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## **Consumer Confidence in the 21<sup>st</sup> Century: Changing Sources of Economic Uncertainty**

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### **Abstract**

Consumer confidence is now part of popular culture. It was conceived as a theoretical concept designed to enable the incorporation of empirical measures of income expectations into models of spending and saving behavior. Consumer optimism and pessimism defines changes in precautionary motives during economic cycles. Expenditures on durable goods are the primary means that consumers use to adjust their precautionary savings, and by doing so, consumers drive the overall economy into recession or toward growth and expansion. In the 21<sup>st</sup> century what constitutes consumer confidence will continue to expand into a broader and more complex assessment of economic prospects. Importantly, as the baby boom generation near retirement, their attention will increasingly shift from uncertainties originating in the labor market to uncertainties about future rates of return on assets. Moreover, financial markets are likely to be much more volatile, responding to both domestic and international developments. In this new environment, consumer confidence will still primarily reflect precautionary motives and how those changes affect spending decisions.

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## Introduction

What is consumer confidence? The term is now part of popular culture. Consumer confidence is cited by government officials, business executives, the media, as well as by ordinary consumers to describe national economic conditions. It has become so much a part of the national economic dialog that many people think that consumer confidence has a specific and widely agreed upon definition. Nonetheless, it should be no surprise that the definition of consumer confidence has remained elusive since the “confidence” of consumers can never be directly observed. It is only the behavior of consumers that can be observed. Our interest in consumer confidence is thus defined by our interest in specific economic behaviors, and different economic behaviors will require different measures of confidence.<sup>1</sup>

When George Katona first developed the confidence measures in the late 1940's, he did so as a means to directly incorporate empirical measures of income expectations into models of spending and saving behavior. Katona summarized his views by saying that consumer spending depends on both their “ability and willingness to buy” (Katona 1951, 1960, 1964, 1975). By spending, he meant discretionary purchases;<sup>2</sup> by ability, he meant the current income of consumers; and by willingness, he meant consumers’ assessments of their future income prospects. Katona hypothesized that spending would increase when people became optimistic, and precautionary saving would rise when they became pessimistic.

Katona originally considered consumer confidence to be a broad measure of expected changes in income. It was not simply the expected size of a consumer’s future income, but the certainty or uncertainty that was attached to those expectations. Thus, an important component of the definition of consumer confidence was that it encompassed both the expected level as well as the expected variance of income. To recognize this dual criterion, Katona defined the dimension of consumer confidence as ranging from optimism and confidence to pessimism and uncertainty.

Moreover, Katona argued that consumer confidence has affective as well as cognitive dimensions. Indeed, it was this recognition that led Katona to change the name of the index from “consumer confidence” to “consumer sentiment.” Katona was not tilting his measure toward the “animal spirits” of Keynes, but simply recognizing that few consumers

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<sup>1</sup>Some may argue that an appropriate societal goal is to have economic conditions that promote confident and optimistic consumers. In this sense, consumer confidence could be considered a social indicator that has importance apart from any impact on behavior.

<sup>2</sup>Discretionary purchases are the things that people buy that are not the necessities of life. All spending categories include discretionary items, with the key provision that discretionary purchases can be postponed. There is no reason to think that consumer confidence should play a role in determining the timing of necessary expenditures. The most commonly studied discretionary purchases are homes, vehicles, and household durables. These are relatively infrequent and large purchases, often involve the use of credit, and are typically planned purchases—just the type of purchases that would reflect both current economic conditions as well as expected future changes. Such expenditures are not properly viewed as current period consumption, but are investments that are intended to yield a future stream of consumption.

thought of inflation or unemployment, for example, without making evaluative judgments. It is the affective components of economic attitudes and expectations that serve to integrate diverse pieces of economic information. Moreover, it is the affective component that enables waves of optimism or pessimism to sweep across the population with great speed.

