

# Expectations in Modern Macroeconomics

---

The role of expectations in current theory

**Student C**

**12/19/2008**

UW-Whitewater

XXXXXXX

The following is a literature review of recent research in expectation theory. Three areas are specifically discussed: Expectations Trap, central bank commitment effects on expectations, and adaptive learning theory. Expectations Trap deals with understanding high inflation in the 1970s while commitment attempts to explain how to prevent such from happening again. Adaptive learning shows how expectations change over time. In recent years, expectations have become a more prevalent part of research and should continue to grow in prominence in the future.

## Introduction

Expectations are of growing importance in economic research. Over the past few decades, private expectations have been considered when explaining economic phenomena, such as extreme inflation in the 1970s. Though research is limited by our knowledge of macroeconomics, understanding the role expectations play in what actually transpires is pivotal in predicting and responding to future economic conditions.

This paper discusses three major areas of expectations research, beginning with inflation expectations and its influence on central bank policy. From there, this paper discusses commitments and the impacts they have on expectations and the central bank's ability to respond to shock in the economy. Finally, it touches briefly on adaptive learning theories and rational expectations.

Studying expectations is important because understanding them can have policy implications. Ultimately, if expectations do have power to affect future outcomes, they can become a self-fulfilling prophesy. If expectations are different than the desired outcome, this could be a problem. The challenge is how to correct for non-optimal expectations. Finding an efficient way to handle expectations is an issue that is worth considerable evaluation.

## Literature Review

The expectations discussed in literature reviewed in this paper pertain to expected rates of inflation. Research into expectations was sparked by exceptionally high inflation rates in the 1970s and early 1980s, particularly in 1973. Following a substantial rise in inflation, economists began to consider private agent's inflation expectations as a potential cause and also explore ways to handle such expectations in the future.

### Expectations Trap

Christiano and Gust called this an Expectations Trap. Up to the time of their paper, research had revealed how high inflation occurred, but little explanation had been provided as to what caused inflation to be high. The Expectations Trap was hypothesized to result from high private expectations of inflation. Since individuals and firms expect higher inflation, they enter into contracts that take expected future inflation into account. Should inflation fail to increase as expected, those who signed the contracts will be negatively affected, being held to contracts that are more expensive in real terms than anticipated. As a result, the central bank would be forced to either increase money supply growth or allow the economy to go through a recession. This is known as the Cost-Push Trap. Though the central bank would prefer to not validate high inflation expectations, should it refuse, private agents, and ultimately Congress would force them to increase the money supply. Thus, the Expectations Trap becomes an issue of survival for the central bank – they would determine the best option to increase money supply and live to fight another day, so to speak. Ultimately, private individuals will get what

Student C,XXXXXXXX

they want through the legislative process anyway, so the central bank refusing to meet their expectations would simply prolong the inevitable.

Similar to the Cost-Push Trap, the Working Capital Trap also looks at increased inflation expectations, but instead shows that these expectations are manifested in higher interest rates. As interest rates rise, the central bank is faced with two options: either maintain the current supply of money, or increase money supply. If they keep money supply constant, interest rates will remain high, choking off investment, and pushing the economy into recession. If they raise money supply, interest rates will fall and investment levels stay strong, but inflation will take its long-term toll on the economy. Again, the central bank is left with no good option and would be forced to take the least deadly choice and inflate the economy.

Under the Cost-Push or Working Capital theory, the result is the same: either inflate the money supply or face a recession. As the central bank considers the options, likely they will choose inflation. However, this is not the optimal choice for the economy as a whole. The struggle is how to change the expectations for the public so that they are no longer pulling the economy in a negative direction. Worse, meeting these high inflation expectations creates future high inflation expectations, as private agents assume the central bank will continue to meet their expectations – a trend that could become a repeating phenomenon.

Expectations are addressed from a different perspective by Robert Barro and David Gordon. Instead of looking at the negative results of expectations, they consider the possibility of the central bank exploiting private agent's expectations for short-term benefits. If the central bank were to increase money supply more than expectations, the government could

Student C,XXXXXXXX

reap benefits from money creation and depreciation of public debt. Surprise inflation does not carry the same deadweight welfare loss that taxation brings, but rather allows the government to raise funds at low rates since they are in effect issuing more money. A second benefit is that current public debt declines in value since the amount the government must repay is worth less in real terms than it was when originally borrowed. Still another benefit is a temporary reduction in the unemployment rate (according to the Phillips Curve tradeoff discussed below) as the inflation rate rises above expectations. However, at best, these benefits are only short-lived, lasting only until the economy corrects itself as private agents realize what happened and adjust their future expectations.

The Phillips Curve depicts the tradeoff between inflation and unemployment. As inflation rises, unemployment typically falls. Expectations play a role in that as the central bank tries to push unemployment below its natural rate by increasing inflation, there will only be a benefit until expectations adjust. Then the level of unemployment will rise again to the natural rate.

