of magnitude of the error involved is great, and, what is more serious, it is great enough to lead to disastrous policy recommendations." As might be expected, the forecast error prompted widespread concerns about whether the underlying economic theory or statistical methodology, or both, were wrong. Klein concluded that the fault did not lie in theory or method but rather in

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

implementation. What was needed in his view were models with more detailed equations, fewer exogenous variables, and a more dynamic specification.

This forecast failure clearly suggested that, in addition to information on consumers' financial situation, forecasting models require information on the economic and psychological factors that shape changes in consumers' spending and saving decisions. The economic situation of consumers had undergone sweeping changes from the Depression of the 1930s to the resurgent war economy of the 1940s. Wartime spending had been constrained by rationing, leaving the rising incomes generated by the wartime economy to rebuild the savings depleted by the Depression. Unfortunately, little data existed at that time that could be used to quantify the change in consumers' asset holdings. Just as important, little was known about how consumers would adjust their saving and spending priorities in the postwar economy.

Over fifty years after these issues were first addressed, the national economy recently ended the longest sustained period of economic growth recorded in more than a century and at this writing is in the early stages of a recovery that is of uncertain vigor and duration. The remarkable performance of the economy during the 1990s seemed to suggest that the problems facing the post–World War II economy had all but disappeared. Unfortunately, this was not the case. In many ways the primary concerns about the national economy remain remarkably similar. While fears of mass unemployment on the scale experienced in the 1930s were not present when the 1990s expansion began, apprehensions about future job and income prospects were so widespread in the early 1990s that it was referred to as a "jobless" expansion, and these fears reemerged as the economy and stock market sputtered into the twenty-first century. Concerns about inflation still dominated public policy considerations—with a twist. After World War II policy was tilted against the possibility of renewed *deflation* (incorrectly, since inflation was the greater threat), while in the early 1990s policy was tilted against the possibility of renewed *inflation* (in the midst of strong disinflationary trends).

The prominent role of savings is also similar. The proportion of income saved remained above the 1947 low for fifty years, but by the end of 1999 the savings rate recorded a new low. At the start of the decades of the 1940s and the 1990s, consumers were keenly aware of the inadequacy of their savings and reserve funds. To be sure, the concerns expressed by consumers in the 1990s were more focused on the inadequacy of their savings for retirement, whereas in the earlier period, short-term precaution-

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

ary motives were more common. What is unchanged, however, is the important and sizable impacts on the macroeconomy that result from the influence those asset holdings have on consumers' economic decisions.

In both periods the sizable increases in wealth resulted from unusual circumstances rather than disciplined long-term savings plans. Just as the wartime restrictions on spending forced greater savings, the bull stock market of the 1990s increased wealth through passive capital gains. The pace and extent of the restoration of savings were as unexpected as they were welcomed. While consumers hesitated to draw on their accumulated investments in both periods, they did not hesitate to spend a larger share of their current income. The bear stock market of the early 2000s, however, created new apprehensions about future consumer spending.

Thus, many of the concerns from fifty years ago still apply to the economy of the twenty-first century. Unlike the 1940s, however, there is now a substantial amount of data on the financial assets held by consumers, including the types, amounts, and distribution across households. Such data still need to be supplemented by information on the attitudes and expectations of consumers to gain a more complete understanding of the potential impact on the macroeconomy. As an increasing share of the population nears and enters retirement, research on income expectations must focus on developments in financial markets as well as labor markets. Moreover, measures of expected risk and uncertainty must be broadened to include not only the health and disability of individuals but also expected changes in private and public health and pension programs.

Method to Substance

> "We are interested in how people are getting along financially these days. Would you say that you are better off or worse off financially than you were a year ago?"

So began the first survey of consumers in 1946. The primary purpose of that first survey was to collect data on household assets and debts. The sponsor of the survey, the Federal Reserve Board, initially had little interest in the attitudes and expectations of consumers. Their goal was a financial balance sheet, the hard currency of economic life, not the soft data of consumer sentiment. George Katona, the founder of the survey program, convinced the sponsor that few respondents would be willing to cooper-

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

ate if the first question asked was "We are interested in knowing the amount of your income and assets. First, how much do you have in your savings account?" Sound survey methodology required that other, more general and less threatening questions were first asked to build rapport, to establish a sense of trust and confidence with the respondents.

Katona devised a conversational interview that introduced each new area of interest with questions that first elicited respondents' general opinions before asking the detailed questions on dollar amounts. Although the sponsor was convinced that such attitudinal questions were needed for methodological reasons, Katona was told that he did not need to report any of these results since the FRB had no interest in the attitudinal findings. Ultimately, the FRB, as well as many others, became as interested in the findings on consumers' expectations as on consumers' balance sheets. Although the first measures of consumer expectations may seem serendipitous, they were in reality no happenstance. Katona had long been interested in the interaction of economic and psychological factors and seized this opportunity to pursue his innovative research agenda.[1]

Katona contended that the power of the consumer to shape the course of the macroeconomy resulted from two developments in the American economy following World War II. First, growth in consumer incomes as well as asset holdings provided people with greater financial latitude. Income changes could no longer be expected to result in immediate and offsetting changes in consumption. This financial latitude meant that consumers became active decision makers, able to gauge the timing of their spending decisions to best serve their present and future needs. The second change involved the growing importance of consumer "investment" goods—purchases of homes, vehicles, and other large household durable goods (Juster 1966a). These large and infrequent purchases are more likely to be deliberate decisions, whose timing could as easily be advanced as postponed, and the purchases frequently involve the risks associated with the use of credit. As a result, the timing of spending decisions became increasingly dependent on consumers' expectations about future trends in income, employment, prices, and interest rates and correspondingly less dependent on their current and past economic situation.

Although the factors that shaped spending decisions drew most of the attention, research on savings motivations was a central element of the research agenda. Based on research conducted in the late 1940s and 1950s, Katona (1960) documented the widespread prevalence of precautionary savings motives, primarily reflecting concerns about future employment risks as well as the possibility of future illness or disability. Katona also

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

found that savings motivations differed substantially by life-cycle stage. Savings for retirement rose in importance only after age forty-five, while younger families more often cited saving for their children's education or accumulating funds to make a down payment on a house or some other large purchase.

Measurement Issues

The empirical analysis of the relationship between survey measures and subsequent spending behavior has revolved around two major issues. The first issue was whether data on purchase intentions or more general measures of consumer attitudes and expectations were the more effective measures. Interwoven with the issue of the appropriate type of measure was the appropriate methodology for testing. A cross-section analysis relates attitudes and behavior for a given individual, while time-series analysis relates changes in attitudes at the mass level with subsequent changes in aggregate trends. Since the latter are an aggregation of the former, it was assumed that the empirical evidence should be consistent on both the individual and aggregate levels. This was the position advocated by Arthur Okun, James Tobin, and others on the Smithies committee that was established to review the data's predictive performance in the mid-1950s. Tobin's argument was that, if the relationship did not exist on the microlevel, neither would it exist at the macrolevel. Tobin's (1959, 10) initial conclusion was that "Buying intentions have predictive value; other attitudinal questions do not."[2] Katona's (1957) response to the Smithies committee report was that the cross-section tests were not properly specified and that theoretical considerations indicated the relevance of aggregate time-series tests of trends in mass attitudes even if the predictive performance of individual attitude items was inconclusive in cross-section analysis.

