Could the U.S. Government Hire Its Way Out of a Recession?

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PRELIMINARY AND INCOMPLETE

Abstract

A central research question that has emerged from the Great Recession is whether the size of the multiplier on fiscal policy varies across the business cycle. Recent theoretical and empirical work provides evidence that it does. Almost all of the theoretical work has focused on how the zero bound on nominal interest rates may result in non-linear effects of fiscal policy, while much of the empirical work supports the idea that non-linearities may arise under less restrictive circumstances. A notable exception within the theoretical literature is the model developed in Michaillat (2014) that provides a labor-market mechanism for different government spending multipliers across the business cycle. While Michaillat’s model is consistent with the existing empirical evidence, the mechanism it proposes has not been tested explicitly. I propose fill this gap in the literature by using Michaillat’s model to derive a prior for a Bayesian VAR analysis.

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1 Introduction

The recession that occurred in the United States from 2007 through 2009, along with the sluggish recovery since, has generated a spirited debate among policy makers and academics on the desirability and effects of fiscal policy. A central question that has emerged from this debate is whether the size of the multiplier on fiscal policy varies across the business cycle. Recent theoretical and empirical work provides evidence that it does. Almost all of the theoretical work has focused on how the zero bound on nominal interest rates may result in non-linear effects of fiscal policy, while much of the empirical work supports the idea that non-linearities may arise under less restrictive circumstances. One drawback of many of these empirical studies is that the results are not motivated by an alternative theory of the mechanism through which fiscal policy effects vary across the cycle. A notable exception within the theoretical literature is the model developed in Michaillat (2014) that provides a labor-market mechanism for different government spending multipliers across the business cycle. While Michaillat’s model is consistent with the existing empirical evidence, the mechanism it proposes has not been tested explicitly. I propose to fill this gap in the literature, evaluating a non-linear Bayesian VAR using, following Del Negro and Schorfheide (2004), Michaillat’s model to derive a prior.

Below I present some preliminary results in which I have not yet imposed the model prior. The preliminary specification was motivated by Monacelli et al. (2010) and was completed to get a sense of whether the data were consistent with the predictions of Michaillat (2014). My current efforts are focused on deriving a prior for the VAR from the model.

2 Preliminary Results

The empirical specification is a threshold vector autoregression (TVAR) with two regimes: expansion ($E$) and recession ($R$).

$$Y_t = A^E(L)Y_{t-1} + A^R(L)Y_{t-1}I(thresh_{t-d} < \gamma) + U_t,$$

where $Y_t$ is the vector of endogenous variables, $A^i(L)$ is matrix of coefficients for regime $i \in \{E, R\}$, $I(\cdot)$ is an indicator function for the recession regime, $thresh_{t-d}$ is a variable that represents state of the business cycle, lagged $d$ periods, and $\gamma$ is the value of the threshold variable that causes a regime switch.
The data are from the U.S., and are quarterly from 1970 to 2015. I use two measures of government hiring: total government employment as a share of the labor force and the growth rate of real government consumption (about two-thirds of which is compensation for government employees). The other endogenous variables are the growth rate of Real GDP per capita, the labor force participation rate and the unemployment rate.

For the estimation I use two lags of the endogenous variables, a constant, with no trend. The threshold variable is GDP growth, lagged one period. For the priors, I use an independent Normal-Inverse Wishart prior for the coefficient and residual covariance matrices, and a uniform distribution for the threshold value. Sampling from the posterior is done via a Gibbs sampler with a Metropolis-Hastings step for the threshold variable. Impulse responses are calculated for each draw (plots show the median, with 2.5% and 97.5% quantiles).

Interpretation of preliminary results:

• During recession regime, increase in LFPR with decrease in unemployment rate implies (at least) no crowding out of private employment (see Figures 1 and 4)

• During expansion regime (specification 1), increase in LFPR and increase in unemployment rate implies some people coming into the labor force not finding jobs (see Figure 2)

• During expansion regime (specification 2), decrease in LFPR and decrease in unemployment rate implies some unemployed dropping out of the labor force (see Figure 5)
Figure 1: Specification 1 – Recession Regime

Figure 2: Specification 1 – Expansion Regime
Figure 3: Specification 1 – Comparison
Figure 4: Specification 2 – Recession Regime
Figure 5: Specification 2 – Expansion Regime

Figure 6: Specification 2 – Comparison
Table 1: Peak effect of a 1% increase in the share of government workers

<table>
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<th>GDP Growth</th>
<th>LFPR</th>
<th>Unemployment</th>
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<tbody>
<tr>
<td>Linear VAR</td>
<td>0.36%</td>
<td>1.86 ppt</td>
<td>1.28 ppt</td>
</tr>
<tr>
<td>TVAR Recession</td>
<td>1.57%</td>
<td>2.32 ppt</td>
<td>-1.46 ppt</td>
</tr>
<tr>
<td>TVAR Expansion</td>
<td>-1.35%</td>
<td>2.17 ppt</td>
<td>0.72 ppt</td>
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Posterior mode for threshold value = 0.02 (quarterly GDP growth rate)

Table 2: Peak effect of a 1% increase in government consumption expenditures

<table>
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<th>GDP Growth</th>
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<td>Linear VAR</td>
<td>0.16%</td>
<td>0.06 ppt</td>
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<tr>
<td>TVAR Recession</td>
<td>0.13%</td>
<td>0.03 ppt</td>
<td>-0.08 ppt</td>
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<tr>
<td>TVAR Expansion</td>
<td>0.08%</td>
<td>-0.62 ppt</td>
<td>-0.06 ppt</td>
</tr>
</tbody>
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Posterior mode for threshold value = 0.24 (quarterly GDP growth rate)
References

