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Measures of Consumer Confidence: Are They Useful?

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Summary

The economic outlook is of considerable importance to policymakers. Any information that might prove helpful in forecasting the economy is thus of interest. Two economic indicators that get a lot of attention, because of their presumed value as leading indicators of economic conditions, attempt to measure the relative optimism of consumers about current economic conditions and prospects. One of these indicators is the index of consumer sentiment published by the University of Michigan Survey Research Center, and the other is the consumer confidence index published by the Conference Board.

Both indexes are based on data collected in a monthly survey. The Michigan survey contacts 500 households by telephone. The Conference Board contacts 5,000 households by mail, of which about 3,500 typically respond. In both surveys five questions are asked, two of which have to do with current economic conditions and three of which have to do with expectations for the economic outlook. Each of the survey questions is multiple choice.

While, intuitively, it makes sense that consumer attitudes would affect spending decisions, there remains uncertainty regarding the theoretical connection between the attitude indexes and spending. That makes it difficult to interpret individual observations, and short-run variations in the indexes.

These indicators are not, apparently, insignificant. On their own and in concert with other economic variables they have been shown to contribute to forecasts of future consumer spending and hence of overall economic growth. But their contribution may be somewhat more modest than the attention they get would suggest.

This report explains how these two indexes measuring consumer attitudes are calculated, the theoretical connection between consumer attitudes and economic growth, and examines their significance as indicators of the economic outlook.

This report will be updated as economic developments warrant.

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One of these indicators is the index of consumer sentiment published by the University of Michigan Survey Research Center, and the other is the consumer confidence index published by the Conference Board.[1]

This paper examines these two indexes. It explains how they are calculated and looks at how they have varied over time. It discusses why they might be expected to predict consumer behavior and examines their contributions to economic forecasts.

Calculation of the Indexes

Both indexes are based on data collected in a monthly survey. The Michigan survey contacts 500 households by telephone. The Conference Board contacts 5,000 households by mail, of which about 3,500 typically respond. In both surveys five questions are asked, two of which have to do with current economic conditions and three of which have to do with expectations for the economic outlook. Each of the survey questions is multiple choice.

The Michigan Survey. The Michigan index of consumer sentiment is based on the answers to the following five questions:

- We are interested in how people are getting along financially these days. Would you say that you (and your family living there) are better off or worse off financially than you were a year ago? (better/same/worse)
- Now looking ahead – do you think that a year from now you (and your family living there) will be better off financially, or worse off, or just about the same as now? (better/same/worse)
- Now turning to business conditions in the country as a whole – do you think that during the next twelve months we'll have good times financially, or bad times, or what? (good times/uncertain/bad times)

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[1] Information regarding the Michigan survey is available at their web site: [http://www.sca.isr.umich.edu/]. The latest release of the Conference Board index is available at their web site: [http://www.conference-board.com/].

- Looking ahead, which would you say is more likely – that in the country as a whole we'll have continuous good times during the next five years or so, or that we will have periods of widespread unemployment or depression, or what? (good times/uncertain/bad times)
- About the big things people buy for their homes – such as furniture, a refrigerator, stove, television, and things like that. Generally speaking, do you think now is a good or bad time for people to buy major household items? (good time to buy/uncertain, depends/bad time to buy)

The responses to these questions are converted into index numbers by subtracting the proportion of negative responses from the proportion of positive responses and adding that to 100. The index is then expressed relative to its value in a base year, which is set equal to 100. The current base year for the Michigan consumer sentiment index is 1966 (1966=100), so that the index for any given period expresses consumer attitudes relative to what they were in 1966. Like any index, it is not measured in any specific units, but rather indicates only the extent to which measured consumer sentiment is rising or falling over time.

The Surveys of Consumers program at the University of Michigan estimates that the index of consumer sentiment has a 95% confidence interval of plus or minus 3.3 index points. That means that, given the way the sample is constructed, the estimate is within 3.3 index points of its true value for the entire population represented by the sample. The 95% confidence interval for month-to-month changes in the index is ±4.8 points. In other words, for a change in the index to be considered statistically significant, it must be greater than 4.8 index points.[2]

The Conference Board Survey. The Conference Board index of consumer confidence is based on the answers to the following five questions:

- How would you rate the present general business conditions in your area? (good/normal/bad)
- Six months from now, do you think business conditions in your area will be (better/same/worse)?
- What would you say about available jobs in your area right now? (plentiful/not so many/hard to get)
- Six months from now, do you think there will be [more/same/fewer] jobs in your area?
- How would you guess your total family income to be six months from now? (higher/same/lower)

The calculation of the Conference Board index of consumer confidence differs somewhat from the Michigan index. The Conference Board index is calculated by dividing the percentage of positive responses by the sum of the positive and negative

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[2] Richard T. Curtin, "Surveys of Consumers: Theory, Methods, and Interpretation," University of Michigan Survey Research Center, Sept. 30, 2002, 7 pp.

