Exit from employment, unemployment insurance and business cycles: Evidence from 30 years.

We want to study empirically how workers flowing into unemployment over the business cycle depends on unemployment insurance (UI) cover. The effect of being insured on transitioning into unemployment is a moral hazard effect that we wish to identify. Keeping constant coverage parameters, we can then further assess to what extent moral hazard in itself is cyclical and hence may reinforce or dampen benefit cycles. The moral hazard effect features prominently in a recent literature about the optimal design of UI schemes that trades off the need to contain moral hazard (via deductibles) with the liquidity provision of insurance (Chetty, 2008). Such trade-offs are likely to change with the cyclical position of the labor market (Andersen and Svarer, 2011; Kroft and Notowidigdo, 2011; Landais, 2011). In particular, credit constraints may vary with the cycle, making insurance more valuable, and conversely, labor market slack may exert a disciplining effect on (potential) benefit recipients.

Both the advanced theoretical literature on the effort-inducing optimal UI design, and the mature empirical literature studying unemployment durations to date has mainly analyzed the effect of parameter variation (benefit level and potential benefit duration, PBD) along the intensive margin on unemployment outflow transitions (e.g., Tatsiramos, 2009). Schmieder *et al*. (2012) analyze how PBD variation affects the actual unemployment duration and how this changes over the business cycle.

However, there are aspects recently gaining prominence in the social insurance literature that have been neglected in theoretical UI contributions and not found much resonance in empirical work: insurance provision may have effects along the extensive (participation) margin on unemployment incidence. The complication here involves that as soon as participation is allowed to vary, heterogeneous (adverse or advantageous) selection effects (be it due to risk heterogeneity or due to preference heterogeneity) become important (Chetty and Finkelstein, 2013). Participation margins have usually not been considered mainly for near-universal UI coverage of workers. However, eligibility criteria still apply in most cases, and are particularly relevant when distinguishing between quits and lay-offs (e.g., Topel, 1983).

The long micro panel data we aim to use and the Danish institutional context we wish to exploit are crucially important. In the voluntary Danish UI system both ex-ante effects of selection and ex-post effects of behavior might be present. First, wage-earners with a higher risk of becoming unemployed are more likely to take up insurance (adverse selection). Second, the moral hazard effect can arise because insured wage-earners are either more likely to quit their job or because they provide less effort and hence have a higher risk of getting laid off. To disentangle these effects we will use some unique features of the Danish UI system.

To provide context, we will first investigate the role of the UI in the exit rate from wage employment.[1] The Danish UI system is unique in that it allows voluntary access and is thus not compulsory (yet highly subsidized).

---

[1] In the empirical analyses we will consider different exit rates: exit from employment and exit from employment into unemployment.

However, if we just compare the exit rate from employment for workers who are insured with workers who are uninsured we are unlikely to recover the causal effect of insurance. To deal with the endogeneity of insurance, we shall use an instrument: the eligibility for an early retirement (ER) option (*efterløn*) that is embedded in the UI system. We can show that different cohorts becoming exogenously eligible for the ER option at different ages (change of the policy rule) were pulled into joining the UI scheme and hence getting insurance cover as a side effect. This identifies the insurance process in our empirical approach and hence allows us to make statements concerning the causal effect of insurance on behavior.

Three major reforms of the ER scheme (in 1992, 1999 and 2006) all had an impact on enrollment in the UI funds. This allows us to analyze the impact of insurance at different margins and at different point of the business cycle, e.g. in 1992 the unemployment rate was 11.3% while in 2006 it was 4.5%.[2] Since our prospective data span 30 years (1980-2011), temporal variation will allow us to study whether moral hazard is lower when the level of unemployment is high. This is potentially important when designing UI systems that allow parameters like the PBD to depend on business cycle positions. To get a further understanding of the moral hazard effect over the business cycle we suggest comparing the impact of insurance on voluntary job-separations and involuntary separations. We will use mass lay-offs to identify involuntary separations and investigate if insurance status affects these separations differently.

