

June 15, 2007

## What U.S. Consumers Know About Economic Conditions<sup>1</sup>

Richard Curtin  
University of Michigan

**Πάντες άνθρωποι του ειδέναι ορέγονται φύσει.** Aristotle  
(All men by nature desire knowledge.)

### Introduction

The natural inquisitiveness of people was noted long ago when Aristotle began his book *Metaphysics* by saying “All men by nature desire knowledge.” The acquisition of information about economic conditions has been a common facet of life since the dawn of civilization. Even before governments devised economic accounts, people utilized information about economic conditions in their decisions about bartering and trade, buying and selling, borrowing and lending, and many other economic decisions. Simply because it was not measured by an official statistical agency of the state, there is no reason to doubt that people sought out such information.

In those earlier times, however, there was no reason to expect all people would arrive at the same estimate of relative prices or the same rate of economic growth. Information was scarce, costly to obtain and process, and there were no accepted paradigms to interpret the data. The significant innovations of national income and product accounts, including data on conditions in labor and product markets, reduced the cost of economic information and increased its quality and timeliness.<sup>2</sup> Information on economic conditions is often viewed as nearly costless to obtain since people are constantly exposed to official government statistics by the mass media. Indeed, it is argued that exposure is now so complete that people would have to actively ignore the available information to be unaware of economic data. Unlike in earlier times, there is reason to believe that everyone would now be fully aware of the official data on the key indicators of the performance of the national economy.

Unfortunately, that is not the case. Nearly every profession has been disappointed with the amount of knowledge ordinary citizens possess, whether they are political scientists, physicians, mathematicians, physicists, or economists. It is an all too frequent occurrence that some survey finds that a surprisingly high proportion of people could not name their representative in the legislature (Delli Carpini and Keeter, 1996), have accurate knowledge about common medical conditions (Lucas, 1987), correctly know about planetary orbits (Lucas, 1988), how to do rather simple arithmetic operations (OECD, 2006), or the current rate of inflation or unemployment (Blendon, et al. 1997; Blinder and Krueger, 2004).

---

<sup>1</sup>E-mail correspondence to Curtin@umich.edu. Thanks to Philippe Blum and Alex Mirkin for excellent research assistance.

<sup>2</sup>National income accounts are a relatively recent innovation, with the first accounts published by William Petty in 1665, and modern national income accounts were devised by Simon Kuznets and others in the first half of the twentieth century (Vanoli, 2005).

How can the often widespread lack of knowledge be reconciled with Aristotle's view that people naturally desire knowledge? Or was Aristotle simply wrong? Plato was skeptical about our ability to know the absolute truth, and suggested that people can only dimly perceive the truth from its shadows. Policy makers may find Plato's allegory compelling, as they often feel trapped in a cave making decisions based on shadows of truths that last only as long as the next data revision. The implications of Plato's views cut more deeply, however.

The assumption that people utilize official sources of economic information reflects the widespread tendency toward the reification of economic data—that is, treating conceptual measures as if they had a concrete existence.<sup>3</sup> It should be no surprise that few people think in terms of GDP in chained 2000 dollars, or even know what that concept signifies. It does not follow, however, that people do not actively seek and use information about the performance of the national economy in making their economic decisions. While economists justifiably have strong preferences for the measures that they have developed, it does not follow that all people should adopt that same set of indicators. Indeed, economic theory suggests that people adopt whatever measures prove most useful, considering both the costs of obtaining the information and the benefits that can be reaped by their more informed decisions.

For most consumers, the most relevant information is about their specific situation. In contrast, the concepts of Gross Domestic Product, the Consumer Price Index, and the unemployment rate, for example, were devised as appropriate measures of conditions in the macro economy. Rather than macro data, people's decisions are typically based on a different information set, namely the strength of the local economy, the change in the prices they actually face, and job prospects for people with their same skills and abilities. Of course, when aggregated across all communities and people, the data would approximate the national averages that economists favor.

Moreover, the validity and usefulness of people's knowledge about the performance of the economy does not depend on a direct translation of the economist's definition into survey questions, but on the ability of the resulting measure to accurately reflect the underlying economic concept. This is more than simply rephrasing questions to use "population language" or decomposing complex economic variables into more manageable measurement objectives; it also means constructing questions that are based on the same conceptual framework used by ordinary people in making their economic decisions.

This paper will document what people know about several key aspects of the economy based on survey data collected in the United States in April and May of 2007. The data suggest that most people do not know the exact figures contained in the official releases on the rate of unemployment, the rate of change in consumer prices, or the rate of growth in the overall economy. Importantly, these results are quite sensitive to the wording and framing of the questions used to measure people's economic knowledge. Moreover, unlike the assumptions of the standard economic model, a search of transcripts of television broadcasts and articles in newspapers could not confirm the universal dissemination of the regular releases of the official *rates* of unemployment, inflation, or economic growth. Media reports about the economy were more often qualitative rather than quantitative in content. As a result, the higher costs of acquiring economic information and the diminished benefits of *exact* figures compared with less precise information, means that

---

<sup>3</sup>No economist would suggest that the GDP figure represents the absolute truth, but would readily admit that it is an estimate of economic performance that is subject to conceptual and measurement errors. The same is true of all other measures, including the CPI and the unemployment rate. Given whatever conceptual or measurement errors are present, as long as these errors remain constant over short periods of time, monthly or quarterly changes in the measure can reliably gauge economic trends.

consumers exhibit “rational inattention” and stagger their updates over time. Finally, the data suggest that consumers do possess substantial amounts of information about the economy, but that information was based more on private rather than public information sources and was more likely to be tailored to their own decision needs.

## **Theoretical Framework**

The standard economic model has made several highly restrictive assumptions about people’s knowledge about economic conditions. The conventional view is that people have full information about all relevant economic conditions. This information set is then updated with each release of official information by governmental agencies. In this simple formulation, the costs of acquiring, processing, and interpreting new information are ignored, as are the variations in the potential benefits. The critical implication of these conventional assumptions is that all people are assumed to hold the same information about various aspects of the economy, and update that information at the same time from official sources. There is no information heterogeneity in the standard model.

Modern economic theory does not hold such strict views, however. There are two decisive departures from the standard model: first, rather than simultaneous, updating information occurs in a staggered pattern across individuals and over time, and second, the information that is relevant to people’s economic decisions differs across people and over time depending on the characteristics of their situation.

**Staggered Updating.** As long as there is any positive cost involved in collecting and processing information, some agents will choose to sometimes hold views that are less accurate. The terms “sticky information” or “rational inattention” have been used to describe the impact of costs on the formation process (Mankiw and Reis, 2002; Sims 2003; Bacchetta and Wincoop, 2005). These theories postulate that rational consumers may find the costs associated with updating their information on the economy to exceed the benefits. At any given time some people will find it worthwhile to incur the costs, especially if that information is critical to a pending decision. Most of the time, however, rational inattention is the optimal course. Alternatively, agents may base their economic views on imperfect information, which can be conceptualized as less costly than perfect information. Whatever the cause, the process creates staggered changes, whereby at any given time people’s views on economic conditions reflect a combination of current and past information.

Disagreement across people in their views of the economy at any given time is taken as an indication of such a process (Mankiw, Reis and Wolfers, 2004). Some have modeled the disagreements as the result of factors other than costs, such as an epidemiological process in which “expert opinion” spreads slowly through a population like the spread of a disease (Carroll, 2003). Costs can also be assumed to vary across demographic subgroups, as some encounter lower costs for acquiring and using information, and other more economically active subgroups derive greater benefits from updating their expectations more frequently. This interpretation of disagreements stands in contrast to the older and still more common interpretation that the very existence of differences across demographic subgroups indicate non-rational processes (Bryan and Venkatu, 2001; Souleles, 2001).

Staggered changes could be created by a wide range of processes that either encourage or discourage agents from updating their information about the economy. A common hypothesis for staggered updating holds that it is due to asymmetric responses to economic information, with agents updating their expectations

much more quickly in response to bad news about economic conditions. Akerloff, Dickens and Perry (2000) suggest that bad economic news is perceived by consumers to contain more potentially relevant information about their financial situation. The volume of news also matters, especially the volume of bad news, as well as news that represent a sharp and negative break from the past (Carroll, 2003). Sims (2003) shows that based on information theory the tone and volume of economic reporting affects people's overall views of the economy beyond the information contained in the reports.

The same staggered information flows have been hypothesized to result from uncertainty about the correct structural model of the economy. Since model uncertainty is costly to resolve, it results in less frequent updating (Branch, 2005). Although the data that indicates disagreement is similar to what could be expected to result from model uncertainty, these two concepts are distinct. More importantly, the prevalence of disagreement may be much more variable over time than uncertainty.

The models developed to capture the impact of staggered information are similar to consumption models that incorporate the division between "rule of thumb" and rational consumers. Mankiw and Reis (2003), Carroll (2003), Khan and Zhu (2006), and Curtin (2006) estimated that rather than continuously updating their expectations, most people update their expectations only a few times a year.