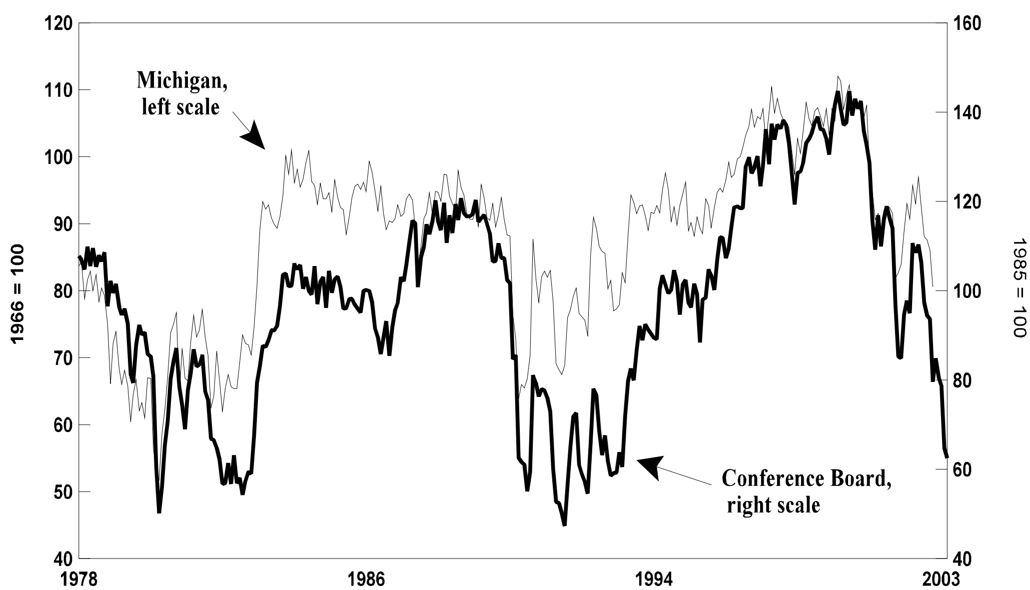
response percentages. The result for a given period is then expressed relative to its value in the base year, which is 1985 (1985=100).

The two indexes are not directly comparable. For one thing they do not measure exactly the same thing. The index levels are also different because they have different base years. Because they are calculated differently, month-to-month changes are not directly comparable. For a given change in consumer attitudes the Conference Board index will tend to change more than will the Michigan index.

Historical Comparison

Given the nature of these indicators, there is no long-term trend in either series. Figure shows both indexes since 1978. While the two indexes may differ with respect to the magnitude of changes in consumer attitudes, they do not seem to disagree, for the most part, as to whether consumers are becoming more or less sanguine about the economy.

Figure 1. Consumer Attitude Indexes



Sources: Conference Board; University of Michigan Survey Research Center.

Given the subjective nature of responses to these surveys, it may be unwise to read too much into comparisons of index levels over long intervals. If, for example, the population has become more sophisticated with regard to economic matters, it may be that, at different points in time, similar economic conditions yield different survey responses.

In both surveys, two of the five questions relate to current economic conditions and three relate to economic prospects. Of the three questions related to economic prospects it is unclear what information consumers take into account in forming their views. It is likely that consumer attitudes about both current conditions and prospects are influenced by other economic indicators such as unemployment or interest rates.

Consumer Attitudes and the Economy: What is the Connection?

Given the attention paid to each release of these consumer attitude indexes, it seems to be presumed that they are economically significant. But if these indexes do provide useful information about the economic outlook, what is the connection?

The reason these indexes were developed is that it was believed that consumer spending was in some part dependent on consumer attitudes. In particular, it was believed that spending on "discretionary" items depended on income and job prospects. It is unclear, however, how consumer attitudes influence spending decisions. Without some theoretical connection between consumer attitudes and actual economic events, any correlation between these indexes and economic growth might be dismissed as coincidental.

The basic economic model used to explain consumer behavior relies on the assumption that individuals seek to avoid substantial variations in their living standard over the course of their lifetime. In other words, it is assumed that, in order to insulate consumption from fluctuations in income, individuals prefer to vary their saving rate. Thus, early in their careers they will tend to be relatively low savers and consume most of, if not more than, their income. Peak earning years will tend to be years of relatively high saving rates, and in retirement saving will decline again.

