# Charles Plosser: Contributions to Monetary Theory and Policy

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## An Intriguing Contrast

Who was the most important and influential monetary economist of the past half century? Since Milton Friedman's academic research was largely completed by the end of 1972 (Nelson 2020, p.ix), this question will inevitably provoke lively debate. Far too many candidates come to mind to list individually here. If one sharpens the question, however, to ask who, among these top monetary theorists, also had the greatest and most positive influence on monetary policy in practice, the set of candidates narrows to two: John Taylor and Charles Plosser.

Immediately after this is done, an intriguing contrast appears. Anticipating the analysis in Taylor (1993), introducing the now-famous monetary policy rule that bears his name, much of Taylor's academic research, starting with the key contributions in Taylor (1979) and Taylor (1980) and reviewed in full by Taylor (2016), focused specifically and in detail on the optimal design of monetary policy rules in rational expectations models with staggered nominal wage and price setting. Plosser's most famous academic work, by contrast, came through his role as one of the key developers of real business cycle theory: most significantly, through Long and Plosser (1983), which coined the phrase, as well as King, Plosser, and Rebelo (1988*a*, 1988*b*) and Plosser (1989). Nelson and Plosser (1982) and King, Plosser, Stock, and Watson (1991) could be added to this list as papers presenting time-series evidence to support the implications of real business cycle theory.

As its name suggests, real business cycle theory posits that the sources of business cycle

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fluctuations are purely real – that is, non-monetary – so that any correlation between money growth and inflation on the one hand and output and employment on the other must reflect the response of monetary policy *to* the economy, as in King and Plosser (1984), not the effect of monetary policy *on* the economy. Plosser's revealed academic preference for models where monetary policy has little or no effect on output and employment surely contributed to his reputation as a policy "hawk," emphasizing the importance of controlling inflation as opposed to stabilizing unemployment, as President of the Federal Reserve Bank of Philadelphia from 2006 through 2015.

However, the influence of Plosser's academic research on the Federal Reserve's monetary policy strategy runs far more deeply and broadly than his participation in debates between "hawks and doves." In fact, ideas from Plosser's academic work can be found throughout the Federal Open Market Committee's 2012 Statement on Longer Run Goals and Monetary Policy Strategy (Federal Open Market Committee 2012), the co-called "Consensus Statement," which he played a key role in drafting (Lacker 2020). To understand Plosser's curious but completely consistent path from real business cycle theorist to monetary policymaker, it is necessary to consider in more detail how his academic work contributed to a line of research in monetary economics extending back more than six decades.

**Real Business Cycle Theory in Historical Perspective**

This story, told in more detail by Ireland (2025), begins more than 65 years ago, when Samuelson and Solow (1960, Fig.2, p.192) interpreted the Phillips curve – the inverse statistical relationship between inflation and unemployment often found in the data – as offering monetary policymakers "the menu of choice between different degrees of unemployment and price stability." One can easily imagine superimposing on Samuelson and Solow's graph of the Phillips curve, with unemployment on the horizontal axis and inflation on the vertical axis, a set of indifference curves over the same two variables, reflecting the objectives codi-

fied by the Federal Reserve's dual mandate.[1] The graph would then illustrate how, through skillful fine-tuning, policymakers could achieve exactly the right mix of price stability and maximum employment by finding the tangency point where the terms of the trade-off in social preferences (the slope of the indifference curve) coincides with the terms of the trade-off in the aggregate economy (the slope of the Phillips curve). Likewise, fine-tuning, or "optimal control" as described by Kydland and Prescott (1977, p.473), could be used to adjust the appropriate mix of inflation and unemployment as economic circumstances continually change.

This view of the Phillips curve and the role that it provides for monetary fine-tuning were discredited, beginning in the late 1960s and continuing through the 1970s, by a series of developments, both theoretical and empirical. In theory, the natural rate hypothesis and its implications, derived by Phelps (1967), Friedman (1968), Lucas (1972), and Kydland and Prescott (1977), emphasize how the statistical Phillips curve can be destabilized by shifts in inflationary expectations so as to cause any exploitable trade-off between inflation and unemployment to vanish. Meanwhile, the Fed's own attempts at fine-tuning devolved into the "stop-go" pattern described by Hetzel (2022, Ch.18), consisting of alternating phases of overly restrictive and expansionary monetary policy, which helped produce a toxic mix of high and volatile inflation *and* unemployment. For theories and models featuring an exploitable Phillips curve, Lucas and Sargent (1978, p.57) aptly summarize this historical experience as an "econometric failure on a grand scale."