**Relevant information.** It is an artifact of the standard economic model that all agents are assumed to focus on the same definition of inflation, unemployment or economic growth. Nonetheless, it makes no economic sense to assume that people pay attention to an inflation rate that is higher or lower than the one they actually encounter.<sup>4</sup> Empirical research has confirmed a good deal of variance in actual inflation rates across different demographic groups (Hobijn and Lagokos, 2005; Hagemann, 1982; Michael 1979). Most of the differentials are based on the differential inflation rates for specific products or services, such as higher health care costs among the elderly, or in specific areas of the country, such as price differentials between rural and urban areas. While many of the price differentials do not persist over extended periods of time and people's circumstances change as they age, it is unreasonable to expect people would ignore these differences in prices. The same may be said for employment conditions, as people would naturally pay more attention to job opportunities that are relevant to their own skills and abilities. The national unemployment rate may be quite meaningless to workers living in areas or working in an industry that has a distinctly different outlook for employment, whether it was better or worse than the national average.

While relevant information about prices and employment conditions are in principle available from the state statistical agencies, the cost to acquire and process this information is significantly higher. The cost to acquire and process private information, however, may be significantly lower and the potential benefit of that information may be significantly higher, leading people to prefer private over official data sources (Curtin, 2003).

### **Survey Methodology.**

Reliable and valid measures of what people know about economic conditions are subject to all of the problems usually associated with sample surveys. Aside from the more general issues of survey methodology, the crucial measurement issue involves judgements about the capacity of individuals to provide

---

<sup>4</sup>It may make some sense in the political arena if people base their voting choices on the official inflation or unemployment rate since their voting decision may place more weight on the national rather than the individual's interest.

meaningful responses. Questions about their knowledge of economic conditions can be phrased in a number of ways, each differing in the cognitive burden placed on respondents. 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.

This paper takes three approaches to the measurement of people's economic knowledge. The first set of questions asked about the respondents knowledge of the official rates of unemployment, inflation, and economic growth. This set of questions specifically included an instruction that if the respondent had no information about the measure, they should simply tell the interviewer that they wanted to skip the question. These questions, however, did include a statement that it was important for the respondent to share whatever information they did know about the topic. The purpose was to identify people who had any information on the topic and would willingly undertake the cognitive burden of answering the questions. This group was expected to be the most knowledgeable about the official economic statistics.

The second set of questions were identical in every way to the first set with the only difference being that the questions did not tell respondents that they could opt-out or skip the questions if they chose. Respondents would need to volunteer that they did not know the information. These questions were designed to encourage all people to undertake the cognitive burdens of providing an answer.

After the first two sets of questions, everyone who replied they did not know the official rates of unemployment, inflation, or economic growth were asked if they had ever heard of the official measures. For an economist, it was hard to imagine anyone who had not heard of the unemployment rate or the inflation rate. The hypothesis was that people had simply not heard of the most recently announced rate, which is consistent with the notion of rational inattention and staggered updating.

The third set of questions were quite different in that the questions did not refer to an official rate produced by some government agency but asked about the same underlying economic concept. These questions were part of the regular monitoring of consumer expectations and were asked before the questions on their knowledge of the official rates. Perhaps the most striking difference was that these questions were phrased in "population" language and avoided any mention of official rates, the government agencies responsible, or how the measure should be defined. These questions were designed to capture public as well as private information about the economic measures.

All of the questions were asked as part of the University of Michigan's Survey of Consumers, which are known worldwide for its measure of consumer sentiment. The monthly samples are representative of all households in the United States, with every adult given an equal probability of being selected for the interviews. The data were collected in April and May of 2007 and included 1,008 cases.

### **Knowledge of Official Data on the Economy**

The survey measured people's awareness of the official national unemployment rate, the Consumer Price Index (CPI), and the rate of growth in the Gross Domestic Product (GDP). Each question included three core elements: it defined the economic indicator, it identified the official governmental agency responsible for collecting the data, and asked for the most recently published figure. The wording of the questions were as follows:

*First, the Bureau of Labor Statistics counts people as unemployed if they are not currently working but have been actively looking for work during the prior four weeks. What was the most recent rate of unemployment published by this government agency?*

*Another economic indicator published by the Bureau of Labor Statistics is the Consumer Price Index, or the CPI. Compared with a year ago, what was the percentage change in overall prices as measured by the Consumer Price Index, or CPI, published by this government agency?*

*The Bureau of Economic Analysis regularly publishes data on the total amount of goods and services produced in the U.S. This figure is called the Gross Domestic Product and is often abbreviated as GDP. Compared to a year ago, what was the percentage change in the Gross Domestic Product, or GDP, published by this government agency?*

Note that the first question asked was expected to be the easiest to answer: the unemployment rate is widely discussed in the media and the percentage is not a rate of change but a simple proportion. In contrast, the CPI, while widely publicized, is always expressed as a rate of change, and that rate is variously published as a simple month-to-month change, an annualized month-to-month change, or a year-to-year change. This means that the information would typically require more processing and calculation before it is useable as an answer to this question. The final question was the most difficult since it concerns a quantity that does not directly impinge on people's economic lives like inflation or unemployment, giving them less incentive to track the measure; moreover, the figure is repeatedly revised, and variously reported as an annualized quarter-to-quarter change or annual change, and both are seasonally and inflation adjusted.

Some people may not have answered the questions because they may not have had specific knowledge of all three required elements. People may not have known how the rate they knew was defined, may have never heard of that particular federal agency, or may not have heard an announcement for some time. While each of these possibilities was not investigated, a followup to each question asked to everyone who did not know the official figures:

*Have you ever heard an announcement of the . . .*  
*... unemployment rate by the Bureau of Labor Statistics?*  
*... the Consumer Price Index, or CPI, by the Bureau of Labor Statistics?*  
*... the Gross Domestic Product, or GDP, by the Bureau of Economic Analysis?*

Respondents could have indicated that they had heard of the economic indicator, but just didn't know the current figure, and may have simply engaged in rational inattention. Given that inflation and unemployment are now relatively low, people's attention to the recent data may have been significantly reduced, and so engaged in staggered updating. With heightened salience, attention could quickly return—why people pay more attention to “bad” news in the media. While it could be expected that nearly everyone would have heard of all three indicators, a “no” answer could presumably mean either that they have not heard of the official indicator or that they did not know of the government agency, or both.

When respondents are faced with questions that require a high cognitive burden to answer, some respondents will simply say they don't know the answer when they simply do not want to exert the required effort to answer. Knowledge questions in general population surveys need special treatment given that asking the question could cause embarrassment and resentment and possibly cause the respondent to immediately end the interview. Typically, some effort is taken to diffuse the situation by framing the

questions in an appropriate context. More importantly, the survey wanted to isolate the most informed people who were willing to undertake the required cognitive burden. As a result, the introduction to the questions was:

*The next several questions are about the effectiveness of the mass media in communicating information from agencies of the federal government about the performance of the U.S. economy. If you do not have any information about one of these questions, please just say so, and I will go on to the next question. However, if you do not know the exact answer but just have a rough idea, it is important for you to tell me what you know.*

The second form of the questions, asked in an independent random sample, did not provide an easy opt-out. It encouraged everyone to respond, although volunteered “don’t know” answers were accepted. The introduction no longer told respondents that it was acceptable to skip the questions. This was done by deleting the sentence: “If you do not have any information about one of these questions, please just say so, and I will go on to the next question.” The second form was:

*The next several questions are about the effectiveness of the mass media in communicating information from agencies of the federal government about the performance of the U.S. economy. If you do not know the exact answer but just have a rough idea, it is important for you to tell me what you know.*

In the analysis included in this paper, this difference in the introductions to the (identical) knowledge questions will be referred to as the “opt-out” option; the opt-out version refers to the first set of questions, and is identified in the tables as the opt-out option; it equals “yes” when skipping the questions was specifically mentioned in the question, or “no” when there was no mention of skipping the question.

### **Reported Awareness of Official Economic Statistics**

The data indicate that one-third of all respondents reported that they knew the most recently published official rate of unemployment, one-in-five reported knowledge of the most recently published rate of change in the Consumer Price Index, and about one-in-six knew the most recently announced official rate of growth in the Gross National Product (see Table 1). What was an even more dismal assessment of the public’s knowledge of these official statistics was that one-fifth of all respondents reported that they had never heard of the official rate of unemployment published by the Bureau of Labor Statistics, one-third reported that they had never heard of the official change in the Consumer Price Index, and four-in-ten reported that they had never heard of the Gross Domestic Product reported by the Bureau of Economic Analysis. In between these extremes, just over four-in-ten respondents reported that they had heard of these official statistics but they did not know the most recently announced rate.

