



*Essays on Labour Markets and Pensions*

B. Bonthuis

## Summary

In this dissertation we study labour markets, pension systems, and the interaction between the two.

In the second chapter (after the introduction) we study the effects of fiscal changes in an overlapping generations model. The model features imperfect annuities, real world demographics and a realistic productivity profile. We find that, even though tax revenue is redistributed in a lump sum fashion, both a consumption tax hike and a labour tax hike lower lifetime utility for almost all generations. A labour tax increase that returns the same amount in discounted tax revenue as a consumption tax increase reduces welfare more. This confirms the notion that labour taxes are more distorting than consumption taxes. Announcing the aforementioned tax hikes reduces variation between generations. However, even though differences between generations can be significant, social welfare does not differ significantly between announcing and not announcing the tax change. Finally we find that a tax swap — replacing part of the labour tax with a higher consumption tax — makes all newborn generations better off. However, during transition it opens up a welfare gap between the retired, who are worse off, and the working, who are better off. This negative effect can be offset by an appropriate redistribution (towards the old) of tax income by the government. Therefore, a tax swap in combination with a skewed redistribution scheme can be Pareto improving.

In the third chapter we study the intergenerational effects of unemployment caused by wage rigidity on the accumulation of pension entitlements. A negative shock combined with wage rigidity can lead to large groups of (mainly) young being excluded from employment over the course of a crisis. Certain cohorts are therefore stuck with relatively low income and low pension entitlement accumulation for a large part of their lives. Other cohorts on the other hand are largely shielded from the shock, enjoying steady wages in combination with a sustained build up of pension rights.

We build an overlapping generations model with three generations (two working and one retired) in which unions, representing each cohort sequentially, set the wages for a certain cohort before this cohort enters the labour market. Firms pick the employment level once the state of the economy is known. The interaction between the pension system and the labour market is limited in the case of a technology shock. The pension system has a significant effect on steady state outcomes of labour market variables, but because wages are pre-determined pension systems matter less for the transitional dynamics. The shock is largely reflected in labour market outcomes which do not differ significantly across pension systems.

The fourth chapter analyses euro area Beveridge curves over the past 25 years, at both the aggregate euro area level and at country level, focusing in particular on Beveridge curve developments since the onset of the global financial crisis. The aim is to identify deviations from the pre-crisis Beveridge curves and to isolate salient structural factors influencing these movements.

We apply an autoregressive distributed lag (ARDL) model to test for statistical significance of observed shifts and changes in the slope of the Beveridge curve(s). We

find a significant outward shift of the aggregate euro area Beveridge curve and of the Beveridge curves for Spain and France since the onset of the crisis, but an inward shift for Germany. We then extend our analysis in order to examine factors underlying the observed developments. A range of country-specific factors — including labour force characteristics, sectoral employment composition and financial conditions — are tested using the local projections method. We find evidence for skill mismatch and tentative evidence for sectoral and geographical mismatch.

In the fifth and final chapter we estimate wage equations to test for changes in the responsiveness of wages to unemployment using euro area panel estimates. The objective of this chapter is to improve our understanding of the effect of rising unemployment on the evolution of wages, and also to identify the possible causes behind changes in responsiveness during the recent crisis period . We estimate equations where wage growth is explained by inflation, productivity growth and unemployment and test various hypotheses by extending this basic specification.

Our empirical results suggest evidence of lower responsiveness of wages at high levels of unemployment in the euro area (wage rigidity). This result applies to all downturns, even though wage responsiveness has somewhat recovered as the recent crisis became more protracted. Additionally, we find that differences in bargaining position — in particular differences between unionised vs. non-unionised labour and permanent vs temporary jobs — explain a large part of the downward wage rigidity. Perhaps surprisingly a larger share of long term unemployment tends to decrease wages. However, this effect is reversed at high levels of unemployment. Other findings show that a higher share of temporary workers lowers overall wage growth but this effect is also partially reversed during downturns.