Discussion of
"Should Central Banks Raise Their Inflation Targets?" by Bennett McCallum

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Let me eliminate the suspense and state that I agree with the conclusion of Ben's paper, that central banks should not raise their inflation targets. The paper demonstrates Ben's particular strength in cutting to the essence of specific theoretical arguments and explaining them clearly in terms that everyone can understand. However, in my opinion the paper is a bit skewed in that it gives full treatment to the arguments for a negative inflation rate while omitting some of the arguments for having a positive inflation rate. If a central bank had to change its inflation target from 2 percent to either 1 or 3, Ben apparently would choose 1, whereas I would choose 3. But I suspect we both agree that the benefits of either move would not justify the costs for any central bank that had devoted a lot of effort to building credibility around a target of 2.

I also agree with Ben that the zero lower bound on interest rates would disappear if we could eliminate cash or impose a time-based tax on cash that functioned as a negative interest rate. I do not think that these are silly ideas--indeed I would not be surprised if we eventually move to a cash-free world--although the most powerful arguments for doing so probably have more to do with fighting crime and tax evasion than with eliminating the zero bound. But I think these ideas are not going to gain traction in the next 5 or 10 years at least, so I will not pursue them further here.

This paper begins where most studies of this type begin, with Milton Friedman's rule for optimal money creation. This rule calls for a negative rate of inflation so that cash has a positive real rate of return and no one wastes resources economizing on cash, which, after all, is

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essentially costless to create. Ben's paper draws heavily on an earlier paper by Schmitt-Grohé and Uribe (2010), henceforth SGU, which calibrates the optimal rate of inflation under the Friedman rule at -4%. Ben suggests, and I agree, that SGU overstate the Friedman-optimal rate of deflation. Ben thinks this may reflect some fundamental difference between "risk-free" rates and interbank rates, and he cites an earlier paper of his in support of this view. I did not explore his earlier work because the bottom line is that we agree on the implications. But my own interpretation is that simple models like the one used by SGU are incapable of explaining the large gap between the average return on capital and the risk-free rate, and they calibrate the model at least in part on the return to capital rather than the risk-free rate. In any case, Ben and I agree that a better measure of the optimal rate of deflation under the Friedman rule is something like the real return on Treasury bills, around 1 or 2 percent, depending on sample period. This is an important point that has ramifications later on.

The paper notes that SGU dispute the assertion, generally attributed to Phelps (1973), that the optimality of Friedman's rule relies on the existence of non-distortionary taxes. SGU find that under certain conditions, even distortionary taxes do not overturn the optimality of Friedman's rule. The necessary condition that Ben finds most questionable is the assumption that there are zero transactions costs in government consumption. I am not sure how important I think such costs might be, but I note that there is another assumption that bothers me, namely that all incomes are subject to tax at the same rate. In particular, if a lot of activity goes untaxed, either because it is criminal in nature or because the participants simply want to evade taxation, then an inflation tax can yield important social benefits. SGU estimate that as the untaxed share of the economy rises from 0 percent to 18 percent, the optimal inflation rate rises from -4 to -3 percent. If SGU were to adjust their analysis to correspond to the more plausible Friedman-

optimal inflation rate of -1 or -2 percent, the optimal inflation rate with an underground economy would likely be raised accordingly, perhaps to zero or above. Moreover, if underground activity were especially vulnerable to the inflation tax—which seems likely—and if underground activity has negative externalities—which also seems likely—then the case for an inflation tax would be even stronger.

Nevertheless, I cannot help but agree with the quote Ben provides from Larry Summers (1991, 626-27), that "standard optimal tax issues along Ramsey lines are nth-order considerations. Inflation as a Ramsey tax may be the most overstudied issue in macroeconomics."

As Ben points out, adding a standard Calvo model of sticky prices to the SGU analysis immediately overturns the optimality of the Friedman negative inflation rate in favor of zero inflation. This result seems to confirm Larry Summers. But, as Ben also notes, a simple and plausible adjustment of the Calvo model to allow for automatic price changes at the rate of trend inflation for those who are not allowed to reoptimize in a given period would quickly put us back in a world in which the Friedman rule is optimal.