The results of additional analyses confirmed some of Tobin's early cross-section conclusions but seemed inconsistent with the presumption that the results would generalize to time-series analysis. For the prediction of a single individual's purchases, the intentions data did perform better than the more general attitudinal measures.[3] At the aggregate level of analysis, however, the results were reversed. Juster (1969) helped to resolve the paradox when he found that the failure of intentions data in time-series analysis was due to the combination of three factors: (1) sam-

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

pling and measurement errors represented a more serious problem for the time-series analysis; (2) the intentions data contained strong seasonal patterns and the analysis needed to be based on seasonally adjusted series; and (3) differences in expressed intentions should be assigned differential weights that reflect actual subsequent purchase rates for each response category. Each of these factors was found to contribute to the lack of explanatory power of intentions data in time-series models, although the differential weights had the largest impact. The combined time-series and cross-section results indicate that neither the more general sentiment measures nor buying intentions are better per se as a predictive tool but rather that each construct can play a useful role depending on the analytic framework.

The Census Bureau did conduct surveys of sufficient size using detailed probability measures of intended purchases from 1967 to 1973. The surveys were discontinued, however, following an early assessment indicating that the probability measures had poor predictive performance.[4] For a variety of reasons, including the very large sample sizes that would be needed for robust measures of purchase intentions, SRC discontinued the measurement of purchase intentions in the mid-1970s in preference to the more general measures of consumer sentiment.[5]

Consumer sentiment is now one of the most closely watched indicators of future economic trends. The latest figures on sentiment trends are routinely reported in the press and incorporated into many macroeconomic models as well as the Index of Leading Economic Indicators devised by the U.S. Department of Commerce. The inclusion of consumer confidence in the Leading Indicator Composite Index in 1989 was a significant, independent confirmation of its usefulness for understanding and forecasting changes in the national economy. The success of this approach is also attested by the many other organizations that now regularly monitor consumer sentiment at the national, state, and local levels in this country as well as in many others. The Conference Board began measuring U.S. consumer confidence in the late 1960s. Other countries that monitor consumer sentiment include Austria, Australia, Belgium, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Greece, Hungary, Indonesia, Ireland, Italy, Jamaica, Japan, Luxembourg, Norway, Poland, Russia, Spain, South Africa, Sweden, Switzerland, and Taiwan.

The relationship between changes in the Index of Consumer Sentiment and annual growth rates in the gross domestic product (GDP) is shown in figure 5.1, with the shaded areas representing periods of economic reces-

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

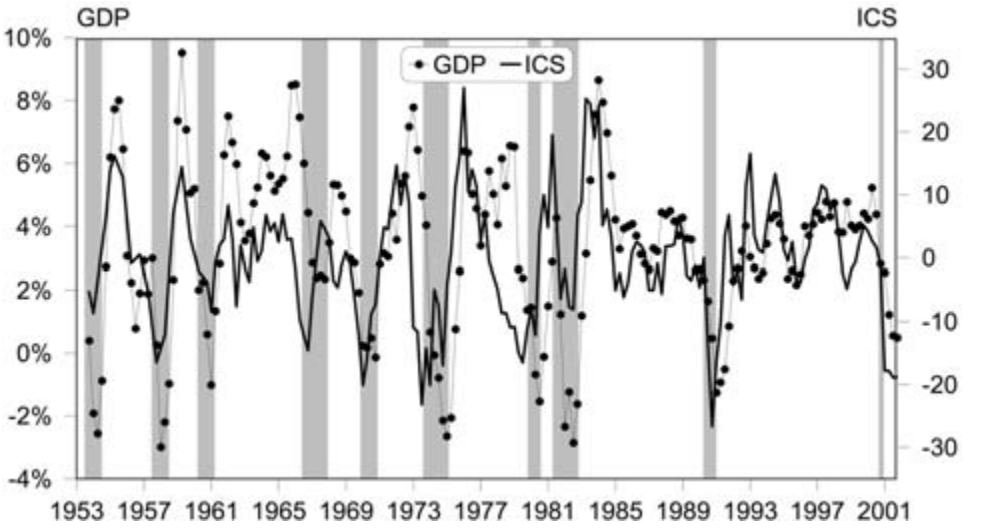

FIG. 5.1. Times-series of Index of Consumer Sentiment and Gross Domestic Product, 1953–2001 (shaded areas = economic recessions)

sion. As the figure clearly demonstrates, changes in the Index of Consumer Sentiment typically precede changes in GDP growth and the onset of recessions. Howrey (2001) found the Index of Consumer Sentiment to be a significant predictor of future trends in GDP, even after controlling for the economic variables typically used to predict GDP.

Convergent Economic Theories

The importance of expectations for the explanation of consumption decisions was also reflected in independent advances in economic theory, sparked by the work of two Nobel laureates. Friedman's permanent income hypothesis (1957) and Modigliani's life-cycle theory (Modigliani and Brumberg 1954) emphasized the role of expectations in determining consumers' current spending and saving decisions. To be sure, these theoretical advances were forged from the traditional assumptions of rational calculation and utility maximization rather than from empirical observations based on population surveys. The driving force of both theories was the assumption that rational consumers would attempt to maximize util-

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

ity by allocating their lifetime stream of income into an optimal pattern of lifetime consumption.

These theories addressed a major failure of the Keynesian consumption function following World War II. The Keynesian consumption function, which viewed current income as the main determinant of consumer spending, failed as a forecast of economic trends. The Keynesian prediction that the average propensity to consume (the ratio of consumption to income) would fall as income rose was based on the observation that the average propensity to consume was lower at higher income levels. It was this facet of the Keynesian approach that led to the prediction that shortfalls in consumer demand would precipitate another depression following World War II. In fact, the ratio of consumption to income has shown no tendency to decline over time, and it was the constancy of this ratio that became the centerpiece of the permanent income hypothesis.

Numerous empirical studies of the life-cycle permanent income hypothesis, both at the macro- and microlevel, have rejected the general premise that consumption is equal to the annuity value of lifetime resources. This prompted greater attention to potential sources of misspecification, such as the failure to account for liquidity constraints (an inability to borrow against future income) and the presence of myopic or rule-of-thumb consumers (who based their consumption decisions on current rather than permanent income).[6] It is important to note that the usual assumption of additively time-separable utility had the effect of eliminating expenditures on durables from much of the empirical work—the very expenditures that Katona long argued were most susceptible to shifts in expectations and had the most impact on cyclical developments in the economy.

