Comment on Monetary and Fiscal Policy in a Low Inflation Economy with Learning

John C. Williams has written a very nice paper on monetary and fiscal policy in a low inflationary environment when the central bank is constrained by the zero bound on the short-term nominal interest rate. The main new element in the paper is that it deviates from the assumption of rational expectations by assuming learning and explores how this changes the results from the previous literature. The main message of the previous literature is to emphasize the role of managing expectation, that it is desirable to counteract deflationary shocks by creating expectations of low future nominal interest rates and stimulating inflation and output expectations. This paper support this view and even indicates that the policy makers should go further in this direction when expectations are not fully rational. William's paper, however, suggests that under certain assumptions reflationary policies of this kind may not be enough and the economy can experience severe output contractions. Williams emphasizes the need for a positive average inflation target and pro–active fiscal policies as an insurance once the expectation channel fails.

To organize the discussion, it is useful to review briefly the kind of arguments the previous literature has made and how this paper fits in. Consider an economy in which the central bank affects spending decisions by variations in the short-term nominal interest rate according to the equation

$$Y_t = E_t Y_{t+1} - \sigma(i_t - E_t \pi_{t+1} - r_t^e)$$

as for example derived in Eggertsson (2005). Here Y_t is output in terms of log deviation from steady state, i_t is the short term nominal interest rate, π_t is inflation, E_t is an expectation operator and r_t^e is an exogenous intertemporal preference shock. This equation says that demand depends on expectations about future demand, the nominal interest rate and expected inflation. In this framework the central bank can stimulate the economy by cutting the nominal interest rates. A central bank seeking to maintain stable demand reacts to deflationary shocks, i.e. a negative r_t^e, by cutting the interest rate. The interest rate, however, cannot be less than zero which places an important restriction on the central banks ability to stabilize the economy. The solution provided by much of the previous literature can be seen by forwarding this equation to yield

$$Y_t = E_t Y_T - \sigma E_t \sum_{s=t}^{T-1} (i_s - \pi_{s+1} - r_s^e)$$

which says that demand does not only depend on the current nominal interest rate and next period inflation but expectations about the entire path for future nominal interest rates and inflation developments. A straight forward way to increase demand once the zero bound in binding is to influence expectations about future interest rates in states of the world in which the people expected them to be positive, in particular the central bank should commit to lower future

nominal interest rates for a given path for the price level. The literature, e.g. Eggertsson and Woodford (2003), has generally found that commitments of this kind (if credible) can eliminate most of the distortions associated with the zero bound. The form of this commitment often emphasized (including by the author in Reifschneider and Williams (2000)) is that the central bank should commit to keeping the interest rate low until a particular *level* of prices is reached. The price level targeting rule Williams illustrates in this paper has this property.

In this paper John Williams stresses that the previous literature depends on that expectations are rational. If expectations are rational, and to the extent the government can commit to future policy, the government simply says that it will keep interest rate lower in the future until prices increase to a particular level and this stimulates demand. But what happens if expectations are not rational in the sense that the public will not update its expectations to a full extent? There is a large recent literature that emphasizes that a various form of learning may capture private sector behavior better than rational expectations. How do the results change for these alternative assumptions both in terms of policy prescriptions and effectiveness? Should we still guide policymakers to try to increase inflation expectations and commit to lower future interest rates when the zero bound is binding?

Williams illustrates that the central bank should even go even further in making commitment of this kind when there is learning. It becomes even more important to try to establish reflationary expectations and create expectations of low future nominal rates and communicate this to the public. The intuition is that the learning mechanism weakens the expectation channel. But this does not imply that expectations should not be manipulated. Instead the policy makers should lean even harder against the expectation channel. At a practical level, therefore, Williams results points towards the same direction as the existing literature.

The main departure from the existing literature is found by studying several examples in which Williams shows that even if central banks does it best to stimulate expectations through price level targeting, this is not enough and the economy experiences large output losses and deflation. In one of the more dramatic examples output is less than 20 percent of the steady state 40 percent of the times. In this example the government cannot communicate that it is targeting the price level and the public uses "a difference rule" to forecast future policy.

One obvious question raised by this example is to what extent it is realistic to assume that the public uses a "difference rule" to form expectations while the central bank uses a price level targeting rule to conduct policy. I would argue that although the examples cannot be taken literally they are instructive to illustrate the point Williams is making. They highlight possible difficulties raised by the zero bound when expectations are sluggish due to learning. Imagine that the economy arrives at zero interest rates when in the past the central bank has conducted policy in accordance with a difference rule suggested by Williams. How easy is it for the central bank at that point to convince the public that its future policy will be set in accordance with a new policy rule? When the inter-

est rate is already at zero there are no obvious instruments for the government to manifest its commitment to the new rule. Indeed the assumption of learning seems particularly appealing when we want to model rare events.

There are two lessons William's draws from the possibility of very bad outcomes under learning and I think both make a great deal of sense. The first is that the central banks should on average target positive level of inflation. This ensures that the zero bound is much less likely to be ever reached. Williams shows some examples to illustrate this and argues that an inflation of about 2 percent on average makes the zero bound a small issue. This seems like a small price to pay to avoid the possibility of severe output losses. The second lesson is that the government should consider using fiscal policy to support reflationary policies. Given the uncertainty of the effectiveness of reflationary monetary policies stressed here this seems like a prudent advice.

Keeping fiscal policy in reserve also makes sense from other perspectives. In a recent paper I show that reflationary monetary policy suffers from a severe credibility problem at zero interest rate. Optimal monetary policy is to commit to future inflation but the private sector expects the central bank to renege on the inflation promise once deflationary pressures have subsided. This problem, what I call the deflation bias, can be solved by expansionary fiscal policy because nominal debt gives the government an incentive to inflate in the future (Eggertsson (2006)). The assumption of imperfect knowledge may makes this an even more important consideration. One can also point towards the one example when the zero bound was a serious constraint in the US. This was during the Great Depression but the short-term interest rate fell down to zero by the end of 1932. In this case the administration used fiscal policy to back up monetary policy (see Eggertsson (2005)). The recovery phase in 1933-37 and 1938-42 was not only marked by a commitment to inflation but also an aggressive expansion of the fiscal side. The recovery in 1933-37 and 1938-42 was is indeed very robust, only to be interrupted by the recession in 1937-38 when the administration abandoned both the commitment to inflation and fiscal policy was set in reverse.

References

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