

Federal Reserve Bank of Cleveland

The Curiously Different Inflation Perspectives of Men and Women

by Michael F. Bryan and Guhan Venkatu

The public's expectation of inflation is the linchpin between any monetary decision and its inflation-adjusted, or "real" payoff, and therefore is of great interest to economists and economic policymakers. However, neither academics nor policy officials seem to pay much attention to direct measures of the public's inflation expectations—survey data. This is probably because people's predictions about price increases appear, on average, systematically wide of the mark. In fact, over the period of relatively stable inflation since 1990, survey data suggest that the average inflation expectation of U.S. households has been well in excess of the official inflation estimates.¹

Over the past few years, the Federal Reserve Bank of Cleveland, with assistance from the Ohio State University, has studied household inflation perceptions and expectations using a monthly survey of approximately 500 Ohioans (the *FRBC/OSU Inflation Psychology Survey*). This survey, which records respondents' perceptions of price changes over the past 12 months as well as their expectations for price changes over the next 12 months, has uncovered a surprising result. The data indicate that the public's estimates and predictions of inflation are significantly and systematically related to the demographic characteristics of the respondents. People with high incomes perceive and anticipate much less inflation than people with low incomes, married people less than singles, whites less than nonwhites, and middle-aged people less than young people.² This *Commentary* describes what is perhaps the most curious observation of all: Even after we hold constant income, age, education, race, and marital status, men and women hold very different views on the rate at which prices are changing.

■ He Said, She Said

In the roughly 20,000 responses we have received from our telephone survey since

August 1998, the average rate at which respondents thought prices had risen over the previous 12 months was about 6.0 percent. This "perception" of inflation is more than twice the rise recorded by the Consumer Price Index (CPI) over the same period (2.7 percent). Further, if we separate our sample by gender, we find that the average inflation perceived by the nearly 8,500 men who answered our survey was 4.6 percent. While this response is higher than the official CPI inflation estimate, it pales in comparison to the 6.9 percent inflation perceived by the roughly 11,500 women who took our survey. What accounts for such a large discrepancy between the inflation rate perceived by the two sexes?

We can attribute some of the large gap between men and women to characteristics other than their gender. In a random sample of households, men tend to have higher education levels and earn a higher income, both of which are also associated with how one perceives and predicts inflation. But statistical tests reveal that even after we adjust for the respondents' age, race, education, and income, women in our survey tended to think inflation was 1.9 percentage points higher than men.³ A similar examination of respondents' *predictions* of future inflation yields the same basic result: After we account for other major demographic factors, on average, women expected prices to rise 2.1 percentage points more than men.

Consider also table 1(a), which shows the inflation perceptions and expectations of white, working-aged persons (25 to 64 years) by income quintile, marital status, and gender. Note that across all of these demographically consistent groups, women hold a higher inflation perception and expectation than men.

This finding is not unique to the period over which our survey has existed.

That men and women occasionally see things differently is not a remarkable observation. But that the sexes could report vastly different perspectives on the rate at which prices are rising over a long period of time is astonishing. This *Commentary* describes the difference in inflation sentiment held by men and women—a puzzle that may hold the key to interpreting survey-based data on household inflation expectations.

An examination of survey data collected by the University of Michigan (which has recorded the inflation forecasts of U.S. households on a monthly basis since 1978) reveals that women consistently hold higher inflation expectations than men, even after we hold constant other important demographic characteristics of the respondent. The details of this examination are reported in table 1(b). Demographically consistent inflation expectations for men and women over time are shown in figure 1.⁴

These results raise a very provocative question. How can men and women who are the same in virtually all other demographic respects maintain such *persistently* different views about the past and future behavior of prices? We believe the answer to this question holds the key to understanding the apparent "irrationality" that arises when surveys of inflation expectations are compared with the officially reported inflation statistics.

■ Perceptions, Expectations, and Shopping Habits

One explanation we commonly hear is that women are responsible for a disproportionate share of the shopping, and therefore are in a better position to evaluate and predict price behavior.