Perhaps the most important enhancement of economic models was the move away from the restrictive assumptions regarding how uncertainty about the future influences decisions about current consumption. The restrictive assumptions only allowed for the effect of the mean of the expected future income stream on consumption. Once uncertainty about future income is incorporated, the variance of future income also has an impact on current consumption decisions, depending on the extent of accumulated assets and the level of current income relative to expected future income. Based on more plausible assumptions about the utility function, Kimball (1990) has shown that consumers could be expected to accumulate precautionary savings as a hedge against uncertainty, and a growing body of empirical evidence supports this contention (Caballero

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

1991; Carroll 1994, 1997; Carroll and Samwick 1997, 1998). The strength of the precautionary savings motive depends on the variance of consumption and interest rates.

It is interesting that Carroll (1997) indicates the importance of precautionary savings by citing data from a 1983 survey that asked consumers about their primary savings motives. This was the same question developed by Katona in the late 1940s and on which he based his analysis of savings motivations cited earlier. Katona's insights into savings motivations have now been echoed fifty years later in detail: recent research has emphasized that precautionary savings motives are especially important at younger life-cycle stages, while the savings motives among older consumers are focused more on retirement. There was even close agreement on the age at which the shift in savings motives occurred—age forty-five according to Katona and about age fifty according to Carroll. While Katona based his finding on consumers' self-described savings motives, in the theoretical models the shift was related to the growing level of accumulated retirement assets that also serve to buffer against risks prior to retirement. Even Katona's emphasis on taking account of uncertainty about potential future medical expenses and longevity has now also gained widespread acceptance.

Consumer-Led Recessions

There is no consensus among economists on the causes of economic recessions (Christiano and Fitzgerald 1999). As Cochrane (1994, 295) observes, "What shocks are responsible for economic fluctuations? Despite at least two hundred years in which economists have observed fluctuations in economic activity, we still are not sure." Cochrane's analysis concludes that none of the common candidates (monetary, credit, price, and technology shocks) accounts for the bulk of the observed fluctuations. Instead, he finds that "consumption shocks" account for a relatively large share of the variation. This is a troublesome finding for many economists since standard intertemporal models of consumption do not produce consumer-led recessions.

Since consumption is an endogenous variable, the ultimate source of the shock is at the center of the debate. Macromodels already incorporate information on all of the observable exogenous variables that have been

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

hypothesized to shape consumption decisions. Cochrane suggests that the source of the shocks must reflect information about future economic conditions that are known to consumers but are unobserved by economic models. Economists typically assume that consumers base their economic expectations on the public information releases of governmental agencies—that is, on the same sources of information used by economists. Media reports may be the dominant source of information for consumers about some developments, such as prospective changes in government policies or changes in international economic conditions. For many other types of economic developments, however, the mass media are not the most important sources of information for consumers. Personal experience, direct knowledge of changes in local employment conditions, changes in prices and the availability of goods in local markets, and the numerous other direct connections that consumers have with changing economic conditions are often more influential.

As Cochrane (1994, 350) observes, "One might doubt that agents in the economy can forecast so much better than economists. . . . But this argument forgets aggregation." Even if each consumer is assumed to possess only information about his or her own prospects, the aggregation of the idiosyncratic information can provide a robust indicator for future macroeconomic trends. Indeed, if economic fluctuations are primarily driven by private, unobserved information, this would explain the persistent puzzle about the determinants of business cycles. This situation can be corrected by a more detailed specification of what information consumers utilize, how they assess and integrate information from diverse sources, and how the resulting expectations are utilized in making their consumption decisions.

Theory of Expectations

Fifty years ago, Katona challenged the economic profession to include the measurement of economic expectations in models of macroeconomic behavior. By the close of the twentieth century, nearly all macroeconomic models emphasized the role of expectations in shaping economic behavior. Indeed, some observers have identified the incorporation of expectations as the most important innovation in economic theory over the past quarter century. What Katona and other behavioral scientists envisioned, however, was quite different from what actually came to dominate economic theory. To be sure, Katona's view that expectations formed an

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

indispensable component of consumers' decisions has been validated. It was the measurement of expectations that proved to be the crucial divide.

The rational expectations hypothesis (Muth 1961) that now dominates economic theory is quite different from the bounded rationality advocated by other social scientists, most notably by Herbert Simon (1947, 1957, 1978). Despite the lack of convincing empirical evidence, economics views rationality in terms of the choices it produces (substantive or full rationality), whereas other social sciences view rationality in terms of the process that is used to make choices (procedural or bounded rationality).[7] As Mankiw (1988, 440) explains, "Economists routinely assume that firms rationally maximize profits and that consumers rationally maximize utility. It would be an act of schizophrenia not to assume that economic agents act rationally when they form their expectations of the future." But for many social scientists, bounded rationality rather than full or unbounded rationality is the more sensible assumption.[8]

The schism between economics and psychology reflects fundamental differences in how rationality is conceptualized and in the methodology used to test theory. The adequacy of the psychological assumptions that underlie economic theories was as sharply debated at the start of the twentieth century as it was at the start of the twenty-first century (Lewin 1996). While all agree that behavioral choice reflects the use of reason, the crucial difference lies in how rationality is defined. It was Friedman's (1953) celebrated essay on methodology that declared the validity of economic theories to be independent of their psychological assumptions. Ever since, economists have solely focused on whether the postulate of unbounded or bounded rationality was the more productive theoretical construct in terms of the accuracy of its predictions, not with the realism of the embedded behavioral assumptions. From the perspective of psychology, the view that implausible assumptions about psychological processes were acceptable acted to perpetuate the schism.

Why has empirical evidence failed to settle the issue of bounded versus unbounded rationality? Perhaps it is as Lovell (1986, 120) lamented more than a decade ago in his review of empirical tests of the rational expectations hypothesis: "Why should data spoil such a good story?" Indeed, the clear advantage of the rational expectations hypothesis is its theoretical strength. The hypothesis has proved to be enormously productive in transforming macroeconomic theory. While the empirical tests have generally not supported the hypothesis, the rationality assumption enabled the powerful tool of optimization to systematically expand the depth and breadth of economic theories. In contrast, while bounded rationality has

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

frequently been confirmed in empirical studies, research on bounded rationality has not led to an integrated theoretical structure that could spark further advances in economic theory. Indeed, because of the theoretical fragmentation, the divergences attributable to bounded rationality have been generally classified as anomalies rather than being incorporated into mainstream theory. The list of such anomalies is long and growing: the impact of framing, asymmetry of behavioral responses to gains and losses, relative reference points, anchoring, endowment effects, confirmatory bias, failure to ignore sunk costs, overvaluation of out-of-pocket costs relative to opportunity costs, the use of mental accounts as a means to control spending and saving decisions, and so forth (Tversky and Kahneman 1982b; Earl 1990; Thaler 1991, 1992; Rabin 1998; Rabin and Schrag 1999).