The data we plan to use, are globally unique. These are administrative data covering the entire residential population in Denmark for the period 1980-2011, and measuring a large array of important variables that are needed to answer our questions. In all the analyses we will control for a large set of observable characteristics (such as education, demographics, income and wealth) and also account for unobserved individual components (fixed effects). Since we have the entire population of all employees and all workplaces we can use the standard way of identifying mass lay-off as workplaces where a certain fraction of the employees leave the workplace. Preliminary calculations show that all three ER reforms lead to an increase in the enrollment of UI funds of between 2 to 6 percentage points. Furthermore, the exit probability from employment for an uninsured wage-earner is 3.3 percent while the similar number for an insured wage-earner is 6.5 percent. The instrumented version of the regression shows that there is still is a significant positive causal effect of insurance on exit rates from employment, suggesting evidence of moral hazard.

This study is close in spirit to articles on the effect of UI parameter variation on exit rate to unemployment for workers (see Baker and Rea (1998), Winter-Ebmer (2003), Green and Riddell (1997) and Jurajda (2002). However, the separation of moral hazard from selection effects is not focus of these studies.

This project is the third in a series where we investigate design features of the Danish UI system on labor market flows. In the first two projects, we focus on the self-employed, and successfully use the ER reforms as instruments for insurance: in Ejrnæs and Hochguertel (2013a) we investigate exit from self-employment into unemployment and in Ejrnæs and Hochguertel (2013b)[3] we study whether UI has a causal impact on the propensity to start up as an entrepreneur.

---

[2] See http://www.statistikbanken.dk/statbank5a/default.asp?w=1366

[3] This project is supported by a grant from EPRN.

REFERENCES

Andersen, T. M. and Svarer, M. (2011). State dependent unemployment benefits. *Journal of Risk and Insurance*, 78(2):325–344.

Baker, M. and Rea, S. A. (1998). Employment spells and unemployment insurance eligibility requirements. *Review of Economics and Statistics*, 80:80–94.

Chetty, R. (2008). Moral hazard versus liquidity and optimal unemployment insurance. *Journal of Political Economy*, 116:173–234.

Chetty, R. and Finkelstein, A. (2013). Social insurance: Connecting theory to data. In Auerbach, A. and R. Chetty, editors, *Handbook of Public Economics*, vol. 5, forthcoming. North-Holland, Amsterdam.

Ejrnæs, M. and S. Hochguertel (2013a). Is business failure due to lack of effort? Empirical Evidence from a Large Administrative Sample. *Economic Journal*, forthcoming.

Ejrnæs, M. and S. Hochguertel (2013b). Start-Up and Insurance. Manuscript prepared for Econometric Society European Meeting 2013 and NBER Summer Institute 2013.

Green, D. A. and Riddell, W. C. (1997). Qualifying for unemployment insurance: An empirical analysis. *Economic Journal*, 107:67–84.

Jurajda, S. (2002). Estimating the effect of unemployment insurance compensation on the labor market histories of displaced workers. *Journal of Econometrics*, 108:227–252.

Kroft, K. and Notowidigdo, M. J. (2011). Should unemployment insurance vary with the unemployment rate? Theory and evidence. NBER Working paper, 17173.

Landais, C. (2011). Heterogeneity and behavioral responses to unemployment benefits over the business cycle. SIEPR working paper, Stanford University.

Schmieder, Johannes F., Till von Wachter and Stefan Bender. 2012. "The Effects of Extended Unemployment Insurance Over the Business Cycle: Evidence from Regression Discontinuity Estimates over Twenty Years." *Quarterly Journal of Economics,* 127:701–752.

Tatsiramos, K. (2009). Unemployment insurance in Europe: Unemployment duration and subsequent employment stability. *Journal of the European Economic Association*, 7:1225–1260.

Topel, Robert H. (1983). On Layoffs and Unemployment Insurance. *American Economic Review* 73 (4): 541-559.

Winter-Ebmer, R. (2003). Benefit duration and unemployment entry: A quasi-experiment in Austria. *European Economic Review*, 47:259–273.

TIME FRAME

Spring 2014: start of the project. Data setup and management, first descriptive analyses and first estimations.

Fall 2014: First draft of the paper completed and submission for presentation at international conferences and workshops.

Spring 2015: Working paper will be issued and presented at international workshops or conferences.

Fall 2015: Submission for publication in an international economics journal.

BUDGET

The budget covers three months of "frikøb" to Mette Ejrnæs, which will enable us to work intensively on the project. We also ask for money to update our data with the latest year 2009-2011. Furthermore, we ask for money to cover a one-week stay in Amsterdam for Mette Ejrnæs and one-week stay in Copenhagen for Stefan Hochguertel. Finally, we apply for money to hire a research assistant in the range of 200 hours to help with the data work.