## **Index of Consumer Sentiment**

Katona first formed the Index of Consumer Sentiment fifty years ago. The Index is based on the responses to five questions; two questions of personal finances, two on the outlook for the economy, and one question on buying conditions for durables. While he would have preferred to report on the detailed findings from the surveys, Katona recognized that a summary index is needed for both the ease of dissemination as well as empirical testing. It is inherently difficult to summarize the diverse implications for all forms of consumer spending in a single index, and there was never an attempt to do so. Indeed, the Michigan surveys include a large range of additional questions. The questions range from income, unemployment, interest rates, and inflation expectations to what respondents think are the most important recent changes in economic conditions, measures about buying conditions for a variety of products, attitudes toward saving and debt, holdings of various assets, and many other topics.

The Index of Consumer Sentiment has performed quite well. Over the past several decades there have been a number of analyses done which indicate that consumer sentiment is a significant predictor. The most recently published article 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 (Howrey, 2001). A subcomponent of the overall index, called the Index of Consumer Expectations, which I introduced in the late 1970s, was selected by the U.S. Commerce Department in the late 1980s as a component of the composite Index of Leading Economic Indicators because of its ability to forecast future trends in the economy.

Moreover, many of the other expectations questions included in the survey have proved to be remarkably accurate. A recent article in the *Journal of Economic Perspectives* analyzed the Michigan inflation expectations series as well as the expectations of professional forecasters (Thomas, 1999). The results indicated that consumers held slightly more accurate year-ahead forecasts of the inflation rate than the economists, which replicate the finding of a study done more than ten years earlier (Gramlich, 1983). While consumers' forecasts did not fully correspond with the theory of rational expectations, the departure was in how efficiently they used information, as their expectations were accurate and unbiased.

The same findings emerge about consumers' unemployment expectations, with the data indicating a close correspondence with subsequent changes in the actual unemployment rate. Unemployment expectations have an important impact on spending decisions as well. The Michigan series on unemployment expectations was found to be a significant predictor of personal consumption expenditures even after controlling for the

variables typically part of consumption models, including measures of permanent income (Carroll and Dunn, 1997).

## Theoretical Foundations

These results were more impressive than Katona ever expected. In fact, Katona never believed that consumers had the needed information, computational skills, or the motivation to form accurate economic expectations. Nonetheless, Katona did believe that consumer expectations were influential factors shaping their spending and saving decisions and, as such, should be measured and incorporated into forecast models.

Just the opposite was true among other economists around the same time Katona published his views. Modigliani's life-cycle theory (1954) and Friedman's permanent income hypothesis (1957) emphasized the role of expectations in determining the optimal pattern of lifetime consumption. A few years later, the rational expectations hypothesis was advanced, which formalized the notion that consumers held fully rational expectations of future economic conditions (Muth, 1961). Consumers were then assumed to possess full information, to be rational calculators, and to have the motivation to achieve optimal results. In practice, however, most economists doubted the usefulness of survey measures of expectations due to the presumed lack of validity and reliability of consumers' expectations.

Along with the assumption of rational expectations, most empirical tests of the life-cycle and permanent income hypothesis relied on two other simplifying assumptions that unfortunately excluded the very topics that the confidence measures were designed to explain. The first was the so-called "certainty equivalence" derived from the assumption of quadratic utility functions. This assumption meant that only the mean of the expected future income stream had an impact on current consumption decisions. The theory left no room for considerations of the potential impact of uncertainty about future income. The second simplifying assumption was that utility functions were additive and time separable. Based on this assumption, expenditures on vehicles, household durables, and homes were simply eliminated from the analysis since these expenditures do not fully represent current consumption but are more accurately described as investments.

Numerous studies of the life-cycle permanent income hypothesis, both at the macro and micro levels, have rejected the general premise that consumption is equal to the annuity value of lifetime income. As part of the more general attention to potential sources of misspecification (liquidity constraints, rule-of-thumb consumers, nonstationary income processes, etc.), there has been a renewed and growing interest in relaxing these restrictive assumptions.