But ill-advised and fruitless effort to exploit a non-exploitable Phillips curve was not the only problem behind the Federal Reserve's monetary policy failures of the 1960s and 1970s. Equally if not more important was a strong tendency to over-accommodate with excessive monetary expansion in the aftermath of adverse non-monetary shocks hitting the

[1]The Federal Reserve Reform Act of 1977 (Public Law 95-188) directs the Fed to conduct monetary policy "so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates" and thereby provides the clearest and most direct source for the dual mandate. Steelman (2011), however, traces the intellectual and legislative origins for the Fed's concern for maximum employment as well as price stability back to debates over the Employment Act of 1946 (Public Law 79-304).

economy, especially from the supply side. This part of the story has several variants, not mutually exclusive. Nelson (2004) and Meltzer (2009, Ch.7) emphasize the Fed's confusion between real and nominal sources of changes in the price level and inflation as its growth rate. Orphanides (2003) focuses on difficulties in measuring the natural rates of output and employment, while Ireland (1999) blames the Fed's inability to solve Kydland and Prescott's (1977) time consistency problem, exacerbated by increases in the natural rate of unemployment.

Against this background, the development of real business cycle theory by Kydland and Prescott (1982) and Long and Plosser (1983) appears as a key step forward along two distinct dimensions.[2] First, real business cycle models push the natural rate hypothesis to its theoretical limits, by denying the existence of even a statistical Phillips curve relationship or, in its slightly less extreme form, by attributing the statistical Phillips curve to a "reverse causation" channel (King and Plosser 1984, p.363) through which monetary policy, though unable to affect unemployment, responds to changes in unemployment in a way that produces the negative correlation with inflation. Second, real business cycle models highlight the possibility that a non-negligible fraction of business cycle volatility in output and employment reflects the economy's efficient responds to non-monetary shocks and emphasize that, to the extent that this is true, monetary policy should be conducted in a way that facilitates, rather than interferes with, this efficient adjustment.

Although it was the first of these contributions that made real business cycle theory so striking and controversial at the time, it is the second that has given Plosser's academic work its most enduring influence. This became apparent only gradually, as Hairault and Portier (1993), Leeper and Sims (1994), Kimball (1995), Yun (1996), Goodfriend and King (1997), Ireland (1996, 1997), Rotemberg and Woodford (1997), McCallum and Nelson (1999), and Kim (2000) elaborated on the real business cycle framework by introducing nominal price

[2]Young (2014) provides a detailed account of the origins and history of real business cycle analysis, including the interactions between Kydland, Prescott, Long, and Plosser, many of which occurred indirectly through Fischer Black.

rigidities.[3] The resulting models, called "neomonetarist," "new neoclassical synthesis," or most popularly "New Keynesian," are now presented in survey articles like Clarida, Galí, and Gertler (1999) and Ireland (2008) and textbooks including Woodford (2003) and Galí (2015).

At the heart of the New Keynesian model lies the New Keynesian Phillips curve

$$\pi_t = \beta E_t \pi_{t+1} + \kappa(y_t - y_t^n), \tag{1}$$

linking the inflation rate $\pi_t$ to its own expected future value $E_t\pi_{t+1}$ and to a welfare-theoretic measure of the output gap: the difference between the actual level of output $y_t$ and the efficient or natural level $y_t^n$ that would prevail in the absence of nominal rigidities, that is, in the model's real business cycle core. Galí (2015, p.103) emphasizes this connection between New Keynesian models and their real business cycle antecedents: according to both sets of models

> ...stabilizing output is not desirable in and of itself. Instead, output should vary one-for-one with the natural level of output, that is, $y_t = y_t^n$ for all $t$. There is no reason, in principle, why the natural level of output should be constant or take the form of a smooth trend, because all kinds of real shocks are a potential source of variation in its level (this is arguably one of the main lessons from the Real Business Cycle literature). In that context, policies that stress output stability (perhaps around a smooth trend) may generate potentially large deviations of output from its natural level and, thus, be suboptimal.

Importantly, all variables in (1) are expressed in percentage-point deviations from their steady-state or average values, so that permanent increases in inflation have no effect on the output gap. Also reflecting the natural rate hypothesis, the presence of expected future inflation on the right-hand side of (1) weakens the exploitable trade-off between inflation and

[3]Thus, in another curious twist, this same line of work also brought Plosser's research into direct contact with Taylor's (1979, 1980, 2016) in a way that, in the early 1980s, would not have seemed possible.

output and emphasizes the importance of monetary policies that stabilize expected as well as actual inflation. But most important of all, (1) implies that by conducting monetary policy to stabilize both actual and expected inflation, so that $\pi_t = E_t\pi_{t+1} = 0$, the central bank will also allow output to fluctuate efficiently, in line with the natural rate, so that the output gap $y_t - y_t^n$ is stabilized as well. Blanchard and Galí (2007) call this striking implication the New Keynesian "divine coincidence."

