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Pitfalls in monetary policy decisions based on the output gap

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Abstract

In many countries monetary policy decisions are based on the output gap. In particular, monetary easing is usually justified by citing slack in the economy. However, the use of subjective information can result in an inaccurate estimate of the output gap, and its partial interpretation can lead to a wrong monetary decision. This paper establishes that monetary decisions can be inconsistent when they are based on an output gap estimated with the HP filter with tail correction and when policymakers assume that a negative gap does always indicate weakness in demand. We suggest that monetary policymakers should use several methods and approaches, with the purpose of taking decisions with the most complete and accurate information available.

JEL classification: E23; E52; E58

Keywords: Monetary policy; Interest rates; Potential GDP; Output gap; HP filter

1. Introduction

Monetary policy decisions are taken by many central banks using the output gap estimated by the popular Hodrick–Prescott filter (HP). Since the estimated results usually contain statistical and subjective biases, monetary decisions are subject to the inaccuracy of the estimates, consequently

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leading to policy mistakes. In this paper, we revise the inconveniences of using the HP filter, in Section 2. Then, in Section 3, we present three empirical cases; the first two are monetary decisions based on the output gap, where potential problems arise; and in the third case the decision is based on the excess demand, where we remark the advantage of a decision based on an observable variable. In Section 4, we analyze the particular case of a decision based on an inaccurate estimate of the output gap, which in fact contradicts the results obtained from the domestic demand. In Section 5, we provide recommendations and suggestions to improve the policy making decision process.

2. Output gap: Inconveniences of the HP estimates

Some central banks use an estimate of potential output to determine the economy's position with respect to equilibrium, and based on that make a decision on monetary policy. For instance, GDP above potential output – a positive gap – usually leads to the conclusion that excess demand will eventually generate inflation. The opposite – a negative gap – is interpreted as weak demand and consequently the absence of inflation pressures. This is basically the mechanism followed by most central banks where the output gap has taken a relevant role in short-term decisions and future monetary moves.

Central banks generally use the Hodrick–Prescott filter (HP)[1], a statistical tool, to estimate the output gap. This method allows the banks to extract the permanent component from the time series of GDP, the component that is not determined by cyclical factors but rather is associated with the structural sources of permanent growth. Even though the statistical bias in the tails of the HP estimate can be corrected[2], two potential problems can result: first, an under or overestimation of the output gap, and second, a partial interpretation based on incomplete analysis.

The first problem arises when the statistical bias is corrected by adding information at the end of the sample[3]. The new information usually consists of growth expectations collected by central banks from market participants and analysts. This correction contains a subjective component because one segment of the participants is composed mainly of followers of the official estimates rather than genuinely independent forecasters. This introduces another bias in the output gap estimate, particularly at the end of the sample, which is the relevant period for policymakers to use to make the policy decision.

Consequently, an overestimation of excess capacity – a negative output gap – can result when the economy is functioning below potential but market expectations are overly optimistic about the near future. This market optimism will be reflected in a higher potential output estimate, leading to the conclusion of significant economic slack and consequently inducing a monetary policy relaxation. This case seems to fit Mexico during 2013: an economy in deceleration with optimistic expectations generated by the approved reforms[4].

The second problem has to do with the interpretation that the monetary authority assigns to the output gap without considering the causes behind an economy functioning below potential. For

[1] The original work can be found in Hodrick and Prescott (1980), and the updated version in Hodrick and Prescott (1997).

[2] Details on tail corrections can be found on St-Amant and Van Norden (1997). A correction based on the value of the smoothing parameter (λ) is proposed by Marcet and Ravn (2003). Exercises with different values of λ are performed in Baxter and King (1995) and Laxton and Tetlow (1992).

[3] Also suggested in Butler (1996).

[4] See Coutiño (2014).