Some approaches have simply enlarged the scope of traditional theories by a more detailed specification of the theory. For example, Kimball (1990) has shown that for more plausible assumptions about the utility function (a conventional, time separable concave utility function with a positive third derivative), consumers could be expected to accumulate

precautionary savings as a hedge against uncertainty. Others have advanced theories that are quite distinctive and incompatible with the conventional economic assumptions. For example, prospect theory has been used to incorporate income uncertainty by assuming an asymmetry in consumers' reaction to positive and negative income developments. The theory assumes that people react more to losses from their reference levels than to gains by a margin of about two-to-one (Kahneman and Tversky, 1979). The loss-aversion theory contends that people resist decreasing their living standard in response to negative income shocks for the same reasons first suggested by Duesenberry (1952). The resistance to lowering consumption means that since consumers do not immediately respond to predicted income declines, their response must be greater at the time of the actual income decline (Shea, 1995).

Unfortunately, most tests of this theory were restricted to "consumption" and, so like the other empirical tests, eliminated expenditures on durables from the analysis. There have been a few notable exceptions. Demand for durables has long been analyzed along similar lines as capital investments by business. The speed by which consumers adjust their current stock of durables to their desired stock is often taken to be a function of consumer confidence, among other variables. Many econometric models use this notion to incorporate measures of consumer confidence. More generally, consumers can be thought of adjusting their stocks of durables only if their current holdings fall below some threshold (Caballero and Engle, 1991). This threshold is assumed to be a function of a broad number of characteristics of the consumer, including confidence measures.

Unfortunately, expenditures on durables have rarely been analyzed as a means that households use to adjust their precautionary savings. Postponing the purchase of a new vehicle or new appliance has little immediate impact on living standards (assuming the current vehicle or appliance is still in working condition) but has a large and immediate impact on saving. Indeed, it could be hypothesized that varying the timing of expenditures on durables is the dominant method used by households to adjust the amount of their precautionary savings as a reaction to cyclical economic developments.<sup>3</sup>

My hypothesis is that expenditures on durables are the primary means that consumers use to adjust their precautionary savings, and by doing so, consumers can drive the overall economy into recession or toward growth and expansion. It is commonplace for consumers to describe their own intentions to adjust the timing of durable expenditures as a precautionary measure despite the fact that conventional theories hold that the pattern of consumption should be independent from the pattern of income. If such changes in precautionary motives were random across consumers and over time, there would be no impact on the economy because the individual changes would cancel when aggregated. While many of the changes do cancel, it has been repeatedly observed that very many consumers change their views at the same time and in the same direction, either toward optimism or toward pessimism. It is this synchronization of change that

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<sup>3</sup> Not all income uncertainty is due to cyclical developments in the economy. Insofar as people expect a decline in their future income unrelated to cyclical developments, households would be hypothesized to resist decreasing their living standards for the same reasons given by Duesenberry.

produces recessions or booms.

Mainstream economic theories, however, do not include any channel by which changes in consumer demand cause recessions. Indeed, the conventional intertemporal models of consumption do not produce consumer led recessions. There is no consensus among economists on the causes of recessions (Christiano and Fitzgerald, 1999). None of the usual suspects—monetary, credit, price, or technology shocks—account for the bulk of the cyclical fluctuations. Consumption shocks, however, do account for a relatively large share of the fluctuations (Cochrane, 1994).

This is a troublesome finding given that consumption is assumed to be an endogenous variable having no independent effect on the economy. There have been two ways that have been suggested to resolve this issue: first, the empirical tests may have been improperly specified, and second, the results may be due to “animal spirits” and thus outside the normal theoretical framework.