Based on the hypothesis of rational inattention, the results are not so dismal: more than three-in-four people knew of the official rate of unemployment, two-thirds knew about the CPI, and six-in-ten had heard about GDP. These estimates represent the maximum share of the population that could engage in rational inattention; in all likelihood the true proportion is much less.

To be sure, even fewer people reported that they knew the official rates when the opt-out option was

given to the respondent. About half as many respondents provided a “rate” answer when the opt-out option was given for the unemployment rate (26% versus 43%), the Consumer Price Index (13% versus 27%) and for the Gross Domestic Product (9% versus 23%). The data clearly indicate that people were quick to take advantage of the question skipping option.

The data generally confirmed that these differences were related to the cognitive burden of providing answers to these questions as well as people’s uncertainty about the governmental agency that published the official data. One would expect that the differences in responses of a specific “rate” would be mirrored by the differences in the proportions that had “never heard of the official rate” if the opt-out option was working as expected. Tests of this hypothesis showed that no significant differences were found for the questions on the CPI and GDP, but a significant difference was found for the question on the unemployment rate. The anomaly was that significantly more people reported that they had heard of the unemployment rate when given the opt-out option—a 9 percentage point difference. Overall, these results suggest that responses to such knowledge questions are very sensitive to the amount of both formal and informal encouragement given to respondents to provide answers.

**Table 1:**  
**People’s Knowledge of Official Measures of Economic Performance**

What is the official rate of . . .	Unemployment Rate			Consumer Price Index (CPI)			Gross Domestic Product (GDP)		
	All	Opt-out Option		All	Opt-out Option		All	Opt-out Option	
		Yes	No		Yes	No		Yes	No
Provided rate answer	34	26	43	20	13	27	17	9	23
Heard of, but didn’t know current rate	42	46	37	44	48	40	42	44	41
Never heard of official rate or agency	23	27	20	34	37	31	40	46	34
DK; NA	1	1	0	2	2	2	1	1	2
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Cases	1008	508	500	1008	508	500	1008	508	500
<b>Addendum (medians)</b>									
People’s reports of official rates $R_{it}$	4.8%	4.7%	4.9%	3.1%	3.1%	3.1%	3.8%	3.3%	4.1%
Median absolute percentage point error in people’s reports of official rates $ R_{it} - A_t $	0.57	0.54	0.59	1.20	0.81	1.40	1.49	0.96	1.77

The other critical information contained in Table 1 is the answers provided for the most recently announced rate of unemployment, inflation, or economic growth. For the question on the CPI, people reported an official rate of 3.1% whether the opt-out option was present or absent from the question. There was only a minor difference in the rate of unemployment, 4.7% with the opt-out option and 4.9% without. There was a larger difference in people’s responses about the most recent GDP announcement, although given how few people reported any knowledge of GDP, the difference was not significant.

Given that the survey was conducted over a two month period, there were two official

announcements for each statistic. Since the questions asked respondents for the most recent value of each statistic, it was assumed that people's answers would differ depending on the actual date of the interview (the interviews were spread rather evenly over the two months). It was assumed that respondents would become aware of the latest official statistic on the day it was released, so interviews conducted on the day after the official release would use the newly released number to determine the accuracy of the respondent's reports.

To assess errors in people's estimates, the absolute difference was calculated between what people reported ( $R_{it}$ ) and the official statistic ( $A_t$ ) in percentage points, so that both overestimates and underestimates are fairly treated. The median of the absolute differences ranged from one-half a percentage point to nearly two percentage points (see Table 1). In every case, the absolute errors were larger when respondents were not given the opt-out option, although for the question on the unemployment rate, the difference was quite small—just 0.05 percentage points.

The largest errors were for the question on GDP. For both the CPI and GDP, the percentages are rates of change, which makes these questions more difficult. Moreover, the official reports on GDP are variously stated as annualized quarterly rates of change or as year-to-year changes. These alternatives can complicate the message and depending on which version a person hears; it would require some calculation to convert to the form asked in the questionnaire. Although the question asked about year-on-year percentage changes, if people had these two rates confused, it would generally lead to less accurate reports since the annualized quarterly GDP growth rates were considerably smaller than the year-on-year percentage changes.

### **Demographic Correlates of People's Knowledge of Official Statistics**

It is of some interest to determine the demographic correlates of people's knowledge as they may indicate differences in costs or benefits of acquiring information. The most obvious variable to investigate for differences is the absolute error in people's perceptions of the official statistics. Given that so few people actually provided a numerical answer to that question, the analysis needs to be supplemented by investigation of those who reported that they knew of the statistic but didn't know the current rate, and an investigation of the demographic correlates of those that reported that they had never heard of the official statistics.

The complete distributions of responses by income, age, education, and sex are shown in Appendix Tables A1, A2, and A3. The tables include data for both versions of each of the three questions as well as for the total sample. The education of the respondent had the most consistent impact on whether the respondent reported knowledge of the unemployment rate, the CPI, or the annual change in GDP. For example, under the opt-out option, 36% of college graduates reported an unemployment rate compared with just 13% of those with a high school education or less (see Table A1). The gender of the respondent also had a significant impact, with females less likely to report a percentage rate when asked about each of the topics. There was little overall difference between age groups in terms of the proportions that provided specific rate answers.

**Specific Rate Answers.** Regressions were performed to determine the net impact of the demographic variables using two dependent variables: the proportion who reported a rate and the size of the absolute errors. The demographic characteristics included in the analysis were education, income, age, sex, and whether the respondent was given the opt-out option (see Table 2).

As expected, people who were offered the opt-out option were significantly less likely to report a

figure for any of the official rates. Perhaps more noteworthy was that the size of the absolute errors in people's estimates of the official rates did not significantly vary with the opt-out option. This means that although fewer people answered the question if given the opt-out option, errors in the estimated rates were not larger.<sup>5</sup> To be sure, when the option to skip the question was given to respondents it uniformly reduced errors among those who answered the question, consistent with the view that they were more informed respondents, but the reduction was not significant.

The capacity to handle the cognitive demands of the questions should have increased along with the formal education of respondents. Although high education did significantly increase the likelihood that respondents would provide a rate answer for each of the three statistics, high education only significantly reduced the size of the absolute errors on reports of the official unemployment rate but not for the CPI or GDP statistics.

The age of the respondent had a mixed impact. Older respondents were more likely to provide a rate when asked about unemployment, but less likely when asked about GDP. More importantly, the older the respondent, the smaller the size of the absolute errors on all three statistics. This is somewhat surprising since older respondents are more likely to have cognitive limitations; presumably, the experience that comes with older age dominated.

**Table 2:**  
**Demographic Determinants of Knowledge and Accuracy of People's Reports about Official Statistics**

	Unemployment Rate		Consumer Price Index		Gross Domestic Product	
	Rate Answer Given <sup>a</sup>	Absolute Error <sup>b</sup>  R <sub>it</sub> - A <sub>t</sub>	Rate Answer Given <sup>a</sup>	Absolute Error <sup>b</sup>  R <sub>it</sub> - A <sub>t</sub>	Rate Answer Given <sup>a</sup>	Absolute Error <sup>b</sup>  R <sub>it</sub> - A <sub>t</sub>
Opt-out given	-0.783*** (0.148)	-0.257 (0.352)	-0.922*** (0.175)	-1.308 (0.667)	-1.072*** (0.193)	-0.087 (0.872)
Income (log)	0.128 (0.096)	-0.308 (0.234)	0.188 (0.112)	-1.277** (0.414)	0.014 (0.119)	-0.338 (0.489)
Age in Years	0.125** (0.004)	-0.048*** (0.010)	-0.004 (0.005)	-0.053** (0.018)	-0.012* (0.005)	-0.047* (0.023)
Years of Education	0.188*** (0.038)	-0.242** (0.087)	0.104* (0.042)	-0.132 (0.139)	0.114* (0.046)	-0.313 (0.185)
Female	-0.889*** (0.149)	0.602 (0.358)	-0.851*** (0.173)	-0.502 (0.665)	-0.974*** (0.189)	2.035* (0.867)
R <sup>2</sup> adjusted	0.169	0.092	0.128	0.132	0.137	0.104
Cases	925	357	911	202	919	165

Note: <sup>a</sup>Logistic regressions on the proportion that provided a rate answer. <sup>b</sup>Least-square regressions on the absolute percentage point errors in people's reports of the official statistics indicated by column headings. Intercept included but not shown. Standard errors in parentheses. Significant levels: \* < .05, \*\* < .01, \*\*\* < .001.

<sup>5</sup>Regressions of the absolute errors on just the opt-out variable gave similar results: the opt-out question did not have a significant impact on the accuracy of reports of the unemployment rate or GDP, but had a marginal significant impact on reports of the CPI.

The income of the respondent's household had the least impact. Income only had significant impact on the size of errors on the CPI, with higher income associated with less error. The significant impact on CPI errors may reflect experience with a wider range of prices that usually accompanies higher incomes, whereas lower income households spend a much higher proportion of their incomes on food and energy, and these products have recently recorded higher rates of increase.

