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# Comment on Rudebusch and Williams, "A wedge in the dual mandate: Monetary policy and long-term unemployment"

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ABSTRACT

Rudebusch and Williams (2015) conclude "A wedge in the dual mandate: Monetary policy and long-term unemployment" with the policy prescription "Optimal policy should trade off a transitory period of excessive inflation in order to bring the broader measure of underemployment to normal levels more quickly." The question that I address is whether our knowledge of the dynamics linking monetary policy, inflation and real growth is sufficiently well-developed that policy recommendations of the sort that Rudebusch and Williams proffer can be effective. I present two bodies of empirical evidence pertinent to this issue. The first has to do with the Phillips Curve itself; the second with the class of models now used to analyze the economic effects of monetary policy.



## 1. Introduction

Rudebusch and Williams (2015) (RW) in their "A wedge in the dual mandate: Monetary policy and long-term unemployment" begin by showing the exceptional increase in long-term unemployment that took place during the course of this last recession. They then present econometric evidence showing that the association between short-term unemployment and inflation is stronger than the association between total unemployment and inflation. Their model simulations buttress these econometric findings. They conclude: "Based on the analysis in this paper the implications are clear: Optimal policy should trade off a transitory period of excessive inflation (beyond what is calculated using this paper's model) in order to bring the broader measure of underemployment to normal levels more quickly."

The question that I want to address is whether our knowledge of the economy's dynamics linking monetary policy, inflation and real growth is sufficiently well-developed that policy recommendations from RW's model are practical and, consequently, useful. I present two bodies of empirical evidence on the question of the link between policy and inflation. The first pertains directly to the Phillips Curve; the second to the class of models that now are used to analyze the effects of monetary policy on the economy.

## 2. Empirical problems

A decade and a half ago Atkinson and Ohanian (2001) created quite a stir with a paper published in the Federal Reserve Bank of Minneapolis *Review* questioning the ability of the Phillips curve relationship to predict inflation behavior. The evidence they presented showed that the Phillips curve was unstable and that did a poor job of predicting inflation.

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A number of follow-up papers have reached more or less the same conclusions (e.g., Dotsey, et al., 2015; Lansing, 2002; Stock and Watson, 2009). One in particular stands out; the paper by Stock and Watson (2009) published in a Federal Reserve Bank of Boston conference volume commemorating 50 years of the Phillips Curve. They examine the performance of 192 forecasting procedures – 157 different models and 35 combination forecasts – in forecasting five common measures of inflation. In accord with the findings reported elsewhere in the literature, they conclude that the procedures that they examine have great difficulty outperforming univariate models and do so only sporadically. They then go on to say:

A question that is both difficult and important is what this episodic performance implies for an inflation forecaster today. On average, over the past 15 years, it has been very hard to beat the best univariate model using any multivariate inflation forecasting model (Phillips curve or otherwise). But suppose you are told that next quarter the economy would plunge into recession, with the unemployment rate jumping by 2 percentage points. Would you change your inflation forecast? The literature is now full of formal statistical evidence suggesting that this information should be ignored, but we suspect that an applied forecaster would nevertheless revise downward his or her forecast of inflation over the one- to two-year horizon.

In Fig. 1, I have plotted inflation against unemployment. The figures are for annual percentage rates of change of the CPI and annual rates of unemployment over the period 1950 to 2014. I use these data to provide added background to the econometric results reported by Atkinson and Ohanian and Stock and Watson.

Shown in panels Fig. 1a–h are plots for various subperiods and in panel Fig. 1i a plot of the data for full sample period. Until 1983 the subperiods are the same as those used by Robert E. Lucas, Jr. in his Nobel Lecture (Lucas, 1996). Lucas, in turn, took these charts from a textbook by Stockman (1996). Stockman chose the subperiods to illustrate the shifts in the inflation-unemployment relation that took place prior to and during the period of the Great Inflation of the 1970s and early 1980s.

In Fig. 1a–e for the six subperiods ending in 1983, a negative relationship between inflation and unemployment – a Phillips Curve – is clearly visible. Notice, however, that the values on the axes in these charts differ. The curves shift outward through time. These shifts are broadly consistent with the critiques of the Phillips Curve by Friedman (1968) and Phelps (1967) who stressed the influence of inflation expectations on the relationship between the actual rate of inflation and unemployment. But there are several key differences in these data from those that would be consistent with the simplest versions of the Friedman–Phelps critiques. For one thing, the shifts appear to be outwards and to the right rather than vertical as implied by Friedman's and Phelps' analyses. The natural rate of unemployment apparently increased with the average rate of inflation rather than remain constant. Friedman in his Nobel lecture (Friedman, 1977) attributed the apparent increase in the natural rate to the uncertainty accompanying the increasingly higher and more variable inflation that characterized this period.

A second thing to notice in the charts is the variation in the shape of the within-period inflation-unemployment relations across the various subperiods. The slopes of lines fitted visually to these relations appear to alter over time. Post 1983, the slopes flatten considerably and the points become more widely dispersed. In Fig. 1i for the pooled data, there is no discernable relation whatever.

As a check on all these visual impressions and to calibrate my own internal probability calculator, I estimated individual regressions for the eight subperiods separately and tested their stability over time. The coefficients were all negative, averaging −1.18, but were widely dispersed, varying from −20 to −3.26. The *F*-ratio for the test of temporal stability was 2.95, which with 7 and 56 degrees of freedom leads to rejection of the hypothesis at the 0.01 level. The instability in these estimates is confirmed further by a regression shown below:

$$\text{Inflation} = 2.178 + 0.248\,\text{Unemployment}, \quad R^2 = 0.021, \quad \text{SEE} = 2.797, 1.302, 0.214 \tag{1}$$

where figures beneath the coefficient estimates are standard errors.

Some analysts might object that such comparisons are entirely too simple: a more thorough econometric investigation doubtless would include a variables proxing the expected rate of inflation and variables to capture the influence of real shocks. The problem here is twofold. Real shocks are one-off and random and, therefore, non-forecastable. Hence, this knowledge could not be helpful for policymakers who have to make decisions in real time. Accurately accounting for and forecasting expected rates of inflation are extremely difficult. Moreover, given the variance in such forecasts, it is unclear how policymakers could effectively account for expected inflation in conducting policy.

It is interesting to note that as we go from charts 1a and b to charts 1c through 1e, we not only see an upward shift in the inflation-unemployment relations but a decrease in the number of yearly data points making up the individual relations. The latter could be a result of the monetary shocks becoming more frequent and of greater intensity. It is also consistent, however, with Friedman's (Friedman, 1968, 1975) conjectures that the time it takes for expectations to adjust to the current rate of inflation shortens if rates of inflation continually ratchet up. Agents, on his view, would shorten the time horizon on which they based their expectations, paying more attention to the recent past and less to the distant past and eventually basing their projections on higher order derivatives of the price level. They would also take account of outside information, information about the factors affecting money growth, government deficits and the like.

Lucas (1973) and Sargent (1982) later formalized this argument in separate papers that were among the studies that ushered in the rational-expectations revolution. The basic ideas, however, already were part of the oral traditions of the workshops in Money and Banking and in Latin American Economics in Chicago when I attended them from the late 1960s and into the early 1970s.[1] They seem to have largely gone missing, however, in the recent Phillips curve literature.[2]

[1] See the discussion in Lothian (2016) (Forthcoming).

[2] An exception is Gordon (2011).