The first argument asserts that properly specified models would make it clear that consumption is endogenous if consumers are assumed to base their decisions on better or more current information than is used in the tests by macro models. The consumption shock thus reflects information known to the consumer but unobserved by macro 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. Consumers, however, may base their forecasts on the information that they possess about their own prospects, or what is usually termed private information. It is only when the idiosyncratic information from consumers is aggregated that it provides an accurate expectation for the entire economy (Cochrane, 1994).

While I do agree with the thrust of this argument, I do not think it is germane. Consumers do possess a good deal of private information, as evidenced by the accuracy of their expectations for the future rate of inflation, the unemployment rate, and even GDP, for example. The accuracy of consumer expectations is one of the rarely addressed findings from the surveys. Nonetheless, it is the synchronization of changes that produce recessions, and the mere possession of private information does not help to explain that synchronization.

The alternative view, first suggested by Keynes, is to assume that economic expectations arise independently from real economic developments and can function as self-fulfilling prophecies. Contagion or the dynamics of herd behavior are used to explain the synchronization. The potential impact on the economy from self-fulfilling expectations has become an important area of research in the past decade (Howitt and McAfee, 1992; Shiller, 2000). Most of this research, however, has not focused on consumers, but on the employment and investment decisions of firms or the actions of investors in financial markets. Nonetheless, economists have advanced the view that the 1990-91 recession was due to an “autonomous” drop in consumer sentiment (Hall, 1993; Blanchard, 1993).

This is an interesting and challenging line of research. At the level of the individual

consumer, self-fulfilling expectations affect spending and saving behavior in exactly the same way as changes that are not based on self-fulfilling expectations. The shifts in consumers' economic outlook as well as the changes in their spending and saving are identical; indeed, the two situations are indistinguishable to the individuals involved. Even at the macro level of analysis, it would be difficult to determine whether changes in precautionary motives were due to self-fulfilling expectations. Moreover, even if the consumer spending could be empirically tied to self-fulfilling expectations at the macro level, such occurrences would be rare and cannot explain the repeated series of recessions during the past half century.

The real promise of this line of research is a more complete integration of economic and psychological theories for the explanation of consumer behavior. Indeed, elements of both conjectures are likely to be true: private information could be rapidly spread by processes similar to contagion, with loss aversion accounting for the much more rapid spread of news of impending unfavorable developments.

### **Growing Consumer Sophistication**

Thus far I have implicitly assumed that consumer expectations could be summarized as a single dimension, namely by a measure of consumer confidence. When reviewing the survey results across the more than 25 years that I have directed the Michigan surveys, as well as during the 25 years before I arrived at Michigan, it is clear that the knowledge and economic sophistication of consumers has grown substantially. In the late 1940s most consumers viewed all aspects of the economy through the single dimension of how it affected their job and income prospects. In today's economy job and income prospects are still important, but there are many other aspects of the economy that are now important to consumers. During just the past year, consumer expectations for interest rates, inflation, income, jobs, stock prices, home values, taxes, to name just a few, have largely moved independently, and often in opposite directions.

Moreover, consumers are now more likely to make distinctions between the near and longer term prospects for inflation and stock prices, for example, as well as between near and longer term job and income prospects. Consumers are also more likely to hold different expectations for price changes by type of product or service, and hold different expectations for returns on equities versus real estate. Moreover, consumers' spending and saving decisions may now be much more sensitive to these differences.

As a result, the economic environment may have become too diverse, and consumers too sophisticated, for any single index to accurately and unambiguously describe consumers as either optimistic or pessimistic. Empirical research on consumers' spending and saving decisions must specify the exact theoretically relevant measure that is needed. To be sure, there will still be some behaviors that the current index will be a good proxy for the desired measure. Nonetheless, the empirical models of consumer behavior are likely to be better specified by drawing from a broad range of expectations. The Michigan surveys have always included a wide range of questions and published the

detailed results so that any interested scholar can reconstruct any index they desire. I have no doubt that better alternatives to the general summary measure of consumer confidence can be devised to meet the needs of specific behavioral models, say for purchases of vehicles, homes, travel expenditures, and so forth. Rather than attempting to enshrine any current definition of consumer confidence, we should now begin to devise new measures that will help us to understand the issues that consumers will face over the coming decades.

