

# Great Expectations: Beliefs in Economics and Monetary Policy

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## Introduction

In the description of the topic for this year's Penn Humanities Forum, Carol Ann Muller wrote that the Forum "seeks to probe the non-material dimensions of human existence, and the places where the physical and metaphysical intersect." She went on to say that the Forum hopes "to create a conversation about the nature of belief as it shapes, and is integral to, both humanistic and scientific research and investigation."

In my remarks this afternoon, I will offer my perspectives on the important role beliefs play in economic decisions and economic policymaking. I will provide some examples of how the beliefs held by both consumers and businesses lead to physical results in terms of the amount that a nation produces, the opportunity for employment, and the formation of both personal and national wealth. The connection here is the effect that beliefs have on people's demand for goods and services, and on businesses' willingness to invest in new equipment and the construction of new facilities. That is, borrowing Professor Muller's apt description, I will illustrate cases from the field of economics "where the physical and metaphysical intersect."

I will argue that beliefs are important to the decisions people make. Whether one looks at consumers or businesses, perceptions of reality --- people's beliefs --- are driving forces of every economy.

Further, I will argue that how beliefs are formed matters, in part because the economic outcomes one can expect from public policy are affected by the way beliefs are formed and how they vary over time. I will illustrate that it matters whether people form their beliefs by looking at the past or by looking forward by either trusting economic policymakers' promises or forecasting economic conditions.

I will conclude my remarks with some observations about how beliefs impact one current debate in particular within monetary policy circles. Here I will stress the importance of people's beliefs in the credibility of the policymaker in determining the outcome of any monetary policy action.

## Beliefs in an Economic Context - Economic Expectations

To begin, I will note that you will not see the word "beliefs" very much in the field of economics. Rather, you will find the phrase "economic expectation." This is because economists generally talk about people's "beliefs" in the context of their expectations about the future. Yet, these expectations are at the heart of virtually every economic decision people make today.

For example, when consumers make decisions to spend or save, expectations play an important role. When making these decisions, people base their actions on both their current income and future prospects. This implies that actions today are predicated upon their belief in the future and future expected earnings. On campus we see this play out every day. MBA, law, and medical school students generally spend more than doctoral students, even during their graduate school days. Unfortunately the life of a scholar tends to be less remunerative than a career in business, law, or medicine. Knowing this, student spending habits begin to emerge early, and these patterns develop not because of current stipends, but because of earnings expected well into the future. Likewise, as each of us saves for retirement, we base our decisions on how long we expect to be employed, our expected future annual income, and what we expect to obtain from our accumulated wealth over the intervening years until retirement. Again, expectations about the future matter in an important way, as our beliefs dictate the steps we take today and the plans we make for tomorrow, aimed at achieving our economic and personal goals for the future.

Business decisions are similarly impacted by their view of the future. In fact, their behavior is perhaps even more dependent on an assessment of the years ahead. Businesses routinely try to project future gains that can be derived from current investments. When making a decision to invest in a specific project today, businesses compare the project's expected future flow of revenues to its current cost. This is fundamental to capital budgeting --- a subject I taught here as a Wharton finance professor to many MBA students over the course of many years! These cash flows are only expectations because they are not contracted, nor are they guaranteed. They are derived from management's belief in the firm's value proposition, the marketing studies that support the project, and the firm's assessment of its own capability.

Even economic decisions concerning foreign activity are affected by expectations. Decisions about whether to import or export, to make a foreign direct investment or a foreign financial investment are all tied to the future relative value of the currencies involved. Moreover, these exchange rates are driven by the expectations surrounding countries' economies and their political future.

So to summarize, expectations matter and expectations pervade virtually every economic decision.

### **Expectations and Public Policy**

Public policymakers are not oblivious to this fact. They recognize that expectations impact people's behavior, and that policymakers' actions will change the private sector's view of future economic conditions.

Policymakers take this interaction into account when policy is made, or to put it more directly, their decisions are influenced by this awareness. This can be illustrated quite easily with reference to the ongoing debate surrounding the current federal tax cuts.

