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Master Thesis

The Potential Effects of Government Expenditure on Macroeconomic Dynamics: A Policy Counterfactual Approach

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Abstract

1 Estimation and Construction of the Policy Forecasts

1.1 Data

1.2 Construction of the Policy Counterfactuals

The approach of this exercise is similar to the approach taken by [?] [Kapetanios et al. (2012)]. For assessing the potential impact of a change in government spending, we will examine conditional forecasts. In a first step, the following VAR(p) model in its general form allows us to get forecasts and impact estimations in levels:

$$y_t = \sum_{i=1}^p A_i y_{t-i} + C d_t + \sum_{j=1}^q B_j g_{t-j} + u_t \quad (1)$$

where y_t is a vector containing quarterly data on GDP, investment, excess stock returns of the construction sector, consumption, and CPI inflation¹, d_t is a vector of determinants, such as potential trend terms and intercepts to be included in the model, and g_{t-j} is a vector containing exogenous government expenditure in the $(t-j)^{\text{th}}$ period. Thus, p gives us the endogenous lag order, while q indicates the number of exogenous lags to be included in the model.

In addition to the forecasts in levels, we will also use a differenced VAR model, to examine the potential impact of government expenditure on the growth paths of our variables of interest:

$$\ln(y_t - y_{t-1}) = \sum_{i=1}^p (A_i^* \ln(y_{t-i}^* - y_{t-i-1}^*) + Z_i x_{t-i}) + C d_t + \sum_{j=1}^q B_j g_{t-j} + u_t \quad (2)$$

Where y_{t-i}^* now contains our variables of interest, except those, that are already given in log-differences. In our case, these are the excess stock returns and CPI inflation. These are collected in x_{t-i} . Aside from allowing us to examine the effects of government expenditure from another perspective, adding a differenced version of our original VAR model also serves as a robustness check against potential cointegration of degree $I(1)$.

Using these models, we will construct three forecast scenarios. First, we will estimate one baseline scenario, where the exogenous government expenditure will be the same as the actually realized levels after our pre-sample

¹[Review Comment]: In the theoretical part preceding this section, I will explain why we include the excess stock returns at all.

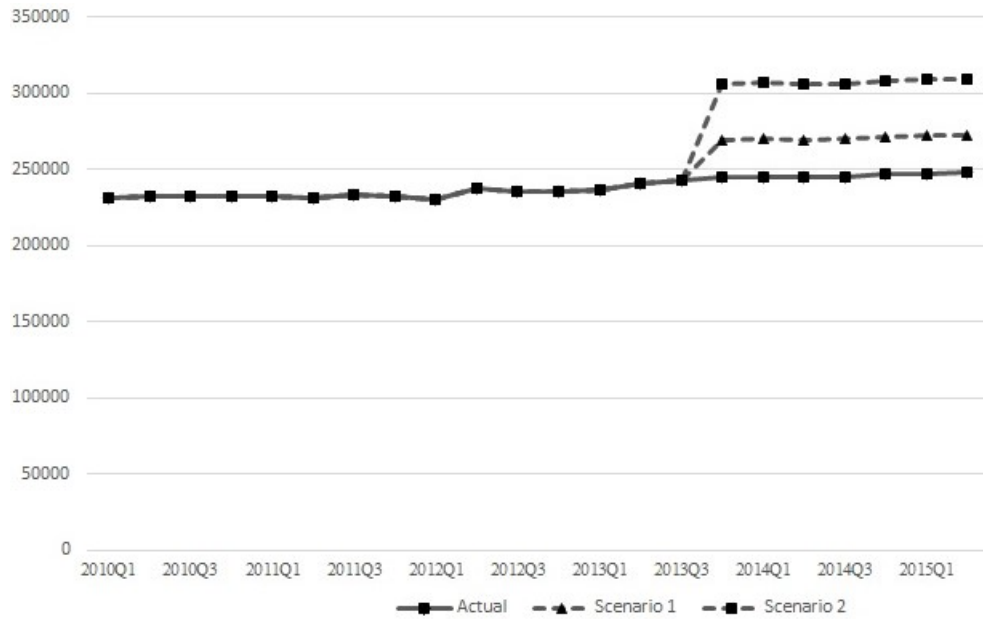


Figure 1: The government expenditure paths used for the construction of the policy counterfactuals.

period. Instead of the actually realized values of our time series, the baseline forecasts will serve as a benchmark for evaluating the effects we observe, when we change government expenditure for our alternative scenarios. The first alternative scenario will reflect a path of government expenditure that is 10% higher than actual government expenditure was in the forecasted period. Finally, the second alternative scenario will reflect a government expenditure path that is 25% higher than the actual path.

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References