Journal of Applied Economics. Vol XIV, No. 1 (May 2011), 81-99

NON-LINEAR DYNAMICS OF REAL WAGES OVER THE BUSINESS CYCLE

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Submitted August 2008; accepted May 2010

This paper aims at analysing the dynamic properties of real wages over the business cycle. We apply a Bayesian vector autoregressive (BVAR) model and analyse the possible asymmetric behaviour of real wages in response to different macroeconomic shocks. Finally, we use the NBER business cycle periodisation to evaluate how real wages interact with the different shocks during contractions and booms. The results indicate that real wages cyclicality substantially depends on the driving forces of business cycle fluctuations. Different time periods are dominated by different types of shocks. When the business cycle is mainly driven by supply-side shocks real wages present a pro-cyclical behaviour. On the contrary, when the business cycle is driven by aggregate demand shocks real wages move counter-cyclically.

JEL classification codes: E32, J31, C32
Key words: business cycle, real wage dynamics

I. Introduction

This paper aims at analysing the dynamic properties of real wages over the employment cycle.[1] An increasing amount of empirical literature focuses on the dynamic behaviour of real wages over the business cycle. In contrast with the prescriptions of both classical

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[1] In the following, we use employment cycle as a proxy of the business cycle. There exists a large quantity of empirical literature indicating that the US employment cycle roughly corresponds to the timing of the NBER business cycle in the sense that contractions and expansions occur at approximately the same time as the NBER recessions and booms.

and neo-Keynesian models, some empirical evidence suggests a high degree of real wage pro-cyclicality. In particular, the results emerging by analysing the contemporaneous correlation between real wages and a cyclical variable with both panel-data and OLS models clearly indicate a pro-cyclical movement of real wages.[2]

Other studies use VAR models to estimate the dynamic interaction of real wages and a business cycle indicator such as employment or output. These studies have produced mixed evidence. While Neftci (1978) and Sargent (1978) found that real wages are countercyclical, the results obtained by Geary and Kennan (1982) suggest an acyclical movement of real wages. Lastrapes (2002) suggest that the contradicting evidence on real wage cyclicality crucially depends on model specification, data transformation to induce stationarity, the choice of proxy for the aggregate real wage, and the choice of variables to include in the VAR.

Finally, other authors, including Blanchard and Quah (1989), Gamber and Joutz (1993), Mocan and Topyan (1993), Fleishman (1999), Balmaseda et al. (2000), use structural VAR models. In general, they find that real wages are pro-cyclical in response to supply shocks (like a technology shocks or oil price shocks) but are counter-cyclical in response to aggregate demand shocks.

The present paper models the dynamic relationship between employment and real wages by employing a Bayesian VAR framework. In particular, we use a multivariate model and analyse whether the dynamic interactions between employment and wage depends on the business cycle phases. The idea is that different variables might have influenced the dynamic pattern of real wage over the business cycle phases.

The contribution of our paper with respect to the existing literature consists of applying a Bayesian VAR model in order to study whether the degree of cyclicality of real wages might change over the business cycle. In particular, the study analyses possible reactions followed by employment and wages to different macroeconomic shocks and proposes a possible explanation for the cyclical behaviour of real wages over the business cycle. This explanation is essentially based on the analysis of the nature of negative and positive shocks influencing the business cycle over the selected sample period.

The remainder of the paper proceeds as follows. In Section II, we employ a vector autoregressive model thought to be representative of the main dynamics governing employment and wages over the business cycle. In Section III, we apply an impulse response analysis and characterize the behaviour of employment and wages over the

[2] See Bils (1985) and Solon et al. (1994), Otani (1980), Sumner and Silver (1989), Abraham and Haltiwanger (1995), Basu and Taylor (1999) and Hart and Malley (2000).