Along with the growing sophistication among consumers, there is a growing demand for more precise measures of expectations. As expectations have become more central components 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. Given an estimate of the entire probability distribution for each individual, measures of central tendency can then be supplemented by measures of dispersion to capture the uncertainty that individuals associate with that expectation.

Achieving greater precision in measurement usually means more detailed and complex questions. The cost of the greater precision is twofold. The first cost is the lost opportunity to measure another concept. Most surveys have many more potential questions than they have room to accommodate, and most surveys favor designs that cover all important topics in some detail rather than measure fewer concepts in greater detail. While estimates of the complete probability distribution of the typical economic expectation can be based on as few as five to seven questions, this would mean that a substantial number of other questions could not be asked. Adding new questions to a continuing monthly survey are very expensive, especially since a large number of observations are needed before any time series tests can be performed.

The second and more important cost is measured in terms of item non-response and measurement errors. More precise questions are more difficult questions. More demanding questions require a high degree of motivation on the part of respondents to provide accurate answers, often require respondents to access a greater amount of information from memory, and demand that respondents have greater conceptual and computational skills. These higher demands may cause respondents to refuse to answer the questions resulting in more missing data, or cause respondents to simply guess or otherwise provide unconsidered answers resulting in greater errors in measurement.

These concerns have been typically cited to justify the use of rather simple formulations for survey questions about economic expectations, usually asked in terms of a verbal likelihood scale. Numeric probability scales are generally assumed to allow the comparability of responses among different people, across situations, and over time. Although I am not convinced that they do, they are more likely to be comparable than verbal response scales. The key methodological issue that has rarely been investigated is whether verbal likelihood scales or numeric probability scales show a greater correspondence to behavioral decisions. Given that the current rather simple formulations have performed quite well, there is no reason to discontinue asking these questions.

Nonetheless, most of the new experimental expectation questions added to the Surveys of Consumers now use the numeric probability scales rather than verbal likelihood scales.

Another rather straightforward methodological concern involves the issue of question framing. There has been little research on the impact of different frames of reference that could be used in the measurement of expectations. It is unlikely that shifting the frame of reference from gains to losses would yield the same probability distributions. For example, asking about the probability of losing a job versus asking about the probability of keeping a job, the probability of income gains versus losses, or the probability of living to age 85 compared with asking about the probability of dying before age 85, and so forth. Nor has there been much research on whether expectations based on one or the other frame of reference would show greater correspondence with subsequent behavior. Indeed, it is likely that responses to questions about gains and losses are not symmetrical, so that measures based on one or the other frame might show stronger or weaker behavioral associations.

A more difficult challenge involves the measurement of expected changes in real rather than just nominal economic variables. If changes in income and inflation, for example, 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. This measurement problem is avoided if all consumers were assumed to expect the same inflation rate (with certainty); with this assumption, differences in real income uncertainty would be equivalent to differences in nominal income uncertainty. While it is commonplace to calculate past real income growth by applying the same inflation adjustment factor to all consumers, it would defeat the very purpose of measures of real income uncertainty to assume no variation in expected inflation rates. Moreover, it is clearly of some interest to distinguish between these two sources of uncertainty. When real income uncertainty is primarily driven by uncertainty about inflation, consumers may adopt characteristically different behaviors than when it is primarily due to uncertainty about their future wages. How to best estimate the joint probability distributions that are needed to determine real income uncertainty or uncertainty about real rates of return on assets deserves a high priority on future research agendas.