Finally, female respondents had a much lower likelihood of reporting any specific figure for each of the three statistics, but were not significantly less accurate for the unemployment and inflation rates. Females did record a much larger error in their reports of GDP, an error of 2 percentage points.

**Lack of knowledge about economic statistics.** Logistic regressions were performed to help sort out the impacts of the demographic variables when people professed to have no current knowledge of the official statistics and for those who reported that they had never heard of the official statistics (see Table 3). As anticipated, the results of the logistic regressions indicate that whenever the opt-out option was given it generally had a significant impact.<sup>6</sup> Significantly higher proportions of respondents who were given the opt-out option professed a lack of knowledge of the most recently published rate or had no knowledge of the statistic.

**Table 3:  
Demographic Determinants of Knowledge about Official Rates and  
Never Having Heard of The Statistic**

	Unemployment Rate		Consumer Price Index (CPI)		Gross Domestic Product (GDP)	
	Heard of but DK rate	Never Heard of	Heard of but DK rate	Never Heard of	Heard of but DK rate	Never Heard of
Opt-out given	0.399** (0.136)	0.485** (0.172)	0.344* (0.138)	0.353* (0.154)	0.180 (0.139)	0.501*** (0.147)
Income (log)	0.280** (0.088)	-0.624*** (0.110)	0.223* (0.090)	-0.433*** (0.100)	0.293** (0.091)	-0.347*** (0.095)
Age in Years	0.007 (0.004)	-0.027*** (0.005)	0.016*** (0.004)	-0.019*** (0.005)	0.023*** (0.004)	-0.019*** (0.004)
Years of Education	-0.006 (0.037)	-0.206*** (0.039)	0.163*** (0.034)	-0.264*** (0.038)	0.150*** (0.035)	-0.255*** (0.036)
Female	0.698*** (0.138)	0.208 (0.174)	0.090 (0.139)	0.637*** (0.157)	-0.168 (0.140)	0.845*** (0.151)
Pseudo R <sup>2</sup> adjusted	0.064	0.207	0.094	0.222	0.110	0.208

Note: Logistic regressions on presence or absence of conditions indicated by column headings. Standard errors in parentheses. Intercept included by not shown. Significant levels: \* < .05, \*\* < .01, \*\*\* < .001.

<sup>6</sup>Similar results were obtained when the regressions were estimated separately for each opt-out group and indicated no interactions.

Higher educated respondents were consistently less likely to report that they had never heard of the economic statistics, and generally more likely to report that they simply didn't know the most recent figure. Although education and income are correlated, income was still a significant predictor because it is a proxy not only for cognitive ability but also for the degree of engagement in the economy. Higher income respondents were more likely to simply not know the current figure for each statistic and significantly less likely to have never heard of these official economic measures. Even apart from education, the data indicate that higher income households may have a vested interest to give more attention to economic statistics, may face lower costs in acquiring economic information, or may garner greater economic benefits from updating their information more regularly.

The age of the respondent also had a widespread impact on these responses. Older respondents were significantly less likely to report having never heard of these economic statistics, and were generally more likely to report that they knew of them but didn't know their current levels. This probably reflects the greater life experiences of older adults, especially those experiences of several decades ago when inflation and unemployment were at double digit levels and GDP fell sharply. The results for gender was somewhat surprising, in that females were significantly more likely to report never having heard of the CPI or GDP.

**Importance of Information  
On Official Economic Statistics**

While economic models of consumer decision making usually include an assumption that all agents have full knowledge of official economic statistics, the data above show that official information is not widely known. Following the questions on knowledge of official statistics, respondents were asked whether they thought it was important to know exact information on the performance of the economy. The question was worded as follows:

*How important is it for a person like you to have exact information about the rate of unemployment, the rate of change in prices, and the rate of change in the Gross Domestic Product — would you say it is extremely important, very important, somewhat important, not very important, or not important at all?*

The responses were:

Extremely important	6
Very important	20
Somewhat important	40
Not very important	24
Not important at all	9
DK; NA	1
Total	100%

The results indicate that just one-in-four respondents thought it was extremely or very important to know exact information compared with one-in-three that thought it was not important for them to know the exact information on unemployment, inflation, or economic growth. It should be emphasized that the question asked about the importance of “exact” information not “any” information. It should not be so surprising that people do not think that their economic decisions would change if the exact figure was a few tenths of a percentage points higher or lower or even if it differed by a few percentage points. This result

is what theories of “rational inattention” imply.

Following this question, respondents were asked if they would like to be more informed about economic conditions. It would seem hard to say no to a question about whether you wanted to be better informed, especially in an economic survey conducted by a university. The primary cost would simply be the opportunity cost of devoting attention to economic matters rather than something else. Nonetheless, half of all respondents answered that they didn’t want any more information when asked the following question:

*Would you like to be more informed about these topics or would you not want any more information about these topics?*

Where do people actually get information on official economic statistics? The survey asked respondents the following questions to gain information about their top three news sources.

*We are interested in how people get official government information about the rate of unemployment, the rate of change in prices, and the rate of change in the Gross Domestic Product. Do you get most of this type of information from television, the radio, newspapers, magazines, the internet, your family, friends, or co-workers, your own personal experiences, from some other sources, or do you never get any official government information on these topics? What is your second most common source of official government information about these topics? What is your third most common source of official government information about these topics?*

The dominant source of information on economic statistics was television, reported by nearly half of all people as their first choice and by nearly three-in-four people among their top three choices (see Table 4). Newspapers came in second, with nearly one-in-five naming them their main source, and nearly six-in-ten reported newspapers among their top three choices. The Internet, radio, and personal contacts were each reported by about one-in-three people as among their top three choices. Nearly one-in-ten people volunteered that they never obtain information about the economic statistics.

**Table 4:  
Sources of Information on Official Rates of Unemployment, Consumer Prices,  
and Gross Domestic Product**

<b>Sources of Information</b>	<b>Most Common Source of Information</b>	<b>Second Most Common Source of Information</b>	<b>Third Most Common Source of Information</b>	<b>Total Sources</b>
Television	45	23	10	78%
Newspapers	18	25	15	58
Internet	10	15	12	37
Radio	11	11	12	34
Family/friends/coworker/personal experience	4	10	20	34
Magazines	2	4	8	14
Never obtain information	10	—	—	10
No other sources	—	12	23	
Total	100%	100%	100%	
Cases	1008	1008	1008	

It is difficult to determine the quality of the information people gain from these sources. Television encompasses a wide variety of reports on economic news, ranging from the in depth details of cable business channels to passing references that contain no details except a one-word summary that the news was “good” or “bad.” The same can be said for newspapers, ranging from the detailed commentary included in the Wall Street Journal to the same one-word summaries of the latest rates included in many city newspapers. Of all the sources, only the Internet includes the possibility of a direct link to the official government agencies that produce the statistics, but it also includes access to the widest range of sites that can be expected to widely differ in terms of accuracy and quality.

The key issue is whether people who rely on any of these sources are more likely to report accurate information on the economic statistics in question. The regressions included in Table 2 were repeated with the addition of the sources people mentioned using for obtaining information. The data show a consistent lack of impact on reports of the unemployment and inflation rates for both dependent variables: the mere reporting of a rate and the accuracy of the reported rate (see Table 5). For GDP, the regressions indicate a significant impact from nearly all the news sources but no impact on accuracy.

**Table 5:**  
**Informational Determinants of Knowledge and the Accuracy of People’s Reports about Official Economic Statistics**

	Unemployment Rate		Consumer Price Index (CPI)		Gross Domestic Product (GDP)	
	Rate Answer Given <sup>a</sup>	Absolute Error <sup>b</sup>  R <sub>it</sub> - A <sub>i</sub>	Rate Answer Given <sup>a</sup>	Absolute Error <sup>b</sup>  R <sub>it</sub> - A <sub>i</sub>	Rate Answer Given <sup>a</sup>	Absolute Error <sup>b</sup>  R <sub>it</sub> - A <sub>i</sub>
Television	-0.072 (0.253)	0.221 (0.567)	0.066 (0.299)	-0.379 (1.000)	0.624 (0.392)	-0.938 (1.619)
Radio	0.304 (0.213)	0.256 (0.502)	0.201 (0.262)	-0.359 (1.064)	1.017** (0.368)	-0.680 (1.683)
Newspapers	0.271 (0.218)	0.743 (0.489)	0.596* (0.272)	0.488 (1.023)	1.321*** (0.381)	-1.408 (1.636)
Magazines	0.040 (0.264)	0.123 (0.601)	-0.040 (0.323)	-0.111 (1.215)	1.380*** (0.406)	-0.188 (1.773)
Internet	0.533* (0.229)	-0.635 (0.577)	0.354 (0.276)	0.902 (1.070)	1.171** (0.383)	-0.640 (1.667)
Friends, family, co-workers, personal experience	0.016 (0.222)	1.345** (0.520)	0.360 (0.274)	-1.521 (1.084)	0.987** (0.381)	-0.222 (1.688)
Never obtain information	-0.899 (0.600)	4.709** (1.547)	0.166 (0.712)	-0.464 (2.722)	2.448* (1.03)	-2.007 (4.507)

Note: <sup>a</sup>Logistic regressions on the proportion that provided a rate answer. <sup>b</sup>Least-square regressions on the absolute percentage point errors in people’s reports of the official statistics indicated by column headings. All regressions include the demographic controls discussed earlier. Standard errors in parentheses. Significant levels: \* < .05, \*\* < .01, \*\*\* < .001.

