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The expected inflation channel of government spending in the postwar U.S.

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ABSTRACT

There exist sticky price models in which the output response to a government spending change can be large if the central bank is nonresponsive to inflation. According to this "expected inflation channel," government spending drives up expected inflation, which in turn, reduces the real interest rate and leads to an increase in private consumption. This paper examines whether the channel was important in the post-WWII U.S., with particular attention to the 2009 Recovery Act period. First, we show that a model calibrated to have a large output multiplier requires a large response of expected inflation to a government spending shock. Next, we show that this large response is inconsistent with structural vector autoregression evidence from the Federal Reserve's passive policy period (1959–1979). Then, we study expected inflation measures during the Recovery Act period in conjunction with a panel of professional forecaster surveys, a cross-country comparison of bond yields and fiscal policy news announcements. We show that the expected inflation response was too small to engender a large output multiplier.

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1. Introduction

In February 2009, the U.S. government began mounting a massive fiscal stimulus program: the American Recovery and Reinvestment Act, also known as the Recovery Act. The Congressional Budget Office's most recent assessment is that the Act's budget impact will total $830 billion, hundreds of billions of which was government spending. The remainder consisted of tax cuts, tax incentives and entitlements. While some analysts have argued that the Act had a strong positive impact on the macroeconomy (e.g. Blinder and Zandi, 2010 and Council of Economic Advisers (various quarterly reports)), the workhorse neoclassical growth model implies that stimulative government-spending policy has a muted effect on total economic activity. In that model, increased government spending reduces households' after-tax lifetime income, which leads them to reduce consumption. In the language of introductory macro-textbooks, government spending "crowds out" consumption and the "output multiplier" is less than 1.

A number of researchers have posited that there exists an expected inflation channel for government spending, in which consumption rises rather than falls.[1] According to this channel, government spending drives up the current and expected

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[1] See for example Christiano (2004), Christiano et al. (2011), Eggertsson (2004), Erceg and Linde (2010) and Woodford (2011). The phrase we use to describe this channel is of our making.

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future real wage. If a business may be unable to change its price for some duration, the shift up in its expected real wage path leads the business to increase its price today. This shift will generate expected inflation which, in turn, reduces the expected real rate; such a reduction leads households to shift consumption toward the present. This effect is particularly strong when a central bank does not react to inflation by tightening its monetary policy.[2] One reason that a central bank might be unresponsive is that a zero lower bound on the nominal rate may be binding.

Some have contended that the channel was important during particular historical episodes. Eggertsson (2012) examines this channel in the context of the New Deal and concludes that it helped end the Great Depression. Christiano et al. (2011) examine the mechanism during the 2009 Recovery Act period and conclude that it had an output multiplier as high as 2.3.

In light of the limitations on monetary policy because of the zero lower bound (ZLB), the Recovery Act may seem an ideal catalyst for the expected inflation channel. First, it was a massive program. For example, highway and bridge construction and improvement funded by the Act was $28 billion; this equaled 76% of 2008 federal-aid highway dollars ($36.9 billion). Without the Act, wages in this part of the construction industry might have been substantially lower, thus exerting downward pressure on inflation. As a second example, the Act allocated over $50 billion to pay public school teachers and other government workers. Without this component, it is likely that fewer government employees would have been added to payrolls, fewer would have received pay raises, some layoffs would have occurred and government furloughs would have been more common. This could have conceivably driven down wages in the government sector, putting downward pressure on inflation.

The Act also introduced inefficient "wedges" into the economy, which act like negative "supply" shocks, and might have put upward pressure on inflation. For example, the Davis–Bacon requirements in the Act required private contractors on many of the Act's projects to pay "prevailing wages," which are often tied to union-negotiated pay scales. Through this and other wedges, the Act may have helped prevent downward pressure on the market wage and thus inflation.

This paper answers a narrow question: did the expected inflation channel engender a large output multiplier during periods of monetary accommodation in the post-WWII U.S.?[3]

We execute two distinct strategies to measure the magnitude of the expected inflation channel. Neither strategy finds a quantitatively important effect. Our first strategy stems from an observation about the New Keynesian paradigm: large output multipliers arise through the non-responsiveness of the central bank's interest rate; the zero-lower bound is simply one basis for non-responsiveness. An accommodative or relatively non-responsive rule is called "passive" when the central bank increases the nominal rate in a less than one-for-one manner with changes in inflation. Under an "active" rule, the central bank increases the nominal rate in a more than one-for-one manner with changes in inflation.

We observe that monetary policy was much less responsive to inflation in the 20 years preceding 1980 than in the 20 years that followed. As such, the expected inflation channel hypothesis implies that inflation should respond more to government spending shocks in the earlier, relative to the later, period.

Using a sticky price model (as typically calibrated), we show how the multiplier is much larger under a passive (relative to an active) monetary policy. Then, we examine the data from the two periods, specifically 1959–1979 and 1981–2002. We identify impulse responses to government spending shocks using stock return data on U.S. military contractors, following Fisher and Peters (2010). During the passive policy period, there is a -8 bp one-year inflation response to the spending shock. The corresponding response during the active period is -176 bp. Neither of the two periods show support for the expected inflation channel: inflation falls rather than rises in response to positive spending shocks. Moreover, we find a statistically insignificant response of consumption to government spending at all horizons, which is also consistent with a weak expected inflation channel.

For the second strategy, we begin by calibrating a model which has a transiently non-responsive monetary policy (e.g., a ZLB constraint is temporarily binding) such that it generates a large output multiplier. We then calculate and record the model's expected inflation response to a Recovery Act sized spending shock. In our baseline calibration, the implied one-year expected inflation response is 5.23%, which we view as very large.

Next we turn to the data on actual and expected inflation during the Recovery Act episode. Actual inflation changed very little during the entire episode, both pre- and post-passage of the Act. The U.S. had not entered into a deflationary spiral before the passage (as well as the preceding months during which news of a federal spending program developed), nor did it experience a noticeable inflation increase after its passage. Since actual inflation changed very little, one would expect the mechanism to be manifested in expected inflation.

Here is what the data tell us. From before to after enactment, the median forecast of expected inflation from the Survey of Professional Forecasters (hereafter SPF) showed a small increase—an order of magnitude smaller than implied by the calibrated sticky price model. Moreover, across the panel of individual surveyed forecasters, there was no systematic increase in inflation expectations by a forecaster and that forecaster's measured increase in expected government spending growth. That is, forecasters predicting a large stimulus were no more likely to revise their inflation projections substantially upward.

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[2] Kim (2003) recognized early on that passive monetary policy combined with sticky prices was one potential mechanism to get output multipliers greater than one in an optimizing, general equilibrium model.

[3] Broader questions, such as whether the Act stimulated economic activity through some other mechanism or whether the expected inflation channel was quantitatively important during other historical episodes, are touched on only briefly in this paper.

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