Proponents of each side of the debate between bounded and unbounded rationality have often focused on the empirical analysis of inflation expectations.[9] A common element of each view is that economists rather than consumers would hold more accurate year-ahead inflation expectations. While the costs and skills involved made it unlikely that ordinary consumers would form accurate forecasts, professional forecasters could be presumed to have financial incentives to acquire and utilize appropriate information to form accurate expectations. Lott and Miller (1982), Gramlich (1983), Grant and Thomas (1999), and Thomas (1999) compared inflation forecasts made by professional economists (Livingston survey) and by consumers (SRC's Surveys of Consumers).[10] As Thomas (1999, 141–42) summarizes the most recent findings, "consensus household inflation forecasts do surprisingly well relative to those of the presumably better-informed professional economists." Indeed, the median consumer forecasts of year-ahead inflation rates "outperformed all other forecasts in the 1981–97 period on simple tests of accuracy as well as on tests for unbiasedness."[11] Similar comparisons were done for year-ahead forecasts of the national unemployment rate. Curtin (1999) found that consumers' forecasts of the year-ahead unemployment rate outperformed those of professional forecasters as well as forecasts from two prominent macroeconomic models.

While these results do not vindicate either position, they do challenge the underlying assumptions of both views about the process governing the formation of expectations. These findings do underscore Katona's original insistence that nothing would prove as beneficial to the advancement of our understanding as the empirical measurement of expectations.

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

Measurement of Expectations

Expectations are beliefs about the future. Plato cited this definition more than two thousand years ago, and it remains to this day the generally accepted meaning of the term. From the earliest of times, people have commonly stated their expectations using verbal qualifications to indicate their degree of certainty in their beliefs about the future. It was not until the development of probability theory in the seventeenth century that expectations were quantitatively defined as probabilistic judgments. Although it is still much more common for people to express uncertainty using nonquantitative verbal descriptions, the use of probability statements in everyday conversations has increased over time. People also commonly express their expectations as contingent on the information available to them, consistent with the generally accepted view that expectations are conditional probability statements.

While the economic theorist and the consumer share the same general conceptualization of expectations, theorists have always desired greater measurement precision than was thought attainable in household surveys. Indeed, as expectations have become a more central component of economic models, the theoretical specifications of the desired measures have become more exacting. The ideal measure would specify the characteristics of the complete probability distribution for a precisely defined future event or outcome.

Reliable and valid measures of expectations are subject to all of the problems usually associated with survey design. Aside from the more general issues of survey methodology, the crucial measurement issue has involved judgments about the capacity of individuals to provide meaningful responses. The goal of achieving the greatest possible precision must be balanced against the likely prevalence of measurement and nonresponse errors. Increasing the precision of the measures also increases the extent of information that respondents must access from memory, the required computational skills, and the motivation of respondents to provide accurate responses.

The choice of response scale has been typically justified by assumptions about the ability of respondents to provide meaningful answers as well as the degree of precision required by the hypothesis under investigation. The presumed trade-off between the greater precision of numeric scales and the reduction in measurement error by using verbal scales has repeat-

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

edly been challenged as misguided. The concerns have centered on the imprecision of verbal descriptions compared with numeric scales, and the resulting loss of interpersonal comparability as well as intrapersonal comparability across events or over time. For example, the probabilities associated with the term "almost certain" differed significantly across respondents, extended over a relatively broad range, and overlapped with the range of probabilities assigned to the term "probable." Moreover, the range and overlap of probabilities varied depending on the specific verbal descriptions used in the scale.

Although numeric scales are assumed to facilitate the comparability of responses among people, across situations, and over time, it is not entirely clear that they do so. Just as two respondents may associate different numerical probabilities with a given verbal scale category, so they may well differ in their understanding of the meaning of a given numeric probability. Moreover, methodological research has rarely focused on whether verbal likelihood scales or numeric probabilities show a greater correspondence to behavioral decisions. Another variant of this same issue is the presumption that the algebra of modern probability theory can be used to interpret the results (Dominitz and Manski 1997). As Kahneman and Tversky (1982, 48) have noted, "In making predictions and judgments under uncertainty, people do not appear to follow the calculus of chance or the statistical theory of prediction."

Overall, numeric probability scales have clear comparative advantages for a broad range of research topics and have long been advocated by Juster (1966b), Savage (1971), Manski (1990), and Fischhoff (1994). Although simply shifting from a verbal response scale to a numeric probability scale has considerable merit insofar as the question asks respondents for a single point estimate of the likelihood of an event or outcome, the numeric response may still be vulnerable to misinterpretation.

The resolution to these measurement issues, however, was not the primary motivation to move toward the measurement of the complete probability distribution. The impetus has mainly come from developments in economic theory that have increasingly stressed the importance of the degree of uncertainty associated with consumers' expectations. It is the measurement of uncertainty that requires the specification of the complete probability distribution for each person. Given the entire distribution, measures of central tendency can then be supplemented by measures of dispersion to capture the impact of the uncertainty with which expectations are held.

Researchers have typically focused on two techniques to elicit proba-

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

bilities to estimate the entire cumulative distribution function (Lichtenstein, Fischhoff, and Phillips 1982). The first asks respondents to attach "values" to various points on the percentile distribution, say, at 1 percent, 25 percent, 50 percent, 75 percent, and 99 percent. The other method asks respondents to attach probabilities to selected values, say, an income of $10,000, $25,000, $50,000, and so forth. Research on these two approaches indicates that the former method yields more narrow interquartile ranges, while the latter is subject to anchoring effects. In a comparison of several variants of each method, Seaver, von Winterfeldt, and Edwards (1978) found that for continuous variables the superior approach was to ask respondents to attach probabilities to selected values. This is the measurement approach that has recently been used by Dominitz and Manski (1997) and Guiso, Japelli, and Terlizzese (1992).

While the overall results of these initial attempts are quite promising, the results are not without some drawbacks. A presumably correctable problem is that the detailed questions prompted unusually large amounts of item nonresponse, and, among those who provided answers, an unusually large number of respondents reported a 100 percent probability for a single value rather than probabilities spread over a range of possible outcomes.[12] In reviewing the results of the survey conducted by Guiso, Japelli, and Terlizzese (1992), Carroll (1994) interpreted the results as an indication that consumers did not understand the survey question rather than as an indication of the absence of uncertainty. Methodological experimentation is likely to provide question sequences that minimize the item nonresponse as well as providing measures that reliably capture variations in uncertainty. Dominitz and Manski (1997) achieved higher response rates by using a computer-assisted approach that tailored questions to each respondent, and their approach holds the most promise for future development. The methodological task is not trivial since overconfidence in probability assessments has been widely documented and is typically measured by the width of the interquartile range, the same metric used by Dominitz and Manski as a proxy for uncertainty.