The impact of the media on the likelihood that the respondent had ever heard of the official statistics was also sparse. The logistic regressions reported in Table 6 indicate only a few significant impacts: newspapers were more often associated with having heard of the unemployment rate, radio and the internet with having heard of the CPI. For the GDP equation, users of most all forms of the mass media were less likely to say that they never heard of the official rate of growth in the Gross Domestic Product. This may underscore the notion that unemployment and inflation consumers have personal experience, and require some information for knowledge about GDP.

**Table 6:**  
**Informational Determinants of Knowledge about Official Rates and**  
**Never Having Heard of The Statistic**

	Unemployment Rate		Consumer Price Index (CPI)		Gross Domestic Product (GDP)	
	Heard of but DK rate	Never Heard of	Heard of but DK rate	Never Heard of	Heard of but DK rate	Never Heard of
Television	0.203 (0.240)	-0.015 (0.322)	0.285 (0.240)	-0.212 (0.281)	0.296 (0.238)	-0.393 (0.262)
Radio	-0.030 (0.196)	-0.268 (0.237)	0.610** (0.200)	-0.851*** (0.224)	0.255 (0.200)	-0.648** (0.214)
Newspapers	0.425* (0.197)	-1.039*** (0.236)	0.212 (0.202)	-0.693** (0.221)	0.319 (0.200)	-0.919*** (0.214)
Magazines	0.109 (0.244)	-0.251 (0.335)	0.106 (0.246)	0.007 (0.273)	0.058 (0.247)	-0.733** (0.278)
Internet	-0.211 (0.211)	-0.392 (0.263)	0.560** (0.214)	-0.996*** (0.242)	0.206 (0.214)	-0.754*** (0.232)
Friends, family, co-workers, personal experience	0.241 (0.202)	-0.312 (0.244)	-0.053 (0.205)	-0.142 (0.218)	-0.299 (0.204)	-0.034 (0.211)
Never obtain information	-0.648 (0.514)	0.967 (0.552)	-0.962 (0.564)	0.412 (0.535)	-1.176 (0.567)	-0.040 (0.535)

Note: All logistic regressions include the demographic controls discussed earlier. Standard errors in parentheses. Significant levels: \* < .05, \*\* < .01, \*\*\* < .001.

### Coverage of Official Economic Statistics In the Mass Media

A critical assumption in testing whether people have accurate knowledge of the current official rates of unemployment, consumer prices, and economic growth is that those rates are communicated by the mass media. In an attempt to test this assumption, television transcripts and newspaper archives were searched to determine if they contained a report that cited a specific number for the official statistics on the day it was released by the government agency, or in the following three days for newspapers. A four day window was chosen because most U.S. newspapers are morning editions that are printed before the 8:30 release time of the agency, and since some releases occur on Fridays, a four day window was needed to include the following Monday. A report on the official statistic that did not mention the exact official rate was not

counted even if it did occur in the four day window. The TV transcripts and newspapers were searched over the sixteen months from January 2006 to April 2007.<sup>7</sup>

News reports from the five major broadcast networks—ABC, NBC, CBS, CNN, and FOX—were searched.<sup>8</sup> All-business networks were not included, even if they were owned by one of the five networks that were included. The official release of the unemployment rate was reported every time on NBC and CNN and 94% of the time by FOX (see Table 7). The official unemployment rate was reported much more frequently than the CPI or GDP. Perhaps this is due to the fact that the percentage figure represents a proportion rather than the more complex concept of a rate of change. Reports on the CPI and GDP were often given in qualitative rather than quantitative terms, such as “prices rose faster” or “the economy worsened.” This tendency may also reflect the fact that the official releases of these figures are given both as monthly and annual rates of change for the CPI and as quarterly or annual rates of change for GDP. In any event, CBS reported the actual official rate of inflation for the CPI more than half the time, and only CNN and FOX reported the official GDP rate for half or more of the releases.

A total of 27 newspapers were searched, each having a circulation of more than 400,000 as of March 2006.<sup>9</sup> The total circulation of these newspapers was 21.1 million at the start of 2006. Newspapers are often read by more than one person, with a 2006 estimate that on average 2.3 persons read each copy (according to the Newspaper Association of America). Ignoring that some people read more than one paper each day, the gross number of people reading each copy in circulation was 48.6 million, or about 22% of all adults living in the U.S.

Four papers had a circulation of more than one million—USA Today, The Wall Street Journal, The New York Times, and the Los Angeles Times. None of these papers carried every release. Only the Washington Post, fifth highest in circulation with just below one million copies, carried all the official releases all the time, not surprising since all the agencies are headquartered in Washington, DC. The New York Times reported the official unemployment rate and the CPI for each of the sixteen months, and the GDP in fifteen months. The Wall Street Journal carried all the unemployment releases, and 80% to 90% of the CPI and GDP releases. The Los Angeles Times carried the reports between 50% of the time (CPI) and 75% of the time (GDP and unemployment). The paper with the highest circulation, USA Today, reported the official figures the least, reporting each official figure about half the time (see Table 7).

The publication of the official figures was even more dismal across all 27 newspapers searched. On average, just 39% of the official reports on GDP appeared, with the median rate just 19%. The CPI was reported on average 52% of the time across all 27 newspapers, with the median a dismal 38%. The official unemployment rate was the most likely to be cited, with an average of 52% of the time and a median of 44%.

---

<sup>7</sup>It should be emphasized that the digital databases that were searched are likely to contain errors. Every attempt was made to verify that the results of our searches accurately reflected the criteria that the latest official rate of unemployment, change in the CPI, or the change in GDP was mentioned at least once in the four-day window.

<sup>8</sup>Total viewership for the nightly newscasts on ABC, CBS, and NBC totaled about 20.2 million in April/May 2007 according to MediaBistro.

<sup>9</sup>The newspapers, in order of circulation, were: USA Today, Wall Street Journal, New York Times, Los Angeles Times, Washington Post, Chicago Tribune, New York Daily News, Philadelphia Inquirer, Denver Post, Houston Chronicle, New York Post, Detroit News, Dallas Morning News, Minneapolis Star Tribune, Boston Globe, Newark Star-Ledger, Atlanta Journal Constitution, Arizona Republic, Long Island Newsday, San Francisco Chronicle, Plain Dealer, Seattle Times, St. Louis Post-Dispatch, St. Petersburg Times, San Diego Union-Tribune, Milwaukee Journal Sentinel, Baltimore Sun.

**Table 7: Television and Newspaper Reports of Official Economic Statistics:**  
Proportion of News Reports that Cited Official Rates From January 2006 to April 2007

### Television Reports

Unemployment Rate		Consumer Price Index		Gross Domestic Product	
CNN	100%	CBS	63%	CNN	81%
NBC	100%	CNN	50%	FOX	50%
FOX	94%	FOX	31%	ABC	44%
ABC	63%	ABC	19%	NBC	31%
CBS	56%	NBC	13%	CBS	25%
Mean	83%	Mean	35%	Mean	46%
Median	94%	Median	31%	Median	44%