But this argument is unconvincing on its face. While someone with more shopping experience may have more accurate perceptions of price behavior, there is no obvious reason why they would be systematically higher or lower than those who do less shopping. Moreover, if we consider more carefully the data in table 1, we see that large differences in inflation sentiment also exist between single men and single women.

It has also been suggested that women and men have different shopping experiences because they buy different bundles of goods. In 1981, Swedish economist Lars Jonung, using 1977 survey data from households in Sweden, also reported that women held higher inflation perceptions than did men. The author concluded:

With respect to the perceived rate [of inflation], the major difference was found between men and women [1.7 percentage points]. ... This pattern—which holds throughout all groupings of men and women according to age, household income, number of children and place of living—is most easily explained by a larger rise in food prices than in the consumer price level. ... As women are responsible for the major share of the food purchases within Swedish households, they are more exposed to movements in food prices than men. Consequently, the inflation rates perceived by women should be more strongly influenced by food prices than the rates perceived by men. The difference between men and women apparently indicates that perceived rates are influenced by individual expenditure patterns.⁵

But this explanation no longer seems reasonable in light of our research. Note that the difference between men and women observed in Sweden nearly 25 years ago, 1.7 percentage points, is nearly identical to what we find for Ohioans today. And yet over our sample period, food prices tended to rise slightly less than the prices of other goods (in the past three years, the annualized percent change in food prices was 2.5 percent compared to 2.6 percent for all items in the CPI).

In a related set of experiments, we explored whether men and women perceive price changes for the same commodities differently. In the June and July 2000 FRBC/OSU surveys, we asked respondents about their perceptions of price increases for specific sets of commodities—groceries, clothing, and gasoline. Table 2 compares the perceived

TABLE 1 INFLATION PERCEPTIONS AND EXPECTATIONS FOR WHITE, WORKING-AGED RESPONDENTS BY INCOME, GENDER, AND MARITAL STATUS

A. FRB/OSU Inflation Survey, August 1998–November 2001

Income ^a	Married			Single		
	Females	Males	Difference	Females	Males	Difference
	Low income	10.3	7.5	2.8	9.3	6.8
Low-middle income	9.5	6.6	2.9	7.2	5.7	1.5
Middle income	7.0	5.0	2.0	5.3	4.3	1.0
High-middle income	5.6	3.8	1.8	5.1	3.6	1.5
High income	4.5	3.2	1.3	5.5	4.6	0.9

Expectations (percent)

Income ^a	Married			Single		
	Females	Males	Difference	Females	Males	Difference
	Low income	9.0	6.4	2.6	9.2	6.5
Low-middle income	8.5	5.0	3.5	6.8	4.2	2.6
Middle income	6.7	4.1	2.6	5.3	3.6	1.7
High-middle income	5.4	3.3	2.1	4.8	3.4	1.4
High income	4.4	3.0	1.4	5.1	4.5	0.6

B. University of Michigan, Survey of Consumers, June 1986–December 1999

Expectations (percent)

Income ^a	Married			Single		
	Females	Males	Difference	Females	Males	Difference
	Low income	5.9	4.0	1.9	5.0	3.8
Low-middle income	5.0	3.5	1.5	4.2	3.5	0.7
Middle income	4.3	3.3	1.0	3.8	3.1	0.7
High-middle income	4.0	3.1	0.9	3.5	3.2	0.3
High income	3.5	2.9	0.6	3.7	3.1	0.6

a. Categories represent income quintiles.

12-month price increases for these items against the actual increases recorded for these components in the CPI.

The survey data indicate that Ohioans perceived higher price changes for these particular commodities than the actual price increases recorded for these goods by the CPI. Further, the magnitude of this “overestimate” is of roughly the same magnitude as their “overestimate” of total price increases relative to the overall CPI. Over the period in question, survey respondents thought gasoline prices rose about 3.6 percentage points more than they rose in the CPI. For groceries, respondents said prices increased 3.3 percentage points more than posted by the CPI.⁶ And while the survey data show a perceived 4.0 percent increase in apparel prices, the CPI posted a 2.1 percent decline for this component, making the respondents’ perceptions an overestimate of 6.1 percentage points when compared against the official data.