Another methodological concern involves the issue of question framing. There has been little research on the impact of different frames of reference on measures of economic expectations. It is unlikely that shifting the frame of reference from gains to losses would yield the same probability distributions, for example, when asking about the probability of losing a job versus the probability of keeping a job; the probability of income gains versus losses; or the probability of living to age eighty-five versus dying before age eighty-five. Nor has there been much research on

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

whether expectations measured as gains or losses would show a greater correspondence with subsequent behavior.

A more difficult challenge involves the measurement of expected changes in real rather than just nominal economic variables. Economic theory typically focuses on expected changes in inflation-adjusted measures, such as real income. If changes in income and inflation were independent, separate measures of expected changes in nominal income and inflation would suffice. Such economic variables are rarely independent, however, and combining the separate measures requires assumptions about the covariance of the growth rate of nominal income and inflation expected by each respondent. Although this measurement problem could be avoided by simply asking respondents to state their expected probability distributions in real terms, it is clearly of some interest to distinguish between these two sources of uncertainty. How to best estimate the joint probability distribution underlying real income uncertainty deserves a high priority on future research agendas.

Another measurement challenge lies in the recognition that household income is derived from many different sources and that uncertainty may differ significantly for each income source. Focusing only on the labor income of the respondent may be a reasonable approach for young single adults, but not among older two-earner households with accumulated assets. While it may be more realistic to assume independence between different sources of household income than between each income source and inflation, it still represents a significant task to estimate the uncertainty associated with total household income. Of course, the ideal measure would be of uncertainty about the future lifetime path of human and nonhuman wealth rather than simply focusing on uncertainty about next year's income.

Twenty-first-Century Agenda

Fifty years after the inception of SRC's EBP, the unfounded concerns that the economy would slump into recession were replaced during the late 1990s by the equally unfounded outlook of unending prosperity. The shift toward exuberance at the close of the twentieth century was spawned by the longest economic expansion in more than 150 years. This was not the first time that such notions gained widespread acceptance. In the midst of the long expansion of the 1960s, the death of the business cycle was also

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

declared. Then, as now, the death notices included the same caveats that the maintenance of appropriate economic policies was necessary and that historical experience had repeatedly proved such announcements premature. The only difference was that the recent notices also alleged that fundamental changes in the economy have made the concept of the traditional business cycle obsolete. To be sure, the frequency and severity of cyclical downturns have diminished dramatically in the closing decades of the twentieth century. New technologies have dampened the once volatile swings in inventories, and the ongoing consumption shift from goods to services also acts to diminish the potential for cyclical fluctuations.

Will the twenty-first-century economy also witness a corresponding decline in the importance of consumer expectations as a force in shaping developments in the macroeconomy? While it is likely that in the twenty-first century recessions will be less frequent and less severe, it is highly unlikely that complete immunity will be achieved. While some of the past sources of instability may well disappear, the growing global interdependence of the U.S. economy may elevate what were once minor impacts into more serious concerns for the domestic economy. Moreover, relative to declines in other potential sources, instabilities originating in the consumer sector, which accounts for two-thirds of all spending, may as a result become even more prominent.

To a significant extent, the first half of the twenty-first century will still be shaped by the forces set in motion in the post–World War II era. The baby boom that followed World War II synchronized movements through the economic life cycle for an unusually large proportion of the population. It also synchronized shifts in how people assess their future economic prospects. Over the coming decades, the focus of the baby boom generation will shift from uncertainties about labor market conditions to risks originating in financial markets, starkly highlighted by the first bear market of the twenty-first century. Uncertainty about future rates of return on financial assets plays an important role in consumers' assessments of their lifetime or permanent income regardless of their age. The relative importance of labor income, however, declines as consumers near retirement and become increasingly dependent on realized returns on their accumulated financial assets.

Precautionary savings theories focus on the impact of uncertainty about the future. Once sufficient wealth is accumulated during preretirement years, there is no need for such buffer stocks of savings. Precautionary motives, however, will not disappear in retirement. Uncertainty about

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

future real returns on assets will prompt consumers to engage in precautionary decreases in spending, in much the same manner that precautionary motives act to increase savings prior to retirement. Although uncertainty about future rates of return is incorporated into current theories of consumption, little is known about how consumers form expectations about future real rates of return, especially across their entire portfolio of asset holdings. Research on understanding how people assess uncertainty about future incomes must incorporate information on how people form expectations about future needs and how those expectations change as they age. Expectations about longevity and disability, as well as about in vivo transfers and bequests, will play an increasingly important role in shaping consumer behavior in the twenty-first century. In addition, expectations about changes in the provisions of private and public health and pension programs will also be needed to fully understand how people assess potential future risks.

Given that Social Security and other pension entitlements will represent a major share of incomes in the future, some have contended that there is little reason to expect income uncertainty during retirement to have a significant impact on the macroeconomy. By this same reasoning, it could also be argued that uncertainty about future labor income would not represent a significant problem since even at the worst of times the overwhelming majority remains employed. In addition, this line of reasoning ignores the potential impact of inflation. This is particularly true for changes in relative prices that are to the disadvantage of the elderly, as not all pension entitlements are fully indexed to inflation. Moreover, compared with variations in labor market conditions, valuations of financial assets are likely to exhibit more abrupt and relatively larger changes since shocks in global financial markets are more rapidly reflected in domestic financial markets than in domestic labor markets. To be sure, consumers do not react to every change in stock and bond prices, especially when their investment horizons are long. Little is known, however, about the thresholds or conditions that prompt changes in expectations about future rates of return, whether those factors operate in an asymmetric fashion, how time preferences and risk aversion change as people age, and what sources of information have the most influence on their assessments.

While most changes in consumer expectations are incremental, at times the changes are large and occur abruptly. Over the past fifty years, the sharpest changes in consumer expectations have been associated with the rapid development of unexpected events whose implications are difficult to assess. Whereas slow change allows gradual adaptation, rapid change

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

prompts a disabling sense of uncertainty and disengagement. The inaction caused by such abrupt changes may generate a self-reinforcing process that acts to accentuate rather than mitigate the underlying source of uncertainty. Although each of the sharp declines in consumer confidence during the past fifty years has been explained in retrospect, none has been predicted in advance. Indeed, the more common finding has been that apparently similar economic developments have had quite dissimilar effects on consumers' expectations. Research is needed to understand the conditions under which similar economic shocks produce quite dissimilar results. More generally, attention needs to be given to how consumers evaluate and incorporate information about low probability events that have potentially large consequences. This task is as important as it is challenging since it directly focuses on the extreme tails of probability distributions, where prior research on economic expectations is almost entirely absent.

