



Does it matter (for equilibrium determinacy) what price index the central bank targets?

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Abstract

What inflation rate should the central bank target? We address determinacy issues related to this question in a two-sector model in which prices can differ in equilibrium. We assume that the degree of nominal price stickiness can vary across the sectors and that labor is immobile. The contribution of this paper is to demonstrate that a modified Taylor Principle holds in this environment. If the central bank elects to target sector one, and if it responds with a coefficient greater than unity to price movements in this sector, then this policy rule will ensure determinacy across all sectors. The results of this paper have at least two implications. First, the equilibrium-determinacy criterion does not imply a preference to any particular measure of inflation. Second, since the Taylor Principle applies at the sectoral level, there is no need for a Taylor Principle at the aggregate level.

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1. Introduction

Since at least Taylor [18] it has been commonplace to think of monetary policy in terms of directives for the nominal interest rate. The “Taylor Rule” posits that the central bank

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moves its interest rate instrument in reaction to movements in inflation and output. The recent literature on Taylor rules is voluminous. See [8] for a survey.

One branch of this literature is concerned with the issue of local equilibrium determinacy: what Taylor Rule coefficients ensure local uniqueness of the equilibrium? The problem is that following a rule in which the central bank responds to endogenous variables may introduce real indeterminacy and sunspot equilibria into an otherwise determinate economy.¹ These sunspot fluctuations might be welfare-reducing and can potentially be quite large. The policy conclusion of this literature is that a benevolent central banker should only use a Taylor Rule that ensures determinacy of equilibrium.² A familiar result is that a necessary and sufficient condition to ensure determinacy is that the central bank's response to inflation must exceed unity, i.e., a one percentage point increase in the inflation rate should lead to a greater than one percentage point increase in the nominal interest rate. This has been called the "Taylor Principle."³

There are numerous operational issues that arise when implementing the Taylor Principle. One such issue is what inflation rate should be targeted. The entire consumer price index (CPI)? The CPI stripped of food and energy prices? The median CPI? For example, in a two-sector model in which prices are flexible in one sector and sticky in the other, Aoki [1] argues that it is appropriate to stabilize "core" inflation, which he argues is the inflation rate in the sticky-price sector. The fundamental contribution of this paper is to demonstrate that a modified Taylor Principle holds. If the central bank elects to target a subset of goods in the economy, and if it responds with a coefficient greater than unity to current price movements of these goods, then this policy rule will ensure price level determinacy across all sectors.⁴

This paper thus confirms and refines an idea that dates back to at least Patinkin [13]: "In brief, a necessary condition for the determinacy of the absolute price level. . . is that the central bank concern itself with some money value. . ." (Chapter 12, Section 6). What is important for determinacy is that the central bank cares enough about, in the sense of being willing to respond forcefully enough to, movements in some nominal anchor. Exactly which nominal price or money value it cares about does not really matter. What matters is that it cares about *some* nominal price. This price may be anything, from the price of gold to core-CPI.⁵

¹ It should also be recalled that sunspot equilibria are endemic if the interest rate is set to react to exogenous shocks only [19, pp. 61–138].

² Since studies generally indicate that the welfare advantages of a first-best policy rule are quite small, it is doubly important that a central banker "do no harm" and not follow a policy rule that may introduce sunspot fluctuations into the economy.

³ Kerr and King [10] and Clarida et al. [7] were the first to derive this result in a model similar to that analyzed here. Leeper [12] has a related discussion.

⁴ In this paper, we interpret "targeting" as "reacting to." This is different from the definition of targeting in [1] or [17], which refers to variables that are included in the central bank's objective function. Soffritti [16] argues that the measure of inflation that is featured in the loss function of the central bank of a small open economy matters for determinacy when the central bank operates under discretion. If the loss function features output gap volatility and inflation in the domestic production sector only, discretionary monetary policy results in indeterminacy.

⁵ We thank Peter Ireland for pointing this out to us. At the end of the paper, we state the general result that our modified Taylor Principle ensures determinacy in our model when the central bank is reacting to *any* convex combination of sectoral inflation rates, including the CPI or inflation in only one sector as special cases. It can also be shown that the nominal anchor need not be a nominal price but may also be nominal money growth.

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