### **Consumer Confidence in the 21<sup>st</sup> Century**

The measurement of consumer expectations will become even more challenging in the 21<sup>st</sup> century. What constitutes consumer confidence will continue to change, or perhaps more aptly, to continue to expand into a broader and more complex assessment of economic prospects. A large proportion of the U.S. population will begin to retire in the coming decades. As people near retirement, the importance of labor income declines while the importance of assets and pension entitlements rise. As a consequence, people will increasingly shift their attention from income uncertainties originating in the labor markets to uncertainties about future rates of return on financial assets. Moreover,

compared with variations in labor market conditions, variations in the value of financial assets are likely to exhibit more abrupt and larger changes in response to both domestic and global financial markets. Little is known, however, about how consumers form expectations about future real rates of return.

Although the importance of buffer savings will decline as people reach retirement, precautionary motives will not disappear. Uncertainty about future rates of return on assets will prompt consumers to engage in precautionary declines in spending during retirement in much the same way as it prompted increases in savings prior to retirement. Understanding how people assess uncertainty must incorporate information on how people form expectations about future needs and how those expectations change as they age. Expectations about longevity and disability, in vivo transfers and bequests, as well as changes in expectations about the provisions of private and public pension and health care programs, will all play a more important role.

Given that Social Security and other pension entitlements will represent a major share of the incomes of the elderly, some have contended that there is little reason to expect income uncertainty during retirement to have a significant impact on the macro economy. 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 remain employed. In addition, this line of reasoning ignores the potential impact of inflation, particularly changes in relative prices that are to the disadvantage of the elderly, since not all pension entitlements are fully indexed to inflation nor indexed to the prices of goods and services generally purchased by the elderly.

Moreover, compared with variations in labor market conditions, valuations of financial assets are likely to exhibit more abrupt and relatively larger changes. 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 asset prices, especially when their investment horizons are long, but among the elderly, the horizon is bound to be shorter. Moreover, little is known about the thresholds or conditions which 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.

Loss-aversion theory may help to explain why recoveries in confidence are slow to develop but declines occur abruptly. There have been occasions during the past fifty years that rapid and significant declines in confidence have been caused by unexpected events, usually associated with war. Of greater interest are the times when confidence declines abruptly without any corresponding sharp change in the economy. None of these changes have been predicted in advance, although all can be explained in retrospect. Whereas slow change allows gradual adaptation, rapid change prompts a disabling sense of uncertainty and disengagement. The inaction caused by such abrupt changes may generate a self-reinforcing process which acts to accentuate rather than mitigate the underlying source of uncertainty.

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.

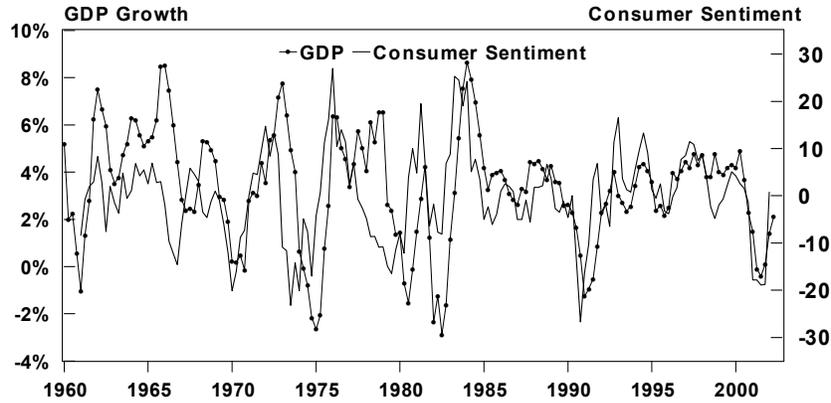
In the 21<sup>st</sup> century, we face as many challenges as opportunities for the scientific advancement in our understanding of the role of the consumer in shaping the macro economy. Despite the many changes in the economic environment as well as in the economic situation of consumers, there is no reason to expect the influence of the consumer on macroeconomic trends to wane in the 21<sup>st</sup> century.