At the dawn of the twenty-first century, this research program faces as many challenges as opportunities for the scientific advancement in our understanding of the role of the consumer in shaping the macroeconomy. Despite the many changes in the economic environment as well as in the economic situation of consumers, there is no reason to expect the influence of the consumer on macroeconomic trends to wane in the twenty-first century. The strength of the research program is that it is based on the premise that the description and prediction of consumer behavior represent the best means to foster advances in theory. While there is nothing more useful than good theory, there is nothing more productive in generating theoretical advances than good data. The unique contributions of this research program will continue to be built on the collection of data that enables rigorous tests of established theory as well as to allow the unexpected to emerge and energize new theoretical advances. Rather than being confined to the armchair of the theorist, the research program will continue to seek advances from the armchairs of respondents as they explain the factors underlying their economic decisions.

NOTES

1. Katona documented the development of his theories in a series of books: *Psychological Analysis of Economic Behavior* (1951), *The Powerful Consumer* (1960), *The Mass Consumption Society* (1964), and *Psychological Economics* (1975). For an overview of Katona's theoretical contributions, as well as a complete list of his publications and biographical information, see Curtin 1983.

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

2. It should be noted that Tobin's cross-section analysis as well as the early time-series tests were based on what would now be considered unacceptably small sample sizes on which to base a definitive assessment. Tobin's analysis was based on a cross-section sample of 632 cases, and the early time-series tests were based on between eleven and twenty-two observations.

3. The predictive ability of intentions data in cross-section analysis has been shown by Klein and Lansing (1955), Mueller (1957), Tobin (1959), Juster (1964), Maynes (1967), and Dunkelberg (1972). Time-series tests were conducted by Mueller (1963), Friend and Adams (1964), Adams (1964, 1965), Suits and Sparks (1965), Ferber (1966), Maynes (1967), Dunkelberg (1969), Fair (1971), and Juster and Wachtel (1972). Nearly all of the more recent analyses have focused on aggregate time-series tests, including those by Garner (1981); Curtin (1984); Fuhrer (1988); Praet and Vuchelen (1989); Hall (1993); Blanchard (1993); Acemoglu and Scott (1994); Cochrane (1994); Huth, Eppright, and Taube (1994); Carroll, Fuhrer, and Wilcox (1994); Matsusaka and Sbordone (1995); Abderrezak (1997); Eppright, Arguea, and Huth (1998); Danthine, Donaldson, and Johnsen (1998); and Howrey (2001).

4. The decision was initially based on time-series tests, which included twenty quarterly observations, with another two quarters of data collected before the closure took effect. The addition of those two data points had a large impact on the estimated parameters, turning the probability measure of purchase intentions into a highly significant predictor. Although this could have been interpreted as ample demonstration of parameter instability with sample sizes of twenty, McNeil (1974, 6) interpreted the result as indicating that "any confidence in the predictive value of the [purchase probability] index would have been ill founded." It is interesting that in a report summarizing the reasons for halting the survey, McNeil concluded, "In retrospect, it would seem that the warnings of Katona and Mueller about the limitations of cross-sectional tests were not given adequate attention. . . . In the future we would do well . . . to exercise the utmost caution in using cross-section results to infer time-series performance" (11).

5. For a description of the design and methodology of the survey, including the questionnaire items and formulation of the index of consumer sentiment, see Curtin 1982b. Annual summaries of the survey findings are published by the Department of Economics at the University of Michigan in the proceedings for the Economic Outlook Conference. See also the SCA Web site: <http://www.sca.isr.umich.edu/main.php>.

6. Some of these factors were found to be quantitatively large; for example, Campbell and Mankiw (1989) estimate that about half of all disposable income accrues to rule-of-thumb consumers, with consumption mainly responding to innovations in current income. Based on PSID data, Zeldes (1989) finds the same split between liquidity-constrained and -unconstrained consumers, with the behavior of the latter approximating what would be expected based on the life-cycle permanent income hypothesis.

7. The acceptance of the full rationality postulate would still provide unbiased predictions of aggregate behavior if the departures due to bounded rationality were random. Research by Tversky and Kahneman (1982a), however, has convincingly demonstrated that the departures represent systematic biases. Even with the presence of such systematic bias, some theorists have maintained that markets would effectively act to eliminate the influence of such "quasi-rational" agents. Russell and Thaler (1985) have found, however, that the market conditions necessary to produce this result rarely exist.

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

8. To be sure, a growing number of economists do advocate bounded rationality. For an overview of research based on bounded rationality, see Conlisk 1996 as well as the collected papers of Simon (1997).

9. There is a rather large literature focused on the inflation expectations series derived from SRC's surveys, including Turnovsky 1970, Carlson and Parkin 1975, Wachtel 1977, Figlewski and Wachtel 1981, Fishe and Lahiri 1981, Curtin 1982a, Gramlich 1983, Bryan and Gavin 1986, Rich 1989, Fishe and Idson 1990, Grant and Thomas 1999, and Thomas 1999.

10. Some have argued that professional forecasters do not provide their true unbiased forecast but act strategically so as to maximize their compensation by publishing distinctive forecasts to generate publicity for their firms (Laster, Bennett, and Geoum 1999). As a result, it is argued that published forecasts are a poor proxy for the economist's true expectations and hence create a bias toward the rejection of the rational expectations hypothesis.

11. The usual test of rational expectations involves testing the relationship between the realized inflation rate in period t as a function of the expected inflation rate for period t formed at $t - 1$, usually expressed as $P_t = \alpha + \beta P_t^{e}{}_{t-1}$. For expectations to be unbiased, the appropriate test requires $\alpha = 0$ and $\beta = 1$. The results for the median consumer expectations were nearly identical to the values posited by the rational expectations hypothesis. The estimates (standard errors) were $\alpha = 0.09$ (0.66) and $\beta = 0.99$ (0.18).

12. The frequency of item nonresponse in the Italian Survey of Household Income and Wealth was high by any standard: 55 percent of eligible respondents did not answer the questions, and among those that did provide answers, 63 percent gave a point estimate for expected change in income, inflation, or both (Guiso, Japelli, and Terlizzese 1992). Dominitz and Manski (1997) measured current and expected income levels, taking the difference as a measure of expected change in income. The resulting item nonresponse rate was 47 percent for the measure of expected income change. Calculating the expected change as the difference in levels is likely to yield estimates that are coarse and imprecise compared with direct measures of the expected change in income. This is an especially important problem for time-series analysis since defining income expectations as the difference between two relatively noisy level estimates may lead to high and spurious variability in income expectations.

REFERENCES

Abderrezak, A. 1997. Consumer expectations and cyclical durations. *Quarterly Review of Economics and Finance* 37 (4): 843–54.

Acemoglu, D., and A. Scott. 1994. Consumer confidence and rational expectations: Are agents' beliefs consistent with the theory? *Economic Journal* 104:1–19.

Adams, F. G. 1964. Consumer attitudes, buying plans, and purchases of durable goods: A principal components, time-series approach. *Review of Economics and Statistics* 46 (4): 347–55.

———. 1965. Prediction with consumer attitudes: The time-series—cross section paradox. *Review of Economics and Statistics* 47 (4): 367–78.