### Commitments

According to Barro and Gordon, the only long-term effect of surprise inflation is a loss to the government's (central bank's) reputation. Once private agents have been surprised once, they will assume future "surprises" will occur, meaning that the government will be unable to gain any advantage from surprise inflation in the future, unless they surprise by an even greater amount. Such policies could easily snowball, which is a road Barro and Gordon argue nobody wants to travel.

As Clarida et al. put it, inflation of these levels is inefficient. Some inflation is good – there is a steady-state of inflation that is healthy for an economy. However, too high of inflation can be very harmful. Given this problem, an ideal situation would be to keep the central bank from validating expectations. Commitment to specific policies, such as benchmarking to specific levels of inflation, helps to stabilize expectations over the long run. As the central bank proves that it intends to support the commitments it makes, private agents will begin to consider that when calculating future inflation expectations.

From a practical side, the central bank will be tempted to break these commitments, either for short-term gains or to respond to shocks. Indeed, Clarida et al. suggests the central bank should attempt to offset demand shocks and accommodate supply shocks. Their ability to respond appropriately to these could be hindered by the commitments the central bank makes. Still, with the attractiveness of breaking commitments prevalent, the best way to ensure success is to assign a higher relative cost to inflation than is actually observed in the market. Clarida et al. suggests this could be achieved by appointing a head of the central bank that hates inflation. However achieved, Clarida et al. as well as Barro and Gordon agree that commitments provide the best basis for success in managing private agent's expectations.

### Adaptive Learning

Evans and Honkapohja wrote a couple of papers (both in 2003) on expectations in monetary policy, introducing what they call “adaptive learning.” Though very complicated in nature, both papers rely heavily on rational expectations theory. Rational Expectations, very simply put, is the belief that results are not systematically different from expectations private

agents make. Essentially, expectations are self-fulfilling prophecies. Errors in forecasting can occur under Rational Expectations, but over time, they tend to balance each other out and not occur persistently. The theory is based on the assumption that people are rational – that they act in their own self-interest.

Adaptive learning states that over time, economies tend to stabilize because private agents learn to adapt to central bank policies. This also means that central banks cannot consistently fool private agents to obtain benefits of surprise inflation. Even with shocks, adaptive learning still holds. While certainly the least simple of the theories regarding expectations, future research into adaptive learning could prove very beneficial.

## Conclusions

Three major areas of expectations in business cycle research have been discussed. An Expectations Trap occurs when expectations of high inflation actually causes high inflation to occur. The central bank is forced to meet increased inflation expectations of private agents or face plunging the economy into recession. These then feed into additional high inflation expectations and the cycle continues.

The next section is a discussion of central bank, or policymaker, commitments and their effect on inflation rates. Given a level of expected inflation, the central bank has incentive to take advantage of short-term gains by surprising private agents with higher than expected levels of inflation. However, the benefits of easily-raised capital, depreciating public debt, and

decreased unemployment are offset by a long-run loss in credibility. Thus, committing to a specific policy becomes a viable source of control, where if credible, can reign in expectations and prevent an Expectations Trap.

Finally, Adaptive Learning and Rational Expectations were introduced. These theories by Evans and Honkapohja are very complicated and boil down to that private agents learn how to model their expectations better over time. This field provides an interesting opportunity for future research.

Overall, theories regarding expectations seem to be consistent throughout. Expectations do have an impact on the economy. Unless carefully handled by the central bank, expectations can become a self-fulfilling prophecy, fueling and lending credence to future expectations. Establishing commitments and abiding by them can help a central bank overcome the Expectations Trap. There are several other areas of research that use expectations which, though different, do not seem to conflict with each other, such as the Adaptive Learning and Rational Expectations theories.

Expectations provide fertile ground for future research. One area that would be interesting is looking at whether expectations can have a reverse effect, or if they only become an issue when expectations are much higher. In addition, Clarida, et al. suggests that more research should be done regarding rational expectations during a policy regime change. In current research, the assumption is made that private agents catch on immediately when policies change, but in reality there could be a transition time.

Student C,XXXXXXXX

Though these are only a couple of areas in which research could be advanced, in reality, the doors are wide open for future discoveries. Central bank ability to react to expectations is continuously limited by economist's understanding of macroeconomics. As additional research is completed, even the knowledge already obtained will be more effectively used.

## References

- Barro, Robert J., and David B. Gordon (1983): "A Positive Theory of Monetary Policy in a Natural-Rate Model," *Journal of Political Economy* 91(4): 589-610.
- Christiano, Lawrence J., and Christopher Gust (2000): "The Expectations Trap Hypothesis," Federal Reserve Bank of Chicago.
- Clarida, R., J. Gali and M. Gertler, 1999, "The Science of Monetary Policy: A New Keynesian Perspective", *Journal of Economic Literature*, 37, pp. 1661 – 1707.
- Evans, George W., and Seppo Honkapohja (2003): "Adaptive Learning and Monetary Policy Design," *Journal of Money, Credit and Banking* 35: 1045-1072.
- Evans, George W., and Seppo Honkapohja (2003): "Expectations and the Stability Problem for Optimal Monetary Policies," *Review of Economic Studies* 70: 807-824.