Economists know the effect of a tax cut will differ depending upon whether consumers believe a personal income tax cut is temporary or permanent. If people expect the tax cut to be a one-time-only event, they are likely to spend less than if they believe the tax cut is a permanent policy change. To see this, consider your own likely behavior. In all likelihood, a one-time boost in your take home pay will have a smaller effect on your spending than a program that permanently increases your net income well into the future. Therefore, to trigger a desired result of a large boost in economic activity, a tax cut that is perceived as permanent will offer a slowing economy greater assistance than a transitory one. This was one of the rationales for the permanent tax rate changes proposed by the current Administration.

But transitory tax changes can also have a place in tax policy aimed at short-term response. For example, another part of the Administration's recently enacted tax program included federal tax benefits for businesses, which were clearly labeled as a temporary tax break to encourage business investment in new equipment. These incentives are set to expire in 2005. Assuming this sunset provision is credible --- that is, assuming businesses believe Congress will not extend this temporary benefit or make it permanent --- this tax benefit should encourage a short-run increase in business spending. Accordingly, most economists expect a surge in business spending through next year, before the tax break expires, with a fall-off afterward.

Let me look closer to home and illustrate why expectations matter to the Federal Reserve in its conduct of national monetary policy. As you may know, the goal of the Federal Reserve is to create financial conditions that foster maximum sustainable economic growth. The Fed makes two important contributions in this regard. First, it provides essential price stability --- meaning little or no inflation. Second, it tries to offset shifts in demand that deter the economy's ability to reach its potential. These goals are essentially compatible, but receive different emphasis as the situation warrants.

But to a central banker, long-run price stability is always of utmost importance. This is because, for the market economy to achieve sustainable growth, it must generate efficient resource allocations, including appropriate savings and investment decisions. This requires not only a stable price level in the near term, but also the expectation of stable prices over the long term. This implies that optimal monetary policy is not simply a matter of establishing a stable price level *today*, but of ensuring a stable price level --- and expectations of price stability --- into the *future*. Only then can consumers and investors be confident in the environment in which they must make decisions that have implications far into the future. For this reason,

central bankers often talk about the need to establish credibility and the public's confidence in our long-run commitment to price stability.

For the past two decades, the Fed has focused on the goal of price stability and has been quite successful in achieving it. But we have not always been successful. Recall the 1970s. Early in the decade, inflation began to rise, and the Federal Reserve failed to establish itself as a champion of price stability. The public's inflation expectations became unstable. Inflation and inflation expectations spiraled upward. Economic performance deteriorated. The Fed, concerned about the potential impact on employment and economic activity, initially avoided undertaking the strong policy actions necessary to break this destructive cycle. It was not until Federal Reserve Chairman Paul Volcker led the economy into disinflation in 1979-82 that the Fed began to regain credibility. Unfortunately, regaining credibility was costly. We suffered two recessions during those years.

Nonetheless, since that time, the Federal Reserve has achieved what is essentially price stability and also has stabilized inflation expectations. This can be seen in at least two different ways.

First, the level of interest rates has moved lower over the period and has remained low. This is important because the level of nominal interest rates tends to move with expected inflation. This idea has a long history in economics, but it was best articulated by Irving Fisher in 1930. He pointed out that investors in financial assets would demand compensation for the loss in purchasing power associated with nominal investments. In other words, if an investor believes inflation will remain at 5 percent per year over the next several years, then she will demand a yield of at least 5 percent. Otherwise, she risks a loss of purchasing power at the time the investment is redeemed. Therefore, the downward trend in market interest rates attests to the fact that we have succeeded in reducing inflation expectations.

But we also have some survey data in support of this view. The Federal Reserve Bank of Philadelphia, among others, has been tracking the views of professional economists on various economic indicators for many years. Our [Survey of Professional Forecasters](#), or SPF, asks for quarterly forecasts for a variety of economic data. As part of this process we ask for expected consumer price inflation over the next 10 years. The most recent SPF reported that the expected inflation rate over the next 10 years was 2.5 percent per year. This level has remained essentially unchanged over the past 3 years, even while many disturbances buffeted the economy and the Federal Reserve aggressively reacted to offset their macroeconomic effects.

