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Unemployment benefit extensions at the zero lower bound

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ABSTRACT

In this paper, we investigate the impact of the recent US unemployment benefit extension on labor market dynamics when the nominal interest rate is held at the zero lower bound (ZLB). Using a New Keynesian model, our quantitative experiments suggest that, in contrast to the existing literature that ignores the liquidity trap situation, the unemployment benefit extension has reduced unemployment by 0.7 percentage points on average. The inflationary pressure caused by the benefit extension reduces the real interest rate and offsets the job search effects and the drop in firms' vacancy postings resulting from the increase in wages. Outside the ZLB, it has adverse effects on unemployment. Furthermore, the ZLB explains 0.9 percentage points of the rise in unemployment.

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1. Introduction

Following the dramatic increase in US unemployment rate during the Great Recession, policy makers launched an unprecedented unemployment insurance (UI) benefit extension. The maximum duration of benefits increased from 26 to 99 weeks in some states (see Fig. 4). This policy has been frequently pointed out as an important factor in exacerbating unemployment because it reduces job search and job acceptance. However, most of the discussion has left aside the economic environment in which the policy has been implemented. The fall in aggregate demand and deflation have driven the economy into a liquidity trap where the nominal interest rate is set at the zero lower bound (ZLB). Several studies show that when the monetary policy loses traction, the impact of various fiscal policies can be quantitatively and qualitatively different (Eggertsson, 2010; Christiano et al., 2011). Therefore, the role of the benefit extension as a fiscal stimulus must be investigated.

The originality of this paper is to analyze how ZLB affects the impact of benefit extensions. For this purpose, we use a New Keynesian DSGE model with a labor market à la Diamond–Mortensen–Pissarides (DMP) and a feedback Taylor rule constrained by the ZLB. Our main result is that an increase in unemployment benefits may lower unemployment at the ZLB while it always raises unemployment in normal times. The impact depends on two contrasting forces. On the one

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hand, it lowers the workers' search intensity and puts an upward pressure on wages which makes employers less prone to investing in job creation. On the other hand, the increase in wages involves an inflationary pressure that reduces the real interest rate. The payoff from an employment relationship increases, leading to more hirings. We calculate the elasticity of unemployment duration with respect to unemployment benefits and we show under what circumstances the state of the economy flips its sign. While the ZLB and the inflation channel have been neglected so far in previous studies on UI benefit extensions, we show that they play a key role for the impact of policy.

Based on our results, we quantify the impact of the unemployment benefit extension in 2008. We perform a counterfactual experiment in which we study what would have been the path of unemployment without the UI extension. It is shown that the unemployment benefit extension reduced unemployment when the nominal interest rate reached the ZLB. Since the benefit extension launched before the nominal interest rate reached the ZLB, it slightly increased unemployment at the beginning of the crisis, but reduced it afterwards. From early 2008 to mid-2013, unemployment rate would have been 0.7 pp higher in the absence of the UI extension. We perform a robustness analysis in which we use (1) an alternative calibration for unemployment benefits (2) a smaller elasticity of the job search and (3) a smaller elasticity of the real wage to unemployment benefits. It is shown that the UI extension, even in the worst case considered, has reduced unemployment. Last but not least, we show that the ZLB accounts for 16% of the rise in unemployment.

The UI extension has been widely criticized because of the standard disincentive effects on job search decisions. Barro (2010), for instance, argues that it subsidized unemployment and led to insufficient job search and job acceptance. According to his own calculations, *the jobless rate could be as low as 6.8%, instead of 9.5%, if jobless benefits hadn't been extended to 99 weeks*. Empirical studies, however, have found a much more modest value. Rothstein (2011) shows that UI extensions raised the unemployment rate in early 2011 by only about 0.1 to 0.5 percentage points with only a small impact on workers' job search decisions. Fujita (2011) found an increase in unemployment by about 0.8 to 1.8 percentage points and Farber and Valletta (2013) by 0.4 pp. Interestingly, Hagedorn et al. (2013) show that the response of the job finding rate mainly explains the persistent increase in unemployment while the search intensity plays a small part. They argue that the wage pressure induced by the benefit extension reduced the incentive for firms to invest in job creation. If, as mentioned by Hagedorn et al. (2013), the UI extension has increased wages, its effects on unemployment are non-trivial in a liquidity trap due to the inflation channel. In a general equilibrium framework, Nakajima (2012) found that the 2009 UI extension raised unemployment rate by 1.4 percentage points. In contrast, Krugman (2013) argues that slashing unemployment benefits – which would have the side effect of reducing incomes and hence consumer spending – will not create more jobs but only make the situation worse because employment is limited by demand, not supply.

In the literature presented above, the study of unemployment benefits abstracts from the liquidity trap situation and macro models assume that the recession is driven by productivity shocks. This is at odds with the data since negative supply shocks cause an inflationary pressure and cannot affect the interest rate in a way that mimics the turmoils of the financial market. As mentioned by Hall (2013), the high level of the real interest rate discourages employers from putting resources in all types of investment in a liquidity trap. In particular, it decreases employers' expected payoff from taking on new workers, thereby reducing hirings. On the other side, the role of fiscal policies has received renewed interest since the transmission mechanisms are highly affected in a liquidity trap. For instance, Christiano et al. (2011), Nakata (2013), Carrillo and Poilly (2013) and Erceg and Lindé (2014) documented that the government spending multiplier is greater (than one) when the ZLB on the nominal interest rate binds. Eggertsson (2011) shows that an increase in labor supply when the ZLB binds raises the real interest rate which lowers output. This is what he calls the “paradox of toil”. When the nominal rate reaches the ZLB, a policy that prompts households to work less may have positive effects on the economy. In general, Eggertsson (2010) argues that the impact of a fiscal intervention hinges on its ability to create an inflationary pressure because it reduces the real interest rate. Last but not least, Hall (2012) portrays the relation between inflation, unemployment and the ZLB during the Great Recession. He shows that this interaction is of great importance to explain the rise in unemployment and the low decline in inflation.

The two strands of the literature are naturally connected. Our study goes one step further by bridging the gap between the search and wage effects and the effect coming from the nominal sphere. Our major result is that the latter effect may dominate the formers. The mechanisms lies in the interaction between the expected value of a job and the real interest rate. Following a recessionary shock that drives the nominal interest rate to the ZLB, the resulting expected deflation increases the real interest rate. However, the inflationary pressure caused by the rise in unemployment benefits weakens the increase in the real interest rate, thereby avoiding a strong fall in the payoff from an employment relationship. In turn, this effect offsets the decline in search intensity and the rise in real wages that prompts employers to post fewer vacancies. The general message of this paper is to highlight the importance of the inflation channel in the study of unemployment benefit extensions.

The rest of the paper is organized as follows. Section 2 is devoted to the presentation of the New Keynesian DSGE model. Section 3 addresses calibration. Simulations and counterfactual experiments are presented in Section 4. Section 5 concludes. We provide a supplementary appendix describing the model, the calibration and the solution method.

2. The model

We use a baseline New Keynesian DSGE model with search and matching frictions (Mortensen and Pissarides, 1994). The model is characterized by nominal price rigidities (à la Rotemberg), monopolistic competition and a feedback Taylor rule for

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