### Newspaper Reports

Unemployment Rate		Consumer Price Index (CPI)		Gross Domestic Product (GDP)	
Wall Street Journal	100%	New York Times	100%	Washington Post	100%
New York Times	100%	Washington Post	100%	New York Times	94%
Washington Post	100%	Long Island Newsday	100%	Newark Star-Ledger	88%
Chicago Tribune	100%	Houston Chronicle	94%	Wall Street Journal	81%
Seattle Times	100%	Wall Street Journal	88%	Seattle Times	81%
Atlanta Journal Constitution	94%	Newark Star-Ledger	88%	Los Angeles Times	75%
Houston Chronicle	88%	Seattle Times	88%	Houston Chronicle	69%
Newark Star-Ledger	88%	St. Louis Post-Dispatch	81%	Long Island Newsday	69%
St. Louis Post-Dispatch	88%	Atlanta Journal Constitution	75%	Philadelphia Inquirer	63%
Los Angeles Times	75%	Chicago Tribune	69%	Atlanta Journal Constitution	56%
Long Island Newsday	56%	Philadelphia Inquirer	69%	St. Louis Post-Dispatch	56%
USA Today	44%	USA Today	63%	USA Today	50%
NY Post	44%	Los Angeles Times	56%	Chicago Tribune	31%
Minneapolis Star Tribune	44%	NY Post	38%	Boston Globe	19%
Baltimore Sun	44%	Dallas Morning News	38%	San Francisco Chronicle	19%
Dallas Morning News	38%	Minneapolis Star Tribune	38%	St. Petersburg Times	19%
Milwaukee Journal Sentinel	38%	San Francisco Chronicle	38%	Denver Post	13%
Philadelphia Inquirer	31%	Denver Post	31%	Detroit News	13%
Boston Globe	25%	St. Petersburg Times	31%	Minneapolis Star Tribune	13%
San Francisco Chronicle	25%	Boston Globe	25%	Arizona Republic	13%
Arizona Republic	19%	NY Daily News	19%	Milwaukee Journal Sentinel	13%
St. Petersburg Times	19%	Arizona Republic	19%	NY Post	6%
Denver Post	13%	San Diego Union-Tribune	19%	Dallas Morning News	6%
Detroit News	13%	Milwaukee Journal Sentinel	19%	Baltimore Sun	6%
San Diego Union-Tribune	13%	Detroit News	13%	NY Daily News	0%
NY Daily News	6%	Plain Dealer	13%	Plain Dealer	0%
Plain Dealer	0%	Baltimore Sun	6%	San Diego Union-Tribune	0%
Mean	52%	Mean	52%	Mean	39%
Median	44%	Median	38%	Median	19%

The AP and UPI wire services, in contrast, carried reports on the latest official rates of unemployment, the CPI and GDP for every official release. If we presume that the 27 papers with the largest circulations all had access to the wire reports, the lack of complete coverage would be an active decision of the newspaper to not carry the report. It was likely to reflect a judgement about the newsworthiness of the latest figures given their subscribers' interests. There was a tendency for newspapers to more frequently report the latest official figures when it represented an unfavorable development, which may reflect the greater importance people place on the information content of "bad" news.

It is of some interest that the AP and UPI wires typically did not mention the specific government agencies (Bureau of Labor Statistics and Bureau of Economic Analysis) in their releases. They usually simply used the phrase that "the government reported . . ." or at most referred to the Labor or Commerce Department, the parent agencies for the Bureau of Labor Statistics and the Bureau of Economic Analysis. Presumably the inclusion of the agency names in the survey questions made the questions more difficult than warranted.

The functions of the AP and UPI wire services have been supplanted in recent years by the simultaneous Internet releases of the official statistics. The news wires (and others) still have the advantage of viewing the results early (in a locked room) so they can also provide commentary at the time of the release. Nonetheless, people from around the globe can access the same data the instant it is released via the Internet. Data was provided by the Bureau of Labor Statistics on the number of times the full releases of the unemployment rate on May 4, 2007 and the CPI on May 15, 2007 were viewed on the Internet. For the unemployment rate it totaled 8,243 and for the CPI it was 11,959, with both accounting for about 1% of all the visits to their Internet sites on those days.

Overall, this review of the dissemination of official economic data suggests that people's lack of knowledge can be in part attributed to the inadequate communication of that information by the mass media. It was true that news on unemployment was more frequently reported in the media, and people's knowledge of the unemployment rate was more accurate in the survey. The coincidence is suggestive but does not prove causation.

### **Informal Knowledge of the Performance of the Economy**

The questions about people's knowledge of official data by federal agencies can be compared with other questions that simply ask about unemployment, prices, and economic growth. Unlike the prior questions, which identified the official governmental agency responsible for collecting the data and asked for the most recently published figure, these alternate questions simply asked respondents about likely changes in unemployment, prices, and the economy. How each concept was defined also differed, especially for unemployment and GDP, with both questions using less technical jargon. Also note that these questions focus on the next twelve months rather than changes over the past twelve months. It should also be noted that these questions were asked prior to the questions on the official economic statistics, and the questions were separated in the questionnaire by dozens of other questions that took more than five minutes to ask. The wording of these questions are as follows:

*How about people out of work during the coming twelve months — do you think that there will be more unemployment than now, about the same, or less?*

*During the next twelve months, do you think that prices in general will go up, or go down, or stay where they are now? By what percent do you expect prices to go (up/down) on the average during the next twelve months?*

*Now turning to business conditions in the economy as a whole — do you think that during the next twelve months conditions will be better, or worse than they are at present, or just about the same?*

The question on unemployment expectations and business conditions are measured using qualitative scales while the question on expected inflation is based on a quantitative response scale. For nearly all aspects of the analysis contained in this paper, the qualitative questions on unemployment and GDP can not be directly compared with the earlier quantitative questions, except for one comparison: the percentage of people who responded that they did not know the answer. For both questions, the percentage of “don’t know” responses totaled just 1% of the April and May 2006 surveys. Although not directly comparable the two prior questions, the questions about the unemployment rate and potential economic growth have an excellent track record in predicting changes in the unemployment rate (Curtin, 1999, 2003) and GDP (the expectations index is part of the U.S. composite index of leading economic indicators).

It is the question on expected price changes that is most comparable to the question about the official CPI. This question has been analyzed repeatedly over the past decades, and found to be predictive of the actual subsequent change in overall prices (Gramlich, 1983; Grant and Thomas, 1999; Thomas, 1999; Mehra, 2002).<sup>10</sup> Thomas (1999, pages 141-142) summarized his findings by noting that “...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 1981-1997 period on simple tests of accuracy as well as on tests for unbiasedness.” Mehra (2002, page 35) also finds that Michigan’s median inflation expectations outperforms the expectations of professional economists and forecasters: “They are more accurate, unbiased, have predictive content for future inflation, and are efficient with respect to economic variables generally considered pertinent to the behavior of inflation.”

**Table 8:**  
**Responses to Expected Inflation Question by Response on Official CPI Question**

<b>Knowledge of Official CPI Rate</b>	<b>Provided Percentage Rate for Expected Inflation Rate</b>		
	Yes	Opt-out Option No	Total Sample
Provided answer for official CPI rate question	97%	92%	94%
Heard of, but didn’t know current official CPI rate	93%	92%	92%
Never heard of official CPI rate or agency	85%	80%	83%
Total Sample	91%	88%	89%

<sup>10</sup>Similar comparisons were done for year-ahead forecasts of the national unemployment rate. Curtin (1999, 2003) found that consumers’ forecasts of the year-ahead unemployment rate outperformed those of professional forecasters as well as forecasts from two prominent macroeconomic models.

What is of interest for the present analysis is the differences in responses to the two questions. One critical issue is to determine what exactly people did not know on the official question about the CPI: was it their knowledge about price changes or was it their knowledge of the official rate published by the Bureau of Labor Statistics. The biggest difference between the two questions was that one question was on the official rate published by a government agency and the other simply asked about the rate of change in prices. Whereas one form of the question required knowledge of a government announcement of an official rate, responses to the other question could be answered from more informal information, including personal experience. Unfortunately, no data were collected for a direct test of this hypothesis, although several interesting comparisons are possible.

Perhaps the most dramatic comparison is that 83% of those who said that they had never heard of the official CPI nonetheless provided a percentage inflation rate they expected during the year ahead (see Table 8). Among those who said that they had heard of the CPI but didn't know the current rate, 92% reported a percentage rate of expected inflation. A still higher proportion (94%) of those that reported knowledge of the official CPI, reported an expected inflation rate. Clearly, nearly all of the respondents knew something about trends in overall prices. It should again be stressed that the two questions are not perfectly comparable given that the question on the official CPI asks about past changes in prices, and the informal question asks about potential future changes.

Another indirect test is to compare the answers given by people on the informal question across the different responses to the official CPI question. Table 9 contains the inflation rate forecasts of people by their responses on the question on their knowledge of the official inflation rate. Across all of the table's cells, the data suggest that the median inflation rate showed only minor and statistically insignificant variations, ranging from 3.1% to 3.4%. The data also suggest that a major barrier confronted by people was that they did not know the official CPI rate published by the Bureau of Labor Statistics, but not that they did not have any knowledge of price trends. If the data were to be used in models describing economic behavior, Occam's razor would recommend that extraneous details should be eliminated, and the question should focus on the central topic in a simple and straightforward manner.

**Table 9:**  
**Estimates of Expected Inflation by Response to the Question on the Official CPI**

<b>Knowledge of Official CPI Rate</b>	<b>Consumer Price Index (CPI)</b>		
	Opt-out Option		Total
	Yes	No	
Provided answer for official CPI rate question	3.4%	3.1%	3.2%
Heard of, but didn't know current official CPI rate	3.1%	3.4%	3.3%
Never heard of official CPI rate or agency	3.4%	3.4%	3.4%
Total Sample	3.3%	3.3%	3.3%

Note: Table entries are the expected inflation rate based on people's responses to the informal question within the subgroups defined by people's responses to their knowledge of the official CPI.