Why is this important? Stated simply, the more people believe in the existence of price stability, the more effective monetary policy will be as it tries to offset shifts in demand that deter the economy's ability to reach its potential. If people are relatively confident that a downturn will be short-lived, and monetary policy action will be effective in returning the economy to sustainable growth, then they will be more willing to spend into the downturn, taking advantage of temporarily low prices and low interest rates.

In this respect, the fact that consumers did indeed spend their way through the recent economic downturn is a testament to the credibility of monetary policy and consumer expectations that we would soon return to a more acceptable rate of economic growth. The Fed's aggressive counter-cyclical monetary policy over the most recent business cycle has given consumers the opportunity to borrow at relatively low interest rates. Seizing this opportunity, households have increased their purchases of homes and durables at record rates, dampening the breadth and depth of the past recession. They are also sustaining that growth, giving business investment both time to recover and a reason to invest into a better future.

This is in contrast to the recent Japanese experience, where interest rates at or close to zero elicited little response. The difference is confidence in the future. Of course, confidence is born of many factors, not just the effectiveness of monetary policy. Nonetheless, I think confidence in the Federal Reserve's effectiveness is part of the mix. In short, expectations about the central bank's performance figure into the public's behavior. Likewise, maintaining public confidence in both the stability of prices and economic growth helps the Federal Reserve achieve its mission.

In Japan's case, interest rates had been at or close to zero for a long time, without eliciting a substantial response in terms of increased consumer or business spending. Only recently has the situation begun to

change. For a number of years, people in Japan did not expect an immediate turnaround in their economy. Accordingly, they have had little incentive to rush to take advantage of current low rates.

The other aspect of Japan's recent experience that has attracted some attention is its persistent price deflation. Ordinarily, when businesses cut prices, ensuing demand increases help to generate an economic turnaround. Once the turnaround begins, prices stabilize and return to normal. Indeed, the expectation of future price increases is what encourages consumers to buy now, inducing a positive response to the price cuts. But if people believe the initial price declines are a harbinger of continued weakness and additional price declines, demand slackens, leading to even less economic activity, and a continuing downward spiral. Again, expectations are at the heart of these economic decisions and the impact of these price changes.

In sum, these examples illustrate the important role beliefs play in economic decisions. Physical results in terms of actual consumer and business behavior are influenced by consumer and business expectations --- that is, their beliefs. Clearly, the field of economics is one "where the physical and metaphysical intersect," to return to my opening quotation.

### **How Beliefs Are Formed Matters**

Given the importance of expectations, it should not be surprising that considerable effort has been expended on studies of expectations. Economists have been interested in a number of aspects of expectations, including how they are formed, how expectations change, and their speed of adjustment. Indeed, failure to investigate these issues fully could lead to flawed economic policy as well as flawed empirical and analytical research.

For these reasons, researchers have long investigated what people believe will occur in the future, and how their views vary over time. Researchers interested in studying consumer spending want information about what consumers believe, and how that impacts their short-term spending behavior. Similarly, economists studying firms' behavior track their views about the outlook for their businesses or industry and how this is related to their own business spending on new facilities or equipment.

But beliefs are difficult to observe. One way to obtain data is to simply ask people what they believe. This is done through surveys. Another is to try to extract such information from past data, on the assumption that people look to past experience as a guide to the future. There are a number of ways to do this, some of which amount to projecting the future by simply extrapolating from the past. Other ways are more forward-looking in nature and rely on economic modeling. Models can be calibrated using past data and then simulated to generate forecasts of future economic data.

Surveys are the most obvious. They are conducted regularly for general consumer issues, for example, by both the Conference Board and the University of Michigan. The Conference Board publishes a survey of consumer confidence, and the University of Michigan publishes a survey of consumer sentiment. Both surveys generate an index intended to summarize overall consumer attitudes. The Michigan survey in particular asks very pointed questions: whether buying a car is a good idea now or in the future, whether jobs are plentiful now or are likely to be in the future, and what the respondent expects the consumer price inflation rate to be over the next 5 to 10 years.