If that simple model is correct, it provides little basis for expecting variations in consumer attitudes to anticipate changes in consumption spending. But it may be that not everyone behaves in this way. It has been suggested, for example, that those who are unable to borrow against future income and who desire to consume more than their income, will tend to vary their consumption directly in response to variations in income. If changes in overall consumer attitudes anticipate variations in income, they will also tend to anticipate variations in the consumption spending of this group.[3]

There is another explanation for why changes in consumer attitudes might foretell variations in consumption spending. In addition to using saving to insulate consumption levels from expected lifetime variations in income, some saving may be motivated by uncertainty. This is usually referred to as precautionary saving. Households that save in anticipation of the unexpected might be prompted to save

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[3] Christopher D. Carroll, Jeffrey C. Fuhrer, and David Wilcox, "Does Consumer Sentiment Forecast Household Spending? If So, Why?," *The American Economic Review*, Dec. 1994, pp. 1397-1408.

more in times of declining consumer confidence. In this way a decline in consumer confidence might be associated with an increase in precautionary saving and a slowdown in consumer spending.

Changes in consumer attitudes might be expected to affect some types of consumer spending more than others. For example, spending on those goods and services often considered to be "necessities" might be less likely to change in response to the shifting moods of consumers. Discretionary spending is believed to be more sensitive to shifts in consumer atitudes.

For the most part, the indexes are taken at face value as just one of many indicators available to analysts. It is unclear, however, what influences the attitudes measured by these surveys. If consumer attitudes simply reflect other economic indicators reported in the media, then it is unlikely that consumer attitude indexes would yield any information not already inherent in those statistics. Economic forecasts by both government agencies as well as private concerns are also widely reported. Consumer attitudes may be influenced by these forecasts and thus reflect what more sophisticated observers already believe they know about the economic outlook.

Are the Indexes Meaningful?

While the attention devoted to the release of these indexes suggests that they are of considerable importance, any real value they may have depends on whether or not they contain any useful information not inherent in other objective indicators. Their significance depends on how much of a contribution they make to forecasts of the economy. Even if these indexes can make some contribution to economic forecasts, their usefulness may be limited to the very short run. It seems unlikely that consumer attitudes could be useful in forecasting more than a few quarters into the future. Beyond that time horizon, forecasters must make assumptions about what consumer attitudes are likely to be, a difficult task given the limited understanding of the factors that influence those attitudes.

A number of studies have tried to measure any possible contribution of consumer attitude indexes to forecasts of the economy. In some cases, the direct relationship between consumer confidence and various measures of consumer spending was examined. Other studies looked to see if consumer confidence contributed anything new to equations which explained variations in consumer spending using a number of other economic variables.

Many economic models rely on an equation which explains current consumer spending using consumer spending in previous periods, as well as wealth and income.[4] Using previous values of consumer spending accounts for the assumption that consumers try to avoid substantial ups and downs in their living standards. Wealth is included because any change in wealth that is perceived to be permanent is likely to affect consumer spending. Income is included to account for those who are not able to borrow or save and do not fit the typical life-cycle consumer. Some models also include an interest rate variable.

Empirical studies.

A study done by Carrol, Fuhrer and Wilcox, attempted to test whether or not changes in consumer sentiment forecasted changes in consumer spending.[5] The study found that, by itself, lagged values of consumer sentiment could explain about 14% of variations in real personal consumption expenditures. But, there is less evidence that the sentiment index reveals information not inherent in other economic indicators. When added to an equation relying on other economic variables[6] the sentiment index explained only an additional 3% of variations in consumer spending.

Carroll, et. al., also cast doubt on some of the theories that have been advanced regarding the connection between consumer attitudes and economic performance. They point out, for example, that an increase in uncertainty may prompt a contemporaneous increase in precautionary saving, and thus a drop in consumption spending. But, that does not necessarily imply a drop in future growth *rates* of consumption spending, just a lower *level* of consumption. If consumer sentiment measures uncertainty, then a drop in the sentiment index might indicate a simultaneous drop in consumption growth but a subsequent recovery.

In a study published by the Federal Reserve Bank of New York, Bram and Ludvigson estimate a number of equations in order to forecast consumer spending.[7] Separate equations are specified for total consumer spending as well as for selected categories such as spending on motor vehicles, durable goods and services. The authors then added measures of consumer attitudes to the equations to see if they improved the equation's forecasts.

Curiously, the authors found that adding the Michigan sentiment index did not improve the equations' ability to forecast total consumer spending, but that adding

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[4] See, for example: Board of Governors of the Federal Reserve System, *A Guide to FRB/US: A Macroeconomic Model of the United States*, Oct. 1996, 45 pp.

[5] Christopher D. Caroll, Jeffrey C. Fuhrer, and David W. Wilcox, "Does Consumer Sentiment Forecast Household Spending? If So, Why?," *The American Economic Review*, Dec. 1994, pp. 1397 - 1408.

[6] Namely, labor income, the unemployment rate, the 3-month Treasury bill rate, and the S&P 500 stock price index.