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

Blanchard, O. 1993. Consumption and the recession of 1990–1991. *American Economic Review* 83 (2): 270–74.

Bryan, M. F., and W. T. Gavin. 1986. Models of inflation expectations formation: A comparison of household and economist forecasts: Comment. *Journal of Money, Credit, and Banking* 18 (4): 539–44.

Caballero, R. J. 1991. Earnings uncertainty and aggregate wealth accumulation. *American Economic Review* 81 (4): 859–71.

Campbell, J. Y., and N. G. Mankiw. 1989. Consumption, income, and interest rates: Reinterpreting the time-series evidence. In *NBER Macroeconomics Annual,* ed. O. Blanchard and S. Fischer. Cambridge, MA: MIT Press.

Carlson, J. A., and M. Parkin. 1975. Inflationary expectations. *Economica* 42:123–38.

Carroll, C. D. 1994. How does future income affect current consumption? *Quarterly Journal of Economics* 109 (1): 11–147.

———. 1997. Buffer-stock saving and the life cycle/permanent income hypothesis. *Quarterly Journal of Economics* 112 (1): 1–55.

Carroll, C. D., J. C. Fuhrer, and D. W. Wilcox. 1994. Does consumer sentiment forecast household spending? If so, why? *American Economic Review* 84 (5): 1397–1408.

Carroll, C. D., and A. A. Samwick. 1997. The nature of precautionary wealth. *Journal of Monetary Economics* 40:41–71.

———. 1998. How important is precautionary savings? *Review of Economics and Statistics* 80 (3): 410–19.

Christiano, L. J., and T. J. Fitzgerald. 1999. The business cycle: It's still a puzzle. *Economic Perspectives, Federal Reserve Bank of Chicago* 22 (4): 56–83.

Cochrane, J. H. 1994. Shocks. *Carnegie-Rochester Conference Series on Public Policy* 41:295–364.

Conlisk, J. 1996. Why bounded rationality? *Journal of Economic Literature* 34:669–700.

Curtin, R. T. 1982a. Determinants of price expectations: Evidence from a panel study. In *International Research on Business Cycle Surveys,* ed. H. Laumer and M. Ziegler. Hampshire, UK: Gower.

———. 1982b. Indicators of consumer behavior: The University of Michigan Surveys of Consumers. *Public Opinion Quarterly* 46:340–52.

———. 1983. Curtin on Katona. In *Contemporary Economists in Perspective,* ed. H. W. Spiegel and W. J. Samuels, 1:495–522. New York: Jai Press.

———. 1984. Consumer attitudes for forecasting. In *Advances in consumer research,* ed. T. C. Kinnear, 11:714–17. Provo, UT: Association for Consumer Research.

———. 1999. The outlook for consumption in 2000. *The Economic Outlook for 2000.* Ann Arbor: Department of Economics, University of Michigan.

Danthine, J. P., J. B. Donaldson, and T. Johnsen. 1998. Productivity growth, consumer confidence, and the business cycle. *European Economic Review* 42:1113–40.

Dominitz, J., and C. F. Manski. 1997. Using expectations data to study subjective income expectations. *Journal of the American Statistical Association* 92 (439): 855–67.

Dunkelberg, W. C. 1969. Forecasting consumer expenditures with measures of attitudes and expectations. Ph.D. diss., University of Michigan.

———. 1972. Impact of consumer attitudes on behavior: A cross-section study. In *Human behavior in economic affairs,* ed. B. Strumpel, J. N. Morgan, and E. Zahn. New York: Elsevier.

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

Earl, P. E. 1990. Economics and psychology: A survey. *Economic Journal* 100 (402): 718–55.

Eppright, D. R., N. M. Arguea, and W. L. Huth. 1998. Aggregate consumer expectation indexes as indicators of future consumer expenditures. *Journal of Economic Psychology* 19:215–35.

Fair, R. C. 1971. *A short-run forecasting model of the United States economy.* Lexington, MA: Heath.

Ferber, R. 1966. Anticipations, statistics, and consumer behavior. *American Statistician* 20 (4): 20–24.

Figlewski, S., and P. Wachtel. 1981. The formation of inflationary expectations. *Review of Economics and Statistics* 63 (1): 1–10.

Fischhoff, B. 1994. What forecasts (seem to) mean. *International Journal of Forecasting* 10 (3): 387–403.

Fishe, R. P. H., and T. L. Idson. 1990. Information-induced heteroscedasticity in price expectations data. *Review of Economics and Statistics* 72 (2): 304–12.

Fishe, R. P. H., and K. Lahiri. 1981. On the estimation of inflationary expectations from qualitative responses. *Journal of Econometrics* 16:89–102.

Friedman, M. 1953. *Essays in positive economics.* Chicago: University of Chicago Press.

———. 1957. *A theory of the consumption function.* Princeton: Princeton University Press.

Friend, I., and F. G. Adams. 1964. The predictive ability of consumer attitudes, stock prices, and non-attitudinal variables. *Journal of the American Statistical Association* 59:987–1005.

Fuhrer, J. C. 1988. On the information content of consumer survey expectations. *Review of Economics and Statistics* 70 (1): 140–44.

Garner, A. 1981. Economic determinants of consumer sentiment. *Journal of Business Research* 9:205–20.

Gramlich, E. M. 1983. Models of inflation expectations formation: A comparison of household and economist forecasts. *Journal of Money, Credit, and Banking* 15 (2): 155–73.

Grant, A. P., and L. B. Thomas. 1999. Inflationary expectations and rationality revisited. *Economics Letters* 62:331–38.

Guiso, L., T. Japelli, and D. Terlizzese. 1992. Earnings uncertainty and precautionary saving. *Journal of Monetary Economics* 30:307–37.

Hall, R. E. 1993. Macro theory and the recession of 1990–1991. *American Economic Review* 83 (2): 275–79.

Howrey, E. Philip. 2001. The predictive power of the index of consumer sentiment. *Brookings Papers on Economic Activity* 2001 (1): 175–207.

Huth, W. L., D. R. Eppright, and P. M. Taube. 1994. The indexes of consumer sentiment and confidence: Leading or misleading guides to future buyer behavior. *Journal of Business Research* 29:199–206.

Hymans, S. 1970. Consumer durable spending: Explanation and prediction. *Brookings Papers on Economic Activity* 2:173–99.

Juster, F. T. 1964. *Anticipations and purchases.* Princeton: Princeton University Press.

———. 1966a. *Household capital formation and financing: 1897–1962.* Princeton: Princeton University Press.

———. 1966b. Consumer buying intentions and purchase probability: An experiment in survey design. *Journal of the American Statistical Association* 61:658–96.

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

———. 1969. Consumer anticipations and models of durable goods demand. In *Economic forecasts and expectations,* ed. J. Mincer. New York: Columbia University Press for NBER.

Juster, F. T., and P. Wachtel. 1972. Anticipatory and objective models of durable goods demand. *American Economic Review* 62 (4): 564–79.