The next step is to consider the welfare costs of hitting the zero lower bound on interest rates. Here SGU use a richer stochastic model with sticky prices (without allowing for the trend inflation adjustment mentioned above) that implies an optimal average inflation rate of -0.4 percent and an average "risk-free" nominal interest rate of 4.4 percent. SGU argue that it would take a 4-standard-deviation shock to lower the nominal interest rate to 0 percent so that hitting the zero bound is never likely to occur. Well, I'm glad to hear that. Maybe we can all go home now.

Ben also sees the flaw in their logic. As mentioned above, the real interest rate in the SGU model is much higher than the average real short-term policy rate and thus it understates the actual probability of hitting the zero bound. Ben's answer to this problem is instead to argue that central banks can ease policy even when the nominal short-term interest rate is constrained by the zero bound. He points to the portfolio balance channel, through which purchases of foreign exchange and long-term bonds by the central bank can raise the prices of foreign exchange and long-term bonds. I recently wrote a paper (Gagnon, et al., 2010) estimating the size of the portfolio balance effect in long-term bonds, so I agree that monetary policy is not impotent at the zero bound. Nevertheless, there is much that needs to be studied about operations using the portfolio balance effect, especially when long-term interest rates are already very low and other countries are also near the zero bound. There may be a greater cost to such actions than to conventional monetary policy, so I am not prepared to say that the zero bound is irrelevant.

I largely agree with the paper's analysis of the costs of raising the inflation target. But there is a digression in the paper that I cannot ignore because I disagree with it so utterly. Ben appears to have been unduly influenced by those who blame the housing crisis on government regulation in general and the Community Reinvestment Act (CRA) in particular. I believe that this position is a huge slander perpetrated for ideological purposes by people who know better, and I am sorry to see Ben implicitly endorse their superficial argument. This argument starts with a grain of truth, but it then conveniently ignores a whole host of inconvenient facts that collectively add up to the most important elements of the story. Why do proponents of this view ignore the thousands of essentially unregulated mortgage brokers who engaged in massive fraud because of flawed compensation practices that had nothing to do with the CRA? Where is the

discussion of the off-balance-sheet positions built up by the banks in order to avoid scrutiny of the regulators? Why is there no discussion of the tremendous information problems engendered by structured finance--problems that no one, regulator or practitioner, fully understood in advance of the meltdown? Did the world never experience financial bubbles and excesses before the advent of government regulation? I could go on, but this is only a digression in the paper. I strongly urge Ben to cut it from the final version.

Now that I have covered what is in the paper, I would like to talk about what is not in the paper. In fact, the paper does not mention some arguments for a positive inflation rate that I find to be especially compelling.

First and most important is the apparent resistance of many firms and workers to accepting nominal cuts in prices and wages. This is a form of money illusion and I believe it is important. It is not the same as price stickiness because it is asymmetric and it becomes empirically important only when overall inflation is very low. Neither Ben's paper nor the SGU paper discuss the well-known work of Akerlof, Dickens, and Perry (1996), which found that reducing the average inflation rate from 3 percent to 0 percent would permanently raise the US unemployment rate by 2 percentage points. SGU discuss the results of only one paper on this topic, Kim and Ruge-Murcia (2009), henceforth KRM, who found significant evidence of downward wage rigidity but computed an optimal inflation rate in a Taylor-rule monetary regime of only 0.35 percent. However, a deeper examination of the KRM paper suggests that the case for a positive inflation rate may be stronger than at first appears.

KRM find that the costs of deviating from the optimal inflation rate are highly asymmetric. Small negative deviations are far more costly than similarly-sized positive deviations. This result flows directly from the strongly asymmetric wage adjustment costs they

estimate. To the extent that there is uncertainty surrounding the optimal inflation rate, a central bank would be wise to err on the side of higher inflation. In addition, KRM estimate their model using aggregate data in a representative agent framework. Their wage rate is total labor compensation divided by total hours. But these data are heavily influenced by the top end of the income distribution, where flexible payments in the form of bonuses and commissions are important. It seems likely that compensation at the middle and lower ranges of the income distribution is far more rigid in a downward direction than compensation at the top. A welfare analysis would surely give more weight to the effects of rigidity at the middle and lower ranges than at the top, even though wages at the top tend to dominate the total income statistics. One of the KRM authors told me in a private communication that he believed that estimates of their model using microeconomic data would almost surely lead to a higher estimate of the optimal inflation rate. This conjecture seems right to me, especially if one were to focus on the middle and lower end of the wage distribution. The paper by Akerlof, Dickens, and Perry obtains its strong result in favor of a positive inflation target using such micro-level data.

