Finance and Economics Discussion Series

Federal Reserve Board, Washington, D.C.
ISSN 1936-2854 (Print)
ISSN 2767-3898 (Online)

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2024-032

Please cite this paper as:
Kiley, Michael T. (2024). "Monetary Policy, Employment Shortfalls, and the Natural Rate Hypothesis," Finance and Economics Discussion Series 2024-032. Washington: Board of Governors of the Federal Reserve System, https://doi.org/10.17016/FEDS.2024.032.

Monetary Policy, Employment Shortfalls, and the Natural Rate Hypothesis

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May 19, 2024

Abstract

Activity shortfalls are more costly than strong activity. I consider optimal monetary policy under discretion with an asymmetric (activity shortfalls) loss function. The model satisfies the natural rate hypothesis. The asymmetric loss function and resulting optimal monetary policy exacerbates shortfalls in activity. The additional frequency of activity shortfalls arises from the adjustment of expectations implied by the natural rate hypothesis. The shortfalls asymmetry leads to an inflationary bias, similar to results in the time-consistency literature. Mandating a central bank objective with greater symmetry than the social loss function improves outcomes. Greater symmetry lowers the magnitude of activity shortfalls. Greater symmetry also reduces inflation bias. The model also implies that an optimal monetary policy does not accommodate fluctuations from aggregate demand shocks, as is standard in such models. As a result, the analysis implies that monetary accommodation of strength in economic activity likely requires justifications other than asymmetric costs of shortfalls.

Keywords: Monetary Policy, Rules, discretion, symmetric loss function, asymmetric loss function

JEL Codes: E52, E58, E37

* Email: michael.t.kiley@frb.gov. The views expressed herein are those of the author and do not reflect those of the Federal Reserve Board or its staff. I would like to thank participants in a workshop on related work at the Federal Reserve Board for comments and suggestions.

1. Introduction

I examine the consequences of monetary policy approaches resulting from asymmetries in the losses associated with employment shortfalls and strength. The model assumes the natural rate hypothesis—monetary policy is neutral in the long run. The analysis demonstrates that asymmetric monetary policy approaches have unintended consequences, including exacerbating activity shortfalls and creating an inflationary bias. Mandating that central banks behave (relatively) symmetrically mitigates these unintended consequences and improves welfare. The analysis suggests that, all else equal, the asymmetry in the costs of labor market weakness and strength does not warrant monetary accommodation of strong labor markets. Other factors, such as permanent effects of strong labor markets on economic potential, may be necessary for optimal monetary policy to accommodate labor market strength.

Recent research and practice at central banks motivates the analysis. The costs of weak labor markets and potential benefits of strong labor markets are sizeable.[2] Some research has suggested that such benefits imply that monetary policy should accommodate labor market strength in the absence of inflation.[3] Research has explored the implications of inequality for monetary policy, with strong labor markets generally viewed as reducing (at least in the short run) inequality.[4] In addition, policy approaches that aim to account for the potential benefits of strong labor markets have entered in central bank deliberations. For example, the Federal Open Market Committee (FOMC) emphasized employment shortfalls in its 2020 framework.[5] In recent years, monetary policy discussions have emphasized asymmetric costs of labor market shortfalls, including in analyses of asymmetric loss functions in research and in central bank policy analyses.[6] Practitioners and central banks have presented policy rules with asymmetric treatment of activity shortfalls in their analyses.[7]

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[2] For example, Aaronson et al, 2019; Hotchkiss and Moore, 2022.

[3] For example, Bernstein and Bentele, 2019. Evans, 2024, discusses the Federal Open Market Committee's 2020 framework and notes that "the strategy highlighted eliminating employment shortfalls only, thus allowing policy to support stronger labour market vibrancy so long as the price stability mandate remains in check."

[4] For example, Feiveson et al, 2020, and Chang, 2022. Kiley and Mishkin, 2024, review the recent discussion.

[5] Altig et al, 2020, and Clarida, 2022, discuss the Federal Reserve's 2020 framework, including the role of activity shortfalls.

[6] Gust, Lopez-Salido, and Meyer, 2017; Penalver and Siena, 2024; and Federal Reserve staff policy simulations prepared for FOMC meetings in Tealbook B from 2016 to the most recently available public versions (The Fed - Transcripts and other historical materials (federalreserve.gov).

[7] For example, Fuentes-Albero and Roberts, 2021; Papell and Prodhan, 2022; Bundick and Petrosky-Nadeau, 2023; and the Federal Reserve's *Monetary Policy Report* in recent years

Monetary policy conducted on a discretionary basis can lead to an inflationary bias when higher activity is socially desirable (Barro and Gordon, 1983). Central bank design can solve this problem, such as conservative central bankers that dislike inflation (Rogoff, 1985). These insights have had a strong influence on central bank practice and design, including on central bank independence and mandates.[8] Because the classic results on inflation bias under discretionary policy are well understood, the analysis assumes a loss function with no inflation bias in the absence of shocks to the economy. The asymmetry in the loss function is introduced via a specification in which losses are separable in activity shortfalls and strength, with different weights on activity below and above the natural rate.[9] The asymmetric loss function nests as a special case the loss function used by the Federal Reserve staff in its analysis of optimal policy simulations and in the research of, for example, Gust, Lopez-Salido, and Meyer (2017) and Penalver and Siena (2024).

This special case is a loss function quadratic in activity shortfalls, with no weight in the loss function on activity above potential. Such a loss function could be motivated by a view that activity below its natural rate is costly, while there are no costs (or benefits) from activity above potential. Consider optimal policy for this loss function following an aggregate supply (cost-push) shock which lowers inflation and/or raises output (a "positive" aggregate supply shock, referring to the sign of the effect on output). The monetary policymaker's loss function sees no cost to output above its natural rate but sees costs to inflation deviating from target. As a result, optimal policy will allow all of the cost-push shock to feed through to stronger activity and will stabilize inflation at its objective. Because of this policy, activity can be strong in response to these types of positive aggregate supply shocks. In contrast, negative aggregate supply shocks—those that lower activity and raise inflation—lead policymakers to stabilize both inflation and output somewhat, as both deviations are costly.

All else equal, these policy actions would lead to small activity shortfalls, because monetary policy leans against shortfalls, and strong economic expansions, as strong activity is accommodated. However, the aggregate supply curve—the Phillips curve—satisfies the natural rate hypothesis and activity must equal its natural rate, on average. As part of the equilibrating process that delivers long-run monetary neutrality, expectations shift to alter the nature of

[8] Kiley and Mishkin, 2024, highlight these insights as among the core principles for central banking.

[9] There are many ways to introduce asymmetry. For example, Surico, 2007, introduces asymmetry via a linex function and focuses on an assessment of whether the empirical evidence suggests that policymakers behaved in a manner consistent with asymmetric preferences.