[7] Jason Bram and Sydney Ludvigson, "Does Consumer Confidence Forecast Household Expenditure?: A Sentiment Index Horse Race ," Federal Reserve Bank of New York *Policy Review*, June 1998, pp. 59-78.

the Conference Board confidence index did. Specifically, adding data on four successive quarters of consumer confidence explained an additional 9% of the next quarter's variation in total consumer spending. Of the other categories, the improvement was slightly less except for durable goods less motor vehicles in which case the addition of the confidence index explained an additional 15% of the variation in spending. The authors suggest that the difference between the two indexes is due to the differences in the questions they ask. They also indicate that it is unclear whether or not the attitudes revealed by the surveys are simply predicting future economic growth or are actually the reason for it.

In a study published by the Brookings Institution, Howrey examined how well the sentiment index predicted future changes in consumer spending as well as whether or not the index could be used to predict business cycle turning points, the beginnings and endings of expansions and contractions.[8]

Howrey found that there was a statistically significant relationship between monthly variations in consumer sentiment and future variations in the growth rate of consumer expenditures. But, while the relationship was significant, there was so much instability in the correlation as to make it difficult to draw much useful information from any single observation.

Howrey also found that the sentiment index, both on its own, and in conjunction with other economic indicators was a significant indicator of the likelihood of an economic recession within the next one to four quarters. The other indicators were: the Conference Board's index of leading indicators, the difference between long- and short-term interest rates, and the New York Stock Exchange composite price index.

A paper by Souleles, published by the National Bureau of Economic Research, examined the usefulness of the consumer sentiment index in forecasting expenditures.[9] Interestingly, Souleles points out that each respondent to the Michigan survey gets an equal weight in the overall sentiment index, but that they do not each account for an equal share of consumption spending. Thus, respondents who spend less than average receive a greater weight in the index than might be appropriate, and those who spend more than average are under represented in the index. That could result in a bias in the index, depending on how these two groups' attitudes differ.

Souleles found that consumer sentiment was useful in forecasting consumer expenditures, even in conjunction with a number of other economic variables.

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[8] E. Philip Howrey, "The Predictive Power of the Index of Consumer Sentiment," *Brookings Papers on Economic Activity*, 2001:1, pp. 175 - 216.

[9] Nicholas S. Souleles, "Consumer Sentiment: Its Rationality and Usefulness in Forecasting Expenditure – Evidence From the Michigan Micro Data," National Bureau of Economic Research Working Paper Series, Working Paper 8410, Aug. 2001, 38 pp.

Examining cross sections of the survey data, he also found that sentiment was not heterogeneous but rather that certain demographic groups exhibited different tendencies. For example, high-income households tended to underestimate future economic growth, and low-income households tended to overestimate it. In the aggregate, relatively high levels of confidence tended to be associated with lower saving rates, and vice versa, suggesting that variations in precautionary saving had a lot to do with the effects of changes in consumer sentiment on spending.

Although it remains unclear what determines consumer attitudes, a paper published by the Board of Governors of the Federal Reserve Board looked to see if the ups and downs of the stock market had any effects on either the Michigan or the Conference Board indexes.[10] There are two reasons why stock prices might be expected to influence consumer attitudes. First, there is the direct wealth effect. If an increase in stock prices is higher or lower than was expected, the effects on household wealth might be reflected in consumer attitudes. Second, stock prices are widely understood to be a leading indicator of economic activity. It might be that households are simply taking their cue from variations in stock prices. If, for example, they see rising stock prices as a leading indicator of rising income, that might tempt them to increase spending.

In the Fed study, Otoo found that the sentiment of households that did not own stock responded in much the same way to changes in stock prices as did the sentiment of households that did own stock. That suggests that consumers tend to view stock price movements as a leading indicator of economic conditions.

Conclusions

Measures of consumer attitudes get considerable media attention with each new monthly release. Is that attention warranted?

While, intuitively, it makes sense that consumer attitudes would affect spending decisions, there remains uncertainly regarding the theoretical connection between the attitude indexes and spending. That makes it difficult to interpret individual observations, and short-run variations in the indexes.

These indicators are not, apparently, insignificant. On their own and in concert with other economic variables they have been shown to contribute to forecasts of future consumer spending and hence of overall economic growth. But their contribution may be somewhat more modest than the attention they get would suggest.

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[10] Maria Ward Otoo, "Consumer Sentiment and the Stock Market," Board of Governors of the Federal Reserve System, Nov. 1999, 19 pp.

It is also unclear what factors consumers consider in assessing economic conditions and prospects. Measures of consumer attitudes do seem to be a source of useful information above and beyond what is inherent in other variables such as income and interest rates. But, given the number of important factors that affect consumer spending, looking at measures of consumer attitudes alone and apart from other economic events might give a misleading impression