Another argument for a positive inflation rate has to do with a fundamental asymmetry built into the Friedman rule that, to my knowledge, has not been explored in the academic literature. Friedman was concerned about the "shoe-leather" cost of minimizing cash holdings when inflation is positive. What gets almost no attention, however, are the much larger costs to society in lower capital and output arising from deflation. Why would anyone hold risky capital with an expected real return of 5 percent during a steady deflation of 6 percent? In that case, the riskless returns to holding cash exceed the risky returns on productive capital. As the rate of deflation increases, the entire economy shrinks as the capital-output ratio contracts. This cost is many orders of magnitude greater than the "shoe-leather" cost associated with positive inflation

of 6 percent. The Friedman-optimal rate of inflation may be -1 or -2 percent, but the costs of deviating below that are sky-high whereas the costs of deviating above it are small.

So far, we have a strong case against significantly negative inflation, but no reason to prefer positive inflation. However, if we add to this asymmetry the issue of credibility concerning long-run inflation targets, then we can build such a case. In a paper that I wrote a long time ago but that was recently published by the St. Louis Fed (Gagnon, 2008) I argued that expectations about inflation over the life of a long-term bond depend on more than just the current monetary regime. Because monetary regimes have changed several times within the memory of most of us, we have to place a significant probability on the possibility that any current inflation target or operating procedure could change over the next 5 or 10 years. We are likely to form opinions on far future inflation based on inflation rates we observed far into the past. Inflation rates over the past 100 years have been almost always positive, sometimes in double digits, and never significantly negative. So any policy regime with an inflation target of zero or less simply cannot be credible in terms of long-term inflation expectations. This lack of credibility is an obvious explanation for why both survey measures of long-term inflation expectations and far-forward inflation compensation in long-term bond yields are generally around 2-1/2 to 3 percent in the United States, despite the FOMC's public forecasts of a long-term inflation objective centered on or slightly below 2 percent.

This lack of credibility must imply some costs to society. Although the issues considered here are most relevant for long-term expectations, they probably affect short-term expectations to at least a small extent. Achieving an inflation target that is not fully credible may require a higher level of unemployment and a higher ex post real interest rate than would otherwise be necessary. These considerations argue against choosing an inflation target that is out of the

range of prior history. I would argue that a target of zero inflation is out of the historical range for most countries.

A final argument for a positive inflation target is based on the principle of revealed preference. What does the history of monetary policy under fiat currencies tell us? My armchair historical interpretation is that the public does not like high inflation. High inflation certainly includes double-digit inflation. It probably includes inflation in the high single digits. But there is very little evidence of public dissatisfaction with inflation below 5 percent. Indeed, Paul Volcker and Ronald Reagan were both quite happy with steady inflation around 4 percent and they were justly praised for having brought price stability to America.

What about countries that have chosen an explicit inflation target through their political-institutional processes? I believe that the choices of these countries are instructive. The SGU paper shows that no country with an explicit inflation target has chosen a target below zero or a range that includes negative values. The average target among industrial countries is just over 2 percent and the average target or range mid-point among developing countries is 3-1/2 percent. I think that the experience of the first inflation targeter, New Zealand, is particularly instructive. New Zealand began with a target range of 0 to 2 percent. But political dissatisfaction with the economic outcomes of the new regime caused first the upper bound to be raised to 3 percent and then the lower bound to be raised to 1 percent. Since these adjustments were adopted, inflation targeting in New Zealand has become less controversial, which suggests that there is a popular preference for inflation at 2 percent rather than at 1 percent on average.

What is my bottom line? If we could roll the clock back 20 years in the United States, I would recommend a target range of 2 to 3 percent, as Australia has chosen, implying an average inflation rate of around 2.5 percent. And perhaps, even today, I think adopting such a target

range would not be a bad idea. It would have the benefit of being consistent with current measures of inflation expectations over the long run. But we have a history now of somewhat lower inflation and inflation objectives: the PCE deflator has risen at an average rate of 2.2 percent over the past ten years, and the FOMC has espoused a goal of 2 percent inflation. As Ben notes, it would be difficult to explain to the public why a higher rate of inflation is now desirable. The potential costs associated with losing credibility are considerable. I would not support an inflation target of 4 percent and would only reluctantly accept 3 percent. Given our history, I am roughly indifferent between 2 percent and 2-1/2 percent. I would strongly resist anything lower than 2 percent.

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