The strength of household surveys is that they are 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 the research program at Michigan will continue to be built on the collection of data that enables rigorous tests of established theory as well as allows 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.

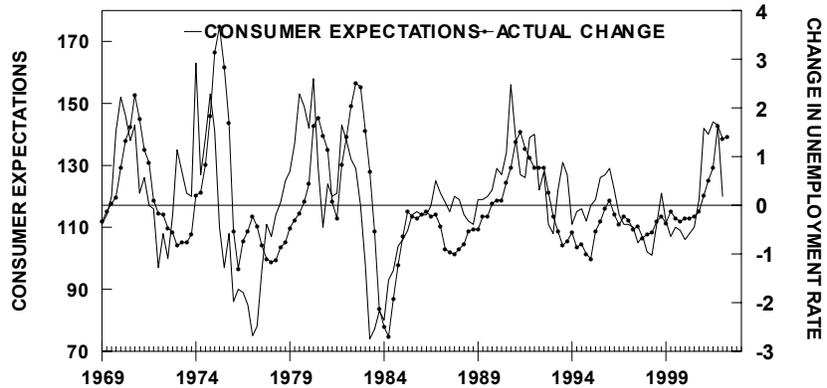
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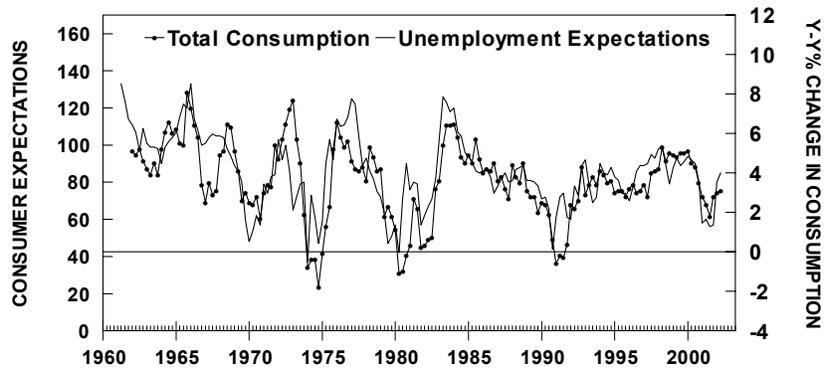
**Chart 1: Trends in Gross Domestic Product and Consumer Sentiment  
(Year-to-Year Change in Series)**



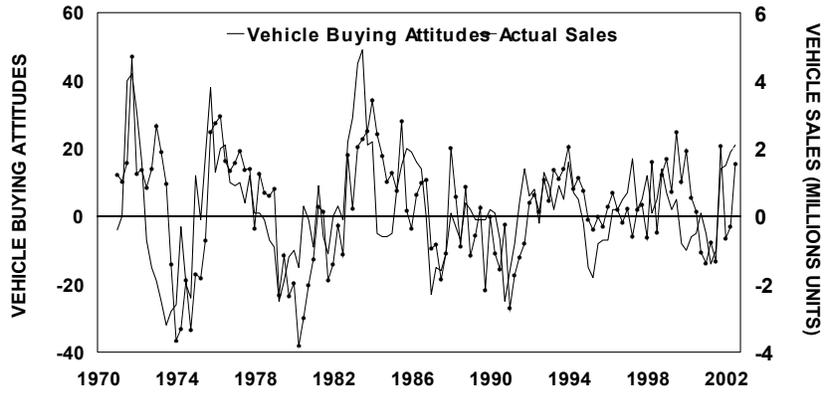
**Chart 2: Unemployment Expectations and Change in Unemployment Rate**



**Chart 3: Unemployment Expectations and Growth in Personal Consumption**



**Chart 4: Buying Conditions for Vehicles and Total Vehicle Sales  
(Year-to-Year Change in Series)**



**Chart 5: Buying Conditions for Homes and Total Home Sales  
(Year-to-Year Change in Series)**