Clarida, Galí, and Gertler (1999) observe that if the Kew Keynesian Phillips curve includes an additional cost-push shock $u_t$, so that (1) expands to

$$\pi_t = \beta E_t\pi_{t+1} + \kappa(y_t - y_t^n) + u_t, \tag{2}$$

a policy trade-off between inflation and output gap stabilization will reemerge. But this trade-off is relevant only to the extent that aggregate shocks manifest themselves through the additional term $u_t$ in (2), affecting firms' desired output prices without simultaneously affecting the efficient level of output. Other shocks, including both the real business cycle model's shock to total factor productivity and other New Keynesian shocks to aggregate demand, impact on $y_t^n$ and the corresponding natural rate of interest $r_t^n$ instead and do not require a painful choice between inflation and output gap stabilization.

Thus, Plosser's work developing real business cycle theory has profound implications for the conduct of monetary policy, even though the models themselves abstract completely from monetary considerations. According to the New Keynesian model, with the real business cycle framework at its core, price stability and maximum employment – the two goals prescribed by the Fed's statutory dual mandate – are not largely governed by a trade-off that the central bank must continuously manage. Instead, these goals are mostly complementary, so that by focusing on stabilizing prices first, the central bank can remove its own policies as a source of macroeconomic volatility, creating an ideal economic environment in which the market economy can respond efficiently to most shocks and thereby create maximum

growth in income and jobs. As the Philadelphia Federal Reserve Bank President, Plosser brilliantly incorporated these insights into the FOMC's 2012 Strategy Statement in a way that minimized controversy and emphasized scientific consensus.

**Plosser's Theory in Practice**

As Lacker (2020) recounts, FOMC members discussed the possibility of publicly adopting a flexible inflation targeting strategy periodically throughout the 1990s and 2000s.[4] They did not succeed in doing so, however, until the release of their 2012 Statement on Longer-Run Goals and Monetary Policy Strategy. Lacker describes Plosser's key role in drafting and gaining unanimous approval of this Consensus Statement.

As Ireland (2025) discusses in greater detail, the 2012 Statement acknowledged the lessons learned from the policy mistakes of the 1970s and the development of natural rate, real business cycle, New Keynesian theories in the 1970s, 1980s, and 1990s – the line of research in monetary economics to which Plosser contributed importantly. Consistent with the natural rate hypothesis – as noted, a key antecedent in the development of real business cycle theory – the 2012 Statement recognizes that "the inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation." The 2012 Statement goes on to set a specific, numerical target for longer-run "inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures."

Also consistent with the natural rate hypothesis, the 2012 Statement admits that "the maximum level of employment is largely determined by nonmonetary factors that affect the structure and dynamics of the labor market." Noting as well that "these factors may change over time and may not be directly measurable," the 2012 Statement explains that "it would

[4]Svensson (1999, p.338) distinguishes between "flexible" and "strict" inflation targeting by explaining that, under flexible inflation targeting, a central bank takes actions that bring inflation back to target gradually, rather than immediately, following any deviation, exhibiting concern for stability in output and employment as well as prices. By this definition, the additional adjective "flexible" is what keeps "inflation targeting" consistent with the Fed's dual mandate.

not be appropriate to specify a fixed goal for employment; rather, the Committee's policy decisions must be informed by assessments of the maximum level of employment, recognizing that such assessments are necessarily uncertain and subject to revision."

Reflecting the tensions that Lacker (2020) finds in earlier FOMC deliberations and debates over flexible inflation targeting, after setting an explicit numerical target for long-run inflation but declining to do the same for employment, the 2012 Statement emphasizes that, in pursuing its statutory dual mandate, "the Committee seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level." Importantly, however, the 2012 Statement quickly notes that "these objectives are generally complementary," just as depicted by the New Keynesian Phillips curve (1) with the "divine coincidence" implication stemming from its real business cycle origins.

Finally, the 2012 Statement allows for an inflation-employment trade-off to reemerge when the economy is hit by cost-push shocks of the kind that are captured by the additional term $u_t$ in the extended New Keynesian Phillips curve (2). The 2012 Statement concludes, however, by prescribing a "balanced approach" to policymaking "under circumstances in which the Committee judges" that its inflation and employment objectives "are not complementary." This balanced approach guards against the over-accommodation of supply-side shocks that plagued the Federal Reserve throughout the 1960s and 1970s and thereby solves a monetary policy problem that is highlighted, though more abstractly, by Plosser's real business cycle model.

Ireland (2025) goes on to describe in more detail how concerns over the zero lower interest rate bound and the persistence of sluggish economic growth and inflation in the aftermath of the 2008-9 financial crisis and recession led to a series of modifications that culminated in a heavily revised 2020 Statement on Longer-Run Goals and Monetary Policy Strategy (Federal Open Market Committee 2020). As argued there and in Plosser (2021), Levy and Plosser (2022), and Cutsinger, Ireland, and Luther (2026), the Amended 2020 Statement appears

as a damaging step backwards. Ireland (2026) goes further to suggest that a return to the sound principles outlined originally in the 2012 Consensus Statement remains the best and easiest way of getting Federal Reserve monetary policy back on track.

Thus, the Consensus Statement still stands a great credit to Charles Plosser and his enduring contributions to both monetary theory and policy.

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