## Conclusions

What do people know about official economic statistics? Only a minority of people could report a specific figure for the current rates of unemployment, inflation, or economic growth, although the majority had heard about these official statistics. When they did report a specific figure, it typically differed from the official statistic by half a percentage point to one and a half percentage points, depending on the economic statistic. People reported more accurate figures for the unemployment rate, less accurate reports of the inflation rate, with reports of GDP growth rates being the least accurate. Errors were modestly related to the education level of the respondent, which can be interpreted as a proxy for the cognitive abilities required to process and recall information. Other factors, such as age and income, were related to one statistic or another, and can be interpreted as proxies for economic experiences.

The tendency for people to overestimate the rates of inflation and unemployment could be conceptualized as a buffer against unexpected events. Bad economic news is perceived by people to contain more potentially relevant information about their future financial situation. As a result, people may adopt somewhat less favorable views about unemployment and inflation as a means to protect themselves against an unending stream of disruptive and costly small changes.

Importantly, the data provided considerable evidence that the questions about official economic statistics were viewed as burdensome, and when given the opportunity to skip the question, many respondents did opt-out of answering the question. Along with the cognitive burden, another motivation would be to avoid the embarrassment of an incorrect answer to a knowledge question where the respondent could assume that the interviewer knew the correct answer. It is impossible to disentangle these two hypotheses with the collected data. The rather large impact of a minor change in the question wording, however, indicates the high sensitivity of such questions, and indicates the important role of survey methodology in this research.

Conventional economic models assume that all economic agents always have full information on all relevant economic quantities. More recent theoretical advances have emphasized two departures from the standard model. First, rather than simultaneously, information updating occurs in a staggered pattern across individuals and over time. People make decisions about whether to update information depending on the costs of acquiring, processing, and interpreting new information compared with the potential benefits of the new information. Thus, the tests of “accuracy” included in this paper are too strict in that they implicitly assumed that all people update their economic information immediately after its release. Rather than the standard of uniform views on unemployment, inflation, and economic growth, heterogeneity of beliefs can be expected across economic agents. While there is no universal standard to judge whether the current costs and expected benefits warrant updating economic information, it is nonetheless more likely when the inflation or unemployment rate is high and variable rather than low and stable. These data were collected when unemployment, inflation, and economic growth were relatively favorable and stable, which would imply little need for updating.

The second modification of the standard model is that the information that is relevant to people’s economic decisions differs across people and over time depending on the characteristics of their situation. There is no reason to expect that people would seek out information about an inflation or unemployment rate that they did not face. Indeed, rather than economy-wide information, it is more likely that local information is more appropriate. Local unemployment rates for jobs that individuals are qualified for are more important than national unemployment rates, and people that consume a greater proportion of their incomes on certain

products or services would naturally view the potential benefits of information on those products or services greater than information on overall inflation. The implication of the primacy of these more specific information needs increases the importance of what economists call “private” compared with “public” information.

A third modification of the standard model involves the cost of updating information on current economic statistics. It is typical that models assume that exact figures on the rates of unemployment, inflation, and growth in the economy are widely disseminated to the public in the mass media. Rather than universal reporting of these economic statistics, the record indicates more sporadic and incomplete reporting, with much greater use of qualitative terms than quantitative figures. This means the cost of acquiring information is much greater than usually assumed. Moreover, given the various ways rates of change for the CPI and GDP are reported, it also means greater computation and processing costs.

The survey included other economic measures that were more aligned with people’s usual economic experiences. Answers to questions about trends in unemployment, inflation, and economic growth were nearly universal, standing in stark contrast to responses to the knowledge questions on the official rates. To be sure, there was one critical difference: these other questions did not ask what happened in the past, but asked people about their expectations about the future. The measure on the expected rate of inflation was asked using a percentage rate response scale comparable to the knowledge questions. The expected inflation responses were the same regardless of whether the respondents were explicitly given the option to skip the question, and if the respondents reported a figure for the knowledge question about the official CPI, or had heard of the official CPI but did not know the most recent figure, or had never heard of the official measure.

The lack of a relationship of the two questions on inflation indicates an independence between knowledge of the official CPI and the “private” information people possess on prospective trends in the inflation rate. The general lack of knowledge of the official CPI does not mean that people do not know about inflation, only that they do not know the official rate most recently published by a governmental agency. Private knowledge about expected price trends, as well as unemployment and economic growth, was widespread, and past analyses has shown those expectations to be relatively accurate.

Such a complex overall assessment of the public’s knowledge of economic statistics is much less surprising than the premise that people would consistently use their scarce resources to monitor official economic statistics published by government agencies. Consumers do desire knowledge about their economic situation, as Aristotle noted long ago. Nonetheless, just as Plato suggested, we all see reflections from our own perspective, and believe that these assessments best serve our own needs. It is within these shadows of diversity that economic theory and public policy will flourish.

## References

- Akerloff, George, William Dickens, and George Perry, "Near-Rational Wage and Price Setting and the Optimal Rates of Inflation and Unemployment," *Brookings Papers on Economic Activity*, vol 1, 2000.
- Bacchetta, Philippe and Eric van Wincoop, "Rational Inattention: A Solution to the Forward Discount Puzzle," Working paper 11633, National Bureau of Economic Research, September 2005.
- Blendon, Robert J., John Benson, Mollymann Brodie, Richard Morin, Drew E. Altman, Daniel Gitterman, Mario Brossard and Matt James, "Bridging the Gap Between the Public's and Economists' Views of the Economy", *Journal of Economic Perspectives*, Vol. 11, No. 3. (Summer, 1997), pp. 105-118.
- Blinder, Alan S., Alan B. Krueger, "What Does the Public Know about Economic Policy, and How does It Know It?", *Brookings Papers on Economic Activity*, 1:2004.
- Branch, William A., "Sticky Information and Model Uncertainty in Survey Data on Inflation Expectations," mimeo, July 2005.
- Bryan, Michael and Guhan Venkatu, "The Curiously Different Inflation Perspectives of Men and Women," Federal Reserve Bank of Cleveland, Economic Commentary Series, 2001.
- Carroll, Christopher, "Macroeconomic Expectations of Households and Professional Forecasters," *Quarterly Journal of Economics*, vol. 118 (1), pp. 269-298, 2003.
- Curtin, Richard, "Unemployment Expectations: The Impact of Private Information on Income Uncertainty," *Review of Income and Wealth*, vol. 49, no. 4, 2003.
- Curtin, Richard, "What Recession? What Recovery? The Arrival of the 21<sup>st</sup> Century Consumer," *Business Economics*, vol. 39, no. 2, 2003.
- Curtin, Richard, "Price Expectations: Theoretical Models and Empirical Tests," in *The Role of Inflation Expectations in Modeling and Monetary Policy*, ed. Tomas Lyziak, NBP: Poland, 2006.
- Curtin, Richard, "The Outlook for Consumption in 2000," *The Economic Outlook for 2000*, Ann Arbor, Michigan: University of Michigan, 1999.
- Delli Carpini, Michael X. and Scott Keeter, *What Americans Know about Politics and Why It Matters*. Yale University Press, 1996.
- Doms, Mark and Norman Morin, "Consumer Sentiment, the Economy, and the News Media," Working paper 2004-51, Federal Reserve Board, 2004.
- Grant, Alan P. and Lloyd B. Thomas, "Inflationary Expectations and Rationality Revisited," *Economic Letters*, vol. 62 (March), pp. 331-338, 1999.
- Gramlich, Edward M., "Models of Inflation Expectations Formation," *Journal of Money, Credit, and Banking*, vol. 15, pp 155-73, 1983.
- Hagemann, Robert P., "The variability of Inflation Rates Across Household Types," *Journal of Money, Credit, and Banking*, Vol 14, no. 4, part 1, Nov 1982, pp 494-510.
- Hamilton, James, *All the News That's Fit to Sell*, Princeton University Press, 2004.
- Hobijn, Bart and David Lagokos, "Inflation Inequality in the United States," *Review of Income and Wealth*, vol 51, no. 4, December 2005, pp. 581-606.
- Khan, H. and Z. Zhu, "Estimates of the Sticky-Information Phillips Curve for the United States," *Journal of Money, Credit, and Banking*, vol 38, no. 1, 2006.
- Kohut, Andrew, Richard Morin and Scott Keeter, "What Americans Know: 1989-2007, Public Knowledge of Current Affairs Little Changed by News and Information Revolutions", *Pew Research Center for The People & The Press*, 2007