Such information is relevant and quite helpful. However, it does not fully solve our problem. This is because behavior is only loosely related to such surveys. It is well known that consumer spending is more closely related to direct economic factors than these consumer sentiment numbers. They are, as I said, helpful in explaining behavior but not perfect. Too often consumers have said one thing and done another for economists to totally trust confidence survey numbers.

So economists have had to look more closely at the underlying economic data to determine expectations. I mentioned that researchers obtain estimates of expectations about future economic data in several ways. These methods essentially try to reflect the way researchers believe people form their expectations, or beliefs, about the future.

For instance, economists have tried to generate proxy data for expectations by simply extrapolating from the past, which amounts to saying that people believe nothing is really changing. Others have employed a more forward-looking approach, relying on a model of the economy that is calibrated to the past, but permitting more to change in the future. If people form their expectations or beliefs in a more forward-looking manner, they may behave differently than if they form their beliefs by looking backward and only at the past. This difference is most evident in economists' discussions of the impact of announced changes in economic policy.

For instance, if the Federal Reserve announced a policy to lower inflation in the future --- say from 8 percent inflation to 2 percent inflation --- then, if consumers and businesses absolutely believed the policy announcement, they would be willing to accept lower 10-year interest rates immediately. As a result, interest rates would adjust sharply downward. The policy and ensuing drop in interest rates would essentially prove a self-fulfilling prophecy based on the strength of people's beliefs. In contrast, if consumers and businesses adjusted their expectations about future inflation only *after* actual inflation started to fall, they would not be willing to accept a sharp reduction in 10-year interest rates. This constitutes a kind of "seeing-is-believing" skepticism in the populace.

In general, economic research has shown the economy makes faster adjustments to announced policy changes when people form their beliefs in a forward-looking manner, rather than forming their beliefs based on the recent past behavior of economic data, and when policymakers have credibility.

Economists' understanding of how expectations are formed has evolved substantially over the past 30 years. In the early days of macro-econometric modeling, we modeled people's future expectations as simple extrapolations of their recent experience. Then, in the 1970s, the so-called "rational expectations" revolution changed our whole approach. We began to model expectations about the future as an accurate forecast of the future economic environment.

We continue this research effort even now. Currently, we are modeling expectations as the outcome of an intelligent and well-informed, but occasionally mistaken, learning process. The marketplace eventually weeds out expectations based on poor information and erroneous thinking, but this can take a considerable amount of time.

This has led many to argue that policymakers can assist the market in its attempt to predict the future by greater transparency and more public disclosure. Let me turn to this topic and its implication for monetary policy as the last issue I will address today.

## **Transparency, Disclosure and Expectations**

The Fed can avoid sharp changes in public expectations about monetary policy and the Fed's credibility by being as transparent as possible in its own decision-making. As a result, information about the Fed's policy goals, its assessment of the current economic situation, and its strategic direction are increasingly a part of the public record. The statements now released after every Federal Open Market Committee meeting are important in this regard. They not only report our decisions concerning immediate action, but also our sense of the key factors driving near-term economic developments and the strategic tilt to our actions going forward.

The Fed recognizes that transparency plays an important role in achieving our policy objectives and goals. Any policy action can have very different effects, depending on what the private sector infers about the information that induced policymakers to act, about policymakers' objectives, and about their likely future actions.

Over the last few decades, there has been enormous progress in improving the clarity of the Fed's objectives and our discipline in pursuing those objectives. There has also been great progress in providing more accurate and timely information about Fed policy actions. This progress has greatly enhanced policymakers' credibility. Providing more certainty about the central bank's objectives and plans through greater transparency and disclosure will help avoid large swings in public expectations about future changes in monetary policy. This can help stabilize the economy over the long run.

When you come right down to it, the Fed directly influences just one market interest rate --- the rate on overnight unsecured loans among banks, commonly known as the fed funds rate. Therefore, for the Fed's policy actions to affect economic activity, they must ripple out to other short-term interest rates. How and to what extent is primarily a matter of expectations.

When the Federal Reserve changes its fed funds target, financial markets make an assessment as to how persistent that change will be, what it signals about the future path of fed funds rate targets, and the economy's reaction to the Federal Reserve's change in policy.