Not only were survey responses somewhat high compared to the increases as measured in the CPI, women’s responses were systematically higher for grocery and apparel goods than the men’s. Specifically, women perceived grocery and apparel goods as rising 1.3 and

2.2 percentage points higher than men, respectively. However, men saw gasoline prices as rising 3.6 percentage points more than women.

One conclusion from this set of experiments is that the large gap between public perceptions and CPI measures of inflation is probably caused by something other than a difference in the market basket people have in mind compared to what the CPI is tracking. Moreover, the large difference in opinion about price changes between men and women is not obviously a result of the fact that men and women may have different shopping habits or purchase different bundles of goods.

Men, Women, and the Consumer Price Index

Does the public have a poorly formed understanding of aggregate price behavior, or do people believe their inflation experience is somehow different than that recorded by the government statistics? In the August 2001 FRBC/OSU survey, we sought an answer to this question by asking, “Have you heard of the Consumer Price Index (CPI) before?” and “By about what percentage do you think the CPI went up (or down), on average, over the last 12 months?”

TABLE 2 PERCEIVED PRICE CHANGES FOR SELECTED COMMODITIES

“By about what percent do you believe the prices for the following goods rose (fell) during the past 12 months?”

	All Respondents	Men	Women	CPI increase (percent)
Groceries	5.7	4.9	6.2	2.4
Gasoline	40.2	42.3	38.7	36.6
Clothing	4.0	2.7	4.9	-2.1

SOURCE: Federal Reserve Bank of Cleveland and the Ohio State University, *FRBC/OSU Inflation Psychology Survey*, June and July 2000.

TABLE 3 SURVEY RESPONDENTS’ FAMILIARITY WITH THE CPI

“Have you heard of the Consumer Price Index before?”

	Yes		No	
	Number	Percent	Number	Percent
Men	138	75.0	46	25.0
Women	186	60.8	120	39.2

“By about what percent do you think the Consumer Price Index went up (down), on average, during the last 12 months?”^a

	Percent	Sample Size
Men	2.8	111
Women	3.1	125

“By about what percent do you think prices went up (down), on average, during the last 12 months?”^a

	Percent	Sample Size
Men	6.0	101
Women	7.4	113

a. Sample restricted to respondents who reported having heard of the CPI.

SOURCE: Federal Reserve Bank of Cleveland and the Ohio State University, *FRBC/OSU Inflation Psychology Survey*, August 2001.

did women (6.0 percent vs. 7.4 percent). In other words, the public believes that prices are rising more than the CPI reports, and women more so than men.

What we learn from this experiment is that ignorance of the CPI is not the cause of the large gap between survey responses on inflation expectations and the officially reported inflation rate. Furthermore, *relative* ignorance of the CPI does not explain why women perceive inflation much differently than men. Unfortunately, these experiments also fail to reveal what the source of these differences is.

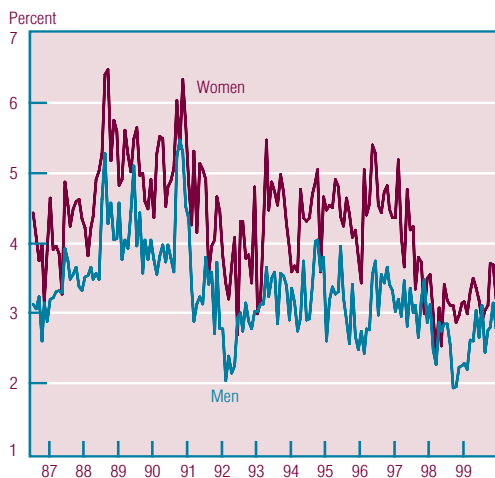
Men Are from Mars, Women Are from Venus?

One of the most intriguing findings in our investigation into the inflation sentiment of Ohio households is the large difference in inflation perceptions between men and women. This difference appears to be robust to respondents’ age, income, education, race, and marital status and is not obviously attributable to any particular set of prices.