Kahneman, D., and A. Tversky. 1982. On the psychology of prediction. In *Judgment under uncertainty: Heuristics and biases,* ed. D. Kahneman, P. Slovic, and A. Tversky, 48–68. Cambridge: Cambridge University Press.

Katona, G. 1951. *Psychological analysis of economic behavior.* New York: McGraw-Hill.

———. 1957. Federal Reserve Board committee reports on consumer expectations and saving statistics. *Review of Economics and Statistics* 39 (1): 40–45.

———. 1960. *The powerful consumer: Psychological studies of the American economy.* New York: McGraw-Hill.

———. 1964. *The mass consumption society.* New York: McGraw-Hill.

———. 1975. *Psychological economics.* New York: Elsevier.

Kimball, M. S. 1990. Precautionary saving in the small and in the large. *Econometrica* 58 (1): 53–73.

Klein, L. R. 1946. A post-mortem on transition predictions of national product. *Journal of Political Economy* 54 (4): 289–308.

Klein, L. R., and J. B. Lansing. 1955. Decisions to purchase consumer durable goods. *Journal of Marketing* 20:109–32.

Laster, D., P. Bennett, and I. S. Geoum. 1999. Rational bias in macroeconomic forecasts. *Quarterly Journal of Economics* 114:293–318.

Lewin, S. B. 1996. Economics and psychology: Lessons for our own day from the early twentieth century. *Journal of Economic Literature* 34 (3): 1293–323.

Lichtenstein, S., B. Fischhoff, and L. D. Phillips. 1982. Calibration of probabilities: The state of the art to 1980. In *Judgment under uncertainty: Heuristics and biases,* ed. D. Kahneman, P. Slovic, and A. Tversky, 306–34. Cambridge: Cambridge University Press.

Lott, W. F., and S. M. Miller. 1982. Employers' and workers' inflation expectations: Prediction accuracy and the natural-rate hypothesis. *Eastern Economic Journal* 8:283–88.

Lovell, M. C. 1986. Tests of the rational expectations hypothesis. *American Economic Review* 76 (1): 110–24.

Mankiw, N. G. 1988. Recent developments in macroeconomics: A very quick refresher course. *Journal of Money, Credit, and Banking* 20 (3, pt. 2): 436–49.

Manski, C. F. 1990. The use of intentions data to predict behavior: A best-case analysis. *Journal of the American Statistical Association* 85 (412): 934–90.

Matsusaka, J. G., and A. M. Sbordone. 1995. Consumer confidence and economic fluctuations. *Economic Inquiry* 33:296–318.

Maynes, E. S. 1967. An appraisal of the consumer anticipations approaches of forecasting. Proceedings of the Business Economics Statistical Section of the American Statistical Association,114–23.

McNeil, J. M. 1974. *Census Bureau programs to measure consumer purchase expectations: 1959–1973.* Technical Paper 36. Washington, DC: Bureau of the Census, U.S. Department of Commerce.

Modigliani, F., and R. Brumberg. 1954. Utility analysis and the consumption function: An interpretation of cross-section data. In *Post-Keynesian economics,* ed. K. Kurihara. New Brunswick, NJ: Rutgers University Press.

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.

Mueller, E. 1957. Effects of consumer attitudes on purchases. *American Economic Review* 47 (6): 946–65.
———. 1963. Ten years of consumer attitude surveys: Their forecasting record. *Journal of the American Statistical Association* 53:899–917.
Muth, J. F. 1961. Rational expectations and the theory of price movements. *Econometrica* 29 (3): 315–35.
Praet, P., and J. Vuchelen. 1989. The contribution of consumer confidence indexes in forecasting the effects of oil prices on private consumption. *International Journal of Forecasting* 5:393–97.
Rabin, M. 1998. Psychology and economics. *Journal of Economic Literature* 36:11–46.
Rabin, M., and J. L. Schrag. 1999. First impressions matter: A model of confirmatory bias. *Quarterly Journal of Economics* 114 (1): 37–82.
Rich, R. 1989. Testing rationality of inflation forecasts from survey data: Another look at the SRC expected price change data. *Review of Economics and Statistics* 71:682–86.
Russell, T., and R. Thaler. 1985. The relevance of quasi rationality in competitive markets. *American Economic Review* 75 (5): 1071–82.
Savage, L. J. 1971. Elicitation of personal probabilities and expectations. *Journal of the American Statistical Association* 66 (336): 783–801.
Seaver, D. A., D. von Winterfeldt, and W. Edwards. 1978. Eliciting subjective probability distributions on continuous variables. *Organizational Behavior and Human Performance* 21:379–91.
Simon, H. A. 1947. *Administrative behavior.* New York: Free Press.
———. 1957. *Models of man: Social and rational.* New York: Wiley.
———. 1978. Rationality as process and as product of thought. *American Economic Review* 68 (2): 1–16.
———. 1997. *Models of bounded rationality.* Cambridge, MA: MIT Press.
Suits, D. B., and G. R. Sparks. 1965. Consumption regressions with quarterly data. In *Brookings quarterly econometric model of the United States,* ed. J. S. Duesenberry, G. Fromm, L. R. Klein, and E. Kuh. Chicago: Rand McNally.
Thaler, R. H. 1991. *Quasi-rational economics.* New York: Russell Sage.
———. 1992. *The winner's curse.* Princeton: Princeton University Press.
Thomas, L. B., Jr. 1999. Survey measures of expected U.S. inflation. *Journal of Economic Perspectives* 13 (4): 125–44.
Tobin, J. 1959. On the predictive value of consumer intentions and attitudes. *Review of Economics and Statistics* 41 (1): 1–11.
Turnovsky, S. 1970. Empirical evidence on the formation of price expectations. *Journal of the American Statistical Association* 65:1441–54.
Tversky, A., and D. Kahneman. 1982a. Causal schemas in judgments under uncertainty. In *Judgment under uncertainty: Heuristics and biases,* ed. D. Kahneman, P. Slovic, and A. Tversky, 117–28. Cambridge: Cambridge University Press.
———. 1982b. Judgment under uncertainty: Heuristics and biases. In *Judgment under uncertainty: Heuristics and biases,* ed. D. Kahneman, P. Slovic, and A. Tversky, 3–20. Cambridge: Cambridge University Press.
Wachtel, P. 1977. Survey measures of expected inflation and their potential usefulness. In *Analysis of inflation: 1965–1974,* ed. J. Popkin. Cambridge: Ballinger.
Zeldes, S. P. 1989. Consumption and liquidity constraints: An empirical investigation. *Journal of Political Economy* 97 (2): 305–46.

Copyright © 2004. University of Michigan Press. All rights reserved.

House, J. S., Singer, E., & Singer, E. (2004). A telescope on society : Survey research and social science at the university of michigan and beyond. Retrieved from http://ebookcentral.proquest.com
Created from umichigan on 2019-05-20 10:49:08.