This alteration in market expectations, in turn, drives changes in other short-term interest rates. It is the markets' anticipation today of future Federal Reserve actions that extends the impact of a fed funds rate change to other short-term interest rates.

The effect of a monetary policy action by the Fed will also ripple out to long-term interest rates. Thus, the change in the short rate, a single Fed action, affects the entire pattern of interest rates, and long-term interest rates will often move in the same direction as short-term interest rates.

Research suggests that Federal Reserve near-term policy actions are pretty well anticipated by financial markets, though the precise timing and magnitude of interest rate changes are not.

At times, however, long-term interest rates do not move in the same direction as short-term rates. For instance, this can occur when the Federal Reserve is reducing its fed funds rate target but investors believe this easier monetary policy will lead to higher inflation. Yet again, an economic outcome depends on what investors expect --- their beliefs --- about the future. The better markets can predict the future course of Fed actions, and their results for the economy, the more effective monetary policy will be.

Unfortunately, expectations about the economy evolve in ways we cannot always predict. They are also subject to dramatic shifts that we cannot always anticipate. Consequently, they impart an inevitable element of instability to the economy.

## **Inflation Targeting as a Next Step**

It is partially for this reason that some economists have recently spoken in favor of explicit inflation targeting. Proponents argue that the Federal Reserve should set an explicit target for inflation to further improve central bank transparency.

I freely admit to being of this opinion, and I attempted to articulate my position in a speech in New York this summer. To reiterate this position I believe the FOMC should seriously consider inflation targeting so as to consolidate the gains made in central bank credibility over the past two decades and to increase the efficacy of policy even further.

I believe we have reached a point where institutionalizing inflation targeting simply makes good sense from an economic perspective. In short, it is a reasonable next step in the evolution of U.S. monetary policy, and it would help secure full and lasting benefits from our current stable price environment. Evolving to explicit inflation targeting from our current implicit target has significant potential benefits, and the costs may be minimal if we can implement it in a constructive manner.

Clearly, proper implementation of inflation targeting is crucial to its success. That, in turn, requires more research and analysis about how and when to introduce it. But while it requires more public debate and discussion, it may be an idea whose time is approaching.

Explicit information about the Fed's policy goals, along with its assessment of the current economic situation and its strategic direction, can only improve financial markets' expectations, and move market interest rates in better alignment with appropriate Fed policy.

## **Conclusion**

With this, allow me to sum up. As I said at the outset, expectations are at the heart of virtually every economic decision people make. The public's expectations about factors affecting the economy have a

powerful impact on the economy's overall performance. Their view of the future pervades virtually every decision made in our complex and vibrant economy. In some ways, beliefs assume characteristics of a self-fulfilling prophecy. If people believe the economy is healthy and strong, then that belief helps to make it so. Their confidence will induce spending and increase demand, which will, in turn, promote business investment spending, which creates jobs, and ultimately translates into economic growth.

People's beliefs extend not just to the state and structure of the economy but also to the behavior of policymakers in their attempts to control both monetary and fiscal policy. As for monetary policy, its effectiveness hinges on public confidence --- people's belief --- that the Federal Reserve has the commitment and the capacity to maintain stable prices and foster maximum sustainable economic growth.

Establishing this confidence is not easy, particularly in a world where shifts in public expectations can themselves create episodes of economic instability. But, ultimately, the key to creating stability lies in demonstrating stability: focusing on the ultimate policy objectives, pursuing those objectives persistently, and communicating them forthrightly. In this regard I believe the Federal Reserve is on that path.

On this note let me conclude. I hope my comments today have illustrated the nature of beliefs in economic thought and how these expectations clearly shape, and are integral to, economic activity. Researchers throughout the economics profession investigate the formation of beliefs, i.e., expectations, and the dynamics of how they change when people are faced with new information and changes in economic policy. It should also be apparent that the nature of beliefs is particularly critical for the conduct of monetary policy. I hope my remarks have underscored how the field of economics is indeed a discipline that studies "where the physical and metaphysical intersect."