- Lucas, Arthur M, "Public knowledge of biology," *Journal of Biological Education*, vol. 21, no. 1, pp. 41-45, 1987.
- Lucas, Arthur M, "Public knowledge of elementary physics", *Physics Education*, vol. 23, pp. 10-16, 1988.
- Mankiw, N. Gregory, Ricardo Reis, and Justin Wolfers, "Disagreement about Inflation Expectations," *Macroeconomics Annual 2003*, eds. Mark Gertler and Kenneth Rogoff, NBER: 2004.
- Mankiw, N. Gregory and Ricardo Reis, "Sticky Information Versus Sticky Prices: A proposal to Replace the New Keynesian Phillips Curve," *Quarterly Journal of Economics*, vol. 117 (4), pp. 1295-1328, 2002.
- Mankiw, N. Gregory and Ricardo Reis, "Sticky Information: A Model of Monetary Non-neutrality and Structural Slumps," in P. Aghion, R. Frydman, J. Stiglitz and M. Woodford, eds., *Knowledge, Information and Expectations in Modern Macroeconomics: In Honor of Edmund S. Phelps*, Princeton University Press, 2003.
- Mehra, Yash P., "Survey Measures of Expected Inflation: Revisiting the Issues of Predictive Content and Rationality," *Federal Reserve Bank of Richmond Economic Quarterly*, vol. 88 (3), pp. 17-36, 2002.
- Michael, Robert T., "Variations Across Households in the Rate of Inflation," *Journal of Money, Credit, and Banking*, vol 11, pp. 32-46, February 1979.
- OECD, "PISA Assessing Scientific, Reading, and Mathematical Literacy, OECD, Paris, 2006.
- Schibeci, R. A., "Public Knowledge and Perceptions of Science and Technology", *Bulletin of Science Technology Society*, Vol. 10, pp. 86-92, 1990.
- Sims, Christopher, "Implications of Rational Inattention," *Journal of Monetary Economics*, vol. 50 (3), pp. 665-690., 2003.
- Souleles, Nicholas S., "Consumer Sentiment: Its Rationality and Usefulness in Forecasting Expenditures—Evidence from the Michigan Micro Data," *Journal of Money, Credit, and Banking*, forthcoming., 2001.
- Thomas Jr., Lloyd B., "Survey Measures of Expected U.S. Inflation," *Journal of Economic Perspectives*, vol 13, no 4, pp. 125-144, Autumn 1999.
- Vanoli, André, *A History of National Accounting.*, Translated from the French original by Marion Pinot Libreros and Gayle H. Partmann, IOS Press, 2005.

**Table A1:  
Knowledge of the Official National Unemployment Rate Published by the  
Bureau of Labor Statistics by Demographic Subgroups**

	Income			Age			Education			Sex	
	Bot 1/3	Mid 1/3	Top 1/3	18-34	35-54	55+	High Sch or less	Some Coll	Coll Grad	Male	Female
<b>Opt-out Option</b>											
Provided rate answer	15	28	34	25	26	25	13	33	36	37	16
Heard of, but DK rate	39	45	55	35	51	47	43	48	50	36	55
Never heard rate/agency	45	25	11	40	22	27	43	18	12	25	29
DK; NA	1	2	0	0	1	1	1	1	2	2	0
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>No Opt-out Option</b>											
Provided rate answer	32	48	47	31	46	46	32	45	55	54	34
Heard of, but DK rate	38	33	42	31	40	37	33	41	34	30	42
Never heard rate/agency	30	18	11	36	13	17	33	14	11	15	23
DK; NA	0	1	0	0	1	0	1	0	0	1	1
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Total Sample</b>											
Provided rate answer	24	39	40	28	36	36	21	39	46	45	25
Heard of, but DK rate	38	39	49	33	46	42	39	44	42	33	49
Never heard rate/agency	38	21	11	38	17	22	39	16	11	20	26
DK; NA	0	1	0	1	1	0	1	1	1	2	0
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Addendum (Total Sample Medians)</b>											
Estimate of official rate	5.08	4.95	4.63	5.03	4.97	4.57	4.97	4.96	4.54	4.95	4.52
Absolute value of percentage point error from official rate	1.05	0.60	0.53	1.53	0.56	0.51	0.88	0.54	0.59	0.56	0.63
Cases	269	303	364	173	414	420	339	429	234	454	554

**Table A2:**  
**Knowledge of the Official Consumer Price Index (CPI) Published by the**  
**Bureau of Labor Statistics by Demographic Subgroups**

	Income			Age			Education			Sex	
	Bot 1/3	Mid 1/3	Top 1/3	18-34	35-54	55+	High Sch or less	Some Coll	Coll Grad	Male	Female
<b>Opt-out Option</b>											
Provided rate answer	8	9	22	14	13	12	6	16	20	19	8
Heard of, but DK rate	36	53	54	33	52	53	34	57	58	48	48
Never heard rate/agency	55	37	21	53	32	35	58	25	19	31	42
DK; NA	1	1	3	0	3	0	1	2	3	2	2
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>No Opt-out Option</b>											
Provided rate answer	20	27	35	32	29	23	19	30	34	37	18
Heard of, but DK rate	33	41	47	23	46	44	28	44	50	41	40
Never heard rate/agency	44	31	16	43	24	30	50	24	15	21	38
DK; NA	3	1	2	2	1	3	3	2	1	1	4
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Total Sample</b>											
Provided rate answer	14	19	28	23	21	18	12	23	28	28	13
Heard of, but DK rate	34	46	50	28	49	48	32	50	53	44	44
Never heard rate/agency	49	33	20	48	28	32	54	25	17	26	40
DK; NA	3	2	2	1	2	2	1	2	2	2	3
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Addendum</b> (Total Sample Medians)											
Estimate of official rate	6.10	3.23	3.02	4.20	3.04	3.03	5.82	3.05	3.00	3.06	3.68
Absolute value of percentage point error from official rate	3.48	1.01	1.03	1.67	1.27	0.70	3.20	1.08	0.81	1.13	1.42
Cases	269	303	364	173	414	420	339	429	234	454	554

**Table A3:  
Knowledge of the Official Annual Change in the Gross Domestic Product (GDP) Published by the  
Bureau of Economic Analysis by Demographic Subgroups**

	Income			Age			Education			Sex	
	Bot 1/3	Mid 1/3	Top 1/3	18-34	35-54	55+	High Sch or less	Some Coll	Coll Grad	Male	Female
<b>Opt-out Option</b>											
Provided rate answer	7	9	13	13	8	9	6	10	16	16	3
Heard of, but DK rate	32	49	52	30	49	47	28	56	55	46	43
Never heard rate/agency	59	41	34	57	41	43	65	33	28	35	54
DK; NA	2	1	1	0	2	1	1	1	1	3	0
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>No Opt-out Option</b>											
Provided rate answer	17	25	29	27	25	20	17	27	27	32	17
Heard of, but DK rate	35	40	47	29	40	49	32	42	49	44	38
Never heard rate/agency	47	33	22	43	33	30	49	30	22	23	43
DK; NA	1	2	2	1	2	1	2	1	2	1	2
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Total Sample</b>											
Provided rate answer	12	17	21	20	17	14	11	19	22	24	10
Heard of, but DK rate	33	44	49	29	44	48	30	49	52	45	40
Never heard rate/agency	53	37	28	50	37	37	58	31	24	29	49
DK; NA	2	2	2	1	2	1	1	1	2	2	1
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Addendum (Total Sample Medians)</b>											
Estimate of official rate	5.05	4.36	3.22	5.25	3.22	3.75	5.65	3.19	3.25	3.22	4.95
Absolute value of percentage point error from official rate	2.10	1.81	1.06	2.48	1.21	1.09	2.78	1.18	1.13	1.10	2.73
Cases	269	303	364	173	414	420	339	429	234	454	554

**Table A4:  
Peoples Perceptions of the Importance of Information on Economic Statistics and  
People’s Main Sources of Economic Information**

	Income			Age			Education			Sex	
	Bot 1/3	Mid 1/3	Top 1/3	18-34	35-54	55+	High Sch or less	Some Coll	Coll Grad	Male	Fem
<b>Importance of Information</b>											
Extremely important	11	4	3	10	6	4	8	4	5	6	6
Very important	23	20	17	22	18	20	22	19	17	22	18
Somewhat important	35	43	43	40	41	39	36	42	44	37	44
Not very important	19	24	28	24	24	23	21	26	26	24	24
Not important at all	11	8	8	4	9	12	11	8	7	10	8
DK; NA	1	1	1	0	2	2	2	1	1	1	0
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Want More Information?</b>											
Yes	48%	49%	53%	61%	51%	41%	45%	51%	52%	50%	49%
<b>Has Obtain Infomation from . . .</b>											
Television	75%	80%	78%	68%	77%	82%	76%	79%	77%	77%	77%
Radio	32	32	40	33	38	30	32	35	37	42	27
Newspapers	50	60	63	37	58	71	53	61	62	61	56
Magazines	9	15	16	5	11	20	9	11	24	12	14
Internet	20	38	52	52	43	20	16	48	48	43	31
Family/friends/coworker/Personal Experience	40	37	28	41	35	31	40	35	25	24	43
Never Obtain information	17	8	6	18	8	8	17	7	6	8	12
Cases	269	303	364	173	414	420	339	429	234	454	554