Which perception is “right” is not a useful question at this point. It may very well be that both are right—or both are in error. Since we do not yet fully understand how people are interpreting survey questions on inflation, we cannot know what benchmark their responses should be judged against. Perhaps survey participants are not answering the question we think they are. When people answer the question “by what percentage have prices increased or decreased over the past 12 months?” they may be mixing their growth in expenditure with simple price growth. For example, officially reported statistics like the CPI are adjusted for quality changes in a way that people are unlikely to take into account when giving their responses (although it is hard to imagine that the quality of goods routinely purchased by women persistently rises by more than that of those purchased by men). Similarly, if what a respondent reports as rising prices also includes growth in his or her total spending, respondents who are increasing their share of total national expenditure (as women have over the past several decades) would tend to report higher “price” changes relative to others.

Perhaps. But at this point, all we can say with any confidence is that it does not appear that women have a higher perception of inflation than men because of the things they buy, the frequency of their shopping, or their knowledge of officially reported

FIGURE 1 DEMOGRAPHICALLY CONSISTENT YEAR-AHEAD INFLATION EXPECTATIONS BY GENDER^a



a. Computed as a consistent, expenditure-weighted average. Expenditure weights are based on the 1992–93 *Consumer Expenditure Survey* by marital status (married, single) and family income (less than \$20,000, \$20,000–\$30,000, \$30,000–\$40,000, and more than \$40,000). **SOURCES:** University of Michigan, *Survey of Consumers*; and authors’ calculations.

The responses to these questions are reported in table 3. A significantly higher proportion of men had heard of the CPI compared to women (75 percent versus 61 percent, respectively). For those who had heard of the CPI, the average perception about how much it had risen over the past 12 months was surprisingly accurate—a perceived increase of 2.9 percent compared to an actual increase of 2.7 percent. It is also very interesting that men and women perceived the CPI’s growth rate nearly identically (2.8 percent versus 3.1 percent, respectively.) However, of those who knew of the CPI, the average perception of price increases was 6.7 percent. And even within the subgroup of respondents who knew of the CPI, men had a significantly lower perception of price increases than

statistics. None of these factors appears to be large enough to account for the differences between men and women that we observe. And so the puzzle remains. Why are the inflation perceptions and expectations of women almost always higher than those of their male counterparts? This is a question we think will likely make for provocative conversation in academic circles—as well as around the dinner table. And the answer, we think, holds the key to understanding how survey data can be used to measure in the public's inflation expectations.

■ Footnotes

1. From January 1989 to November 2000, the average inflation expectation as reported by the University of Michigan's *Survey of Consumers* was 4.0 percent, compared to a 3.0 percent increase realized in the CPI (January 1990–November 2001).

2. An overview of these results can be found in Michael F. Bryan and Guhan Venkatu, "The Demographics of Inflation Opinion Surveys," Federal Reserve Bank of Cleveland, *Economic Commentary*, October 15, 2001.

3. This result comes from regressing inflation perceptions from the FRBC/OSU survey against dummy variables corresponding to the demographic characteristics of the respondent.

4. In order to have a consistent measure of income, the University of Michigan survey sample was truncated at 1986.

5. Lars Jonung, "Perceived and Expected Rates of Inflation in Sweden," *American Economic Review*, vol. 71, no. 5 (December 1981), pp. 961–68. A similar finding is in Lars Jonung and David E. Laidler, "Are Perceptions of Inflation Rational? Some Evidence for Sweden," *American Economic Review*, vol. 78, no. 5 (December 1988), pp. 1080–7.

6. Groceries are defined as the "food at home" category in the CPI.

Michael F. Bryan is a vice president and economist at the Federal Reserve Bank of Cleveland, and Guhan Venkatu is a research analyst at the Bank. The authors thank Dean Croushore, Lucia Dunn, and Dennis Fixler for their comments on an earlier draft of this Commentary. The authors also gratefully acknowledge Richard Curtin at the University of Michigan's Survey Research Center for supplying data used in this study.

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