Journal of Monetary Economics 59 (2012) 64–79

Contents lists available at SciVerse ScienceDirect

Journal of Monetary Economics

journal homepage: www.elsevier.com/locate/jme

Transitions in the German labor market: Structure and crisis ☆

Michael U. Krause [a,]*, Harald Uhlig [a,b]

[a] Economic Research Center, Deutsche Bundesbank, Wilhelm-Epstein-Str. 14, 60431 Frankfurt, Germany
[b] Department of Economics, 1126 East 59th Street, The University of Chicago, Chicago, IL 60637, USA

ARTICLE INFO

Article history:
Received 27 May 2011
Received in revised form
15 October 2011
Accepted 18 October 2011
Available online 28 October 2011

Keywords:
German Hartz IV reforms
Search and matching
Unemployment benefits
Labor subsidies

ABSTRACT

Since the so-called Hartz IV reforms around 2005 and during the global crisis of 2008/2009, the German labor market featured mainly declining unemployment rates. We develop a search and matching model with heterogeneous skills to explore the role of structural and cyclical policies for this performance. Calibrating unemployment benefits to approximate legislation before and after the reforms, we find a large reduction in unemployment and its duration, with the transition concluding after about three years. During the crisis, the extended use of short-time labor subsidies that prevent jobs from being destroyed is likely to have prevented strong increases in unemployment.

1. Introduction

The German labor market has undergone remarkable transitions during the past decade. After unemployment had been rising since the 1970s, reaching its peak of almost 11% in 2005, a series of reforms to the unemployment insurance system appears to have induced a reversal. The main focus of the so-called Hartz reforms was on the supply side of labor, to increase unemployed workers' incentives to accept jobs. This was implemented by reducing the level and duration of unemployment benefit entitlements. By 2011, the unemployment rate had fallen to 7.2%.[1] Surprisingly, while many countries (such as the U.S. and Spain) remained stuck with high unemployment two years after the economic crisis of 2008 and 2009, it has barely risen in Germany and the economy has rebounded to an extent that there are even reports of shortages for skilled labor. Some observers speak of a German employment miracle.[2]

It is not clear however, whether this performance is mainly the consequence of the reforms as such, of the stabilization policies adopted during the crisis, or other factors. Gartner and Merkl (2011) emphasize the importance of the reforms and the ensuing wage moderation, arguing that the crisis has only briefly interrupted what is a forceful downward transition to a new steady state with low unemployment. Others argue that short-time work subsidies (*Kurzarbeitergeld*) may have had a significant role in preventing massive employment losses, in Germany and other countries.[3] In contrast, Burda and Hunt (2011) and Dietz et al. (2011), and others argue that instead flexible work arrangements, such as working time accounts, allowed firms to smooth production costs and created incentives to keep workers. Burda and Hunt (2011) also

☆ This paper was prepared for the 77th Carnegie-Rochester-NYU Conference in New York, April 2011. This research has been supported by the NSF grant SES-0922550. The views expressed in this paper do not necessarily reflect those of the Deutsche Bundesbank or its staff.
* Corresponding author.
E-mail addresses: michael.u.krause@bundesbank.de (M.U. Krause), huhlig@uchicago.edu (H. Uhlig).
[1] We are talking here in terms of the ILO definitions of unemployment, which are lower than the official German Labor Office's measurements.
[2] See, for example, Burda and Hunt (2011) and Gartner and Merkl (2011).
[3] See Hijzen and Venn (2011).

0304-3932/$ - see front matter
doi:10.1016/j.jmoneco.2011.10.003

stress that pessimistic expectations led to a hiring backlog in the pre-crisis boom, and thus subdued firing in the crisis. All of the arguments thus far are largely based on empirical analyses and small illustrative models.

This paper develops a quantitative labor market model to offer a structural perspective on the performance of the German labor market before and during the crisis. Our model is close to those by Ljungqvist and Sargent (2007) and Den Haan et al. (2005), featuring skill heterogeneity of workers along with search and matching frictions as familiar from Mortensen and Pissarides (1994), and endogenous job acceptance and separation rates. To this we add a more detailed description of an unemployment insurance system, with layers of benefits and welfare payments as present before and after the German Hartz reforms. Workers accumulate skills on the job and lose skills when unemployed. It is the interaction of skill loss during unemployment and generous unemployment benefits that depend on previous earnings which generates the higher unemployment rate before the reforms. This is our framework of choice because it allows a unified explanation of the evolution of European and U.S. unemployment since the