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Drifting inflation targets and monetary stagflation[☆]

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ABSTRACT

This paper revisits the phenomenon of stagflation. Using a standard New Keynesian dynamic, stochastic general equilibrium model, we show that stagflation from monetary policy alone is a very common occurrence when the economy is subject to both deviations from the policy rule and a drifting inflation target. Once the inflation target is fixed, the incidence of stagflation in the baseline model is essentially eliminated. In contrast with several other recent papers that have focused on the connection between monetary policy and stagflation, we show that while high uncertainty about monetary policy actions can be conducive to the occurrence of stagflation, imperfect information more generally is not a requisite channel to generate stagflation.

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1. Introduction

The U.S. experience with stagflation in the 1970s was a watershed. The breakdown of a stable empirical Phillips curve relationship ushered in a new emphasis on expectations in macroeconomics. Since that time, sharp oil price increases have continually raised concerns about the risk of stagflation, due to the conventional view that the oil price spikes during the 1970s played a critical causal role in the decade's stagflation.

The interpretation of monetary policy has also been altered through the prism of the 1970s experience with stagflation. Some economists suggest that central banks have taken too few actions in the wake of the Great Recession for fear of replicating the outcomes of the 1970s (e.g., Ball, 2013), while others suggest that central banks have taken too many actions and are laying the groundwork for a return to the conditions of the 1970s (e.g., Meltzer, 2011). Recent research has suggested that the Federal Reserve's inflation target drifted higher during the 1970s, thereby explaining the high inflation of the decade (e.g., Ireland, 2007; Kozicki and Tinsley, 2001a, 2001b; among others). But this research has been silent on the issue

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of whether monetary factors alone could have caused the economic stagnation—i.e., the “stag” in stagflation—of the decade as well.

This paper examines the connection between monetary policy and stagflation in more detail. It shows that monetary stagflation is actually a fairly common occurrence when the central bank's inflation target varies over time.

To fix terminology, we first turn to the U.S. historical record to provide a definition of stagflation. We identify three key conditions that characterize stagflation: inflation must be relatively high, at least one standard deviation above its long-run average; output must be stagnant, in that it is below trend and worsening relative to trend; and stagflation must be a sufficiently negative event that it lasts longer than a single quarter. Constructing such an algorithm and applying it to U.S. data suggests that the United States faced two bouts of stagflation in the postwar era, 1974Q3–1975Q1 and 1980Q2–1980Q3.

The stagflation algorithm allows for a more exhaustive analysis of the factors that can generate stagflation than visual analysis alone. Thus, we take the algorithm to a New Keynesian dynamic, stochastic general equilibrium (DSGE) model featuring optimizing agents and monetary policy that endogenously responds to economic conditions, and we conduct Monte Carlo analysis to assess the likelihood of stagflation.

In a world subject to shocks to the monetary authority's policy rule and a drifting inflation target, more than 90% of simulations undergo at least one stagflationary episode similar to the U.S. experience during the 1970s and early 1980s. Because the model only has monetary shocks, stagflation is generated by some variant of “go–stop” monetary policy: inflation builds during the “go” phase, while output turns down suddenly during the “stop” phase. But the range of go–stop policies that can generate stagflation is diverse, and few go–stop policies ultimately result in stagflation. Drift in the inflation target, by contrast, is an essential feature in generating stagflation. Once the time-varying inflation target is eliminated, monetary policy is unable to generate stagflation through policy rule deviations alone in the baseline model.

Unlike other recent work on the monetary origins of stagflation (e.g., Barsky and Kilian, 2002; Orphanides and Williams, 2005a, 2005b), imperfect information about the inflation target need not play a key role in generating stagflation. However, when it is very difficult for private agents to disentangle shocks to the inflation target from those to the policy rule, the incidence of stagflation increases and the threat of a drifting inflation target is enough to generate the phenomenon. Thus, limiting monetary policy uncertainty through clearly communicated, credible, and fixed inflation targets would essentially eliminate the possibility of monetary stagflation in the class of models considered here.

2. What is stagflation?

Unlike Cagan's (1956) classic definition of hyperinflation, there is not a similar definition of stagflation. While most economists agree that the United States experienced stagflation in the 1970s and early 1980s, there is no agreement on precise start and end dates to the stagflation(s) that occurred during that time nor about the precise conditions that characterize stagflation. Blinder's (1979) first sentence reads, “*Stagflation* is a term coined by our abbreviation-happy society to connote the simultaneous occurrence of economic *stag*nation and comparatively high rates of in*flation*.” Bruno and Sachs' (1985) introduction states, “The period of ‘stagflation’ (stagnation combined with inflation) broke out with a vengeance during 1973–75.” Neither work returns to give a more rigorous definition.[1]

Using the U.S. historical record from the 1970s and early 1980s as a guide, this section proposes a formal quantitative algorithm for identifying stagflation. Applying the algorithm to the U.S. data identifies two stagflationary episodes: the third quarter of 1974 through the first quarter of 1975, and the second and third quarters of 1980. The remainder of the paper uses this algorithm to define stagflation.

2.1. Stagflation in the United States

Without a formal definition for guidance, stagflation appears to be a phenomenon that is known when it is seen. Fig. 1 displays data for U.S. GDP growth and inflation from 1970 through 1983, measured using fourth-quarter over fourth-quarter growth rates. Real GDP growth was negative for 4 years during this period—1970, 1974, 1980, and 1982—all of which coincided with NBER recessions. There were two inflationary peaks during this time: in 1974 at 10.8 percent, and in 1980 at 9.8 percent. Both inflation peaks coincided with negative real GDP growth. Thus, 1974 and 1980 were clearly stagflationary years: the economy was not only stagnant but was in fact contracting, and inflation was very high and had also accelerated from the previous year.[2]

Some years during this period are clearly non-stagflationary. While the economy contracted sharply in 1982, inflation had fallen by more than 3 percentage points from the previous year and was trending down. The years 1976, 1977, and 1978

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[1] Iain Macleod, who is usually recognized as the creator of the term, defined stagflation as “not just inflation on the one side or stagnation on the other, but both of them together” (Nelson and Nikolov, 2004).

[2] The figure is slightly affected if GDP growth and inflation are computed using annual data instead of using fourth-quarter over fourth-quarter percentage changes. In the annual data, GDP growth was negative during 4 years: 1974, 1975, 1980, and 1982. GDP growth in 1970 was just barely positive in the annual data. The twin inflation peaks in the annual data both occurred 1 year later than in the fourth-quarter over fourth-quarter data: inflation was 9.0 percent in 1974 and 9.3 percent in 1975, and it was 9.0 percent in 1980 and 9.4 percent in 1981. The annual data would thus point to 1974–75 and 1980 as stagflationary years. However, the levels of annual data are constructed by taking averages of the year's quarterly numbers, implying that growth rates would be functions of eight quarters. This loss of precision tends to favor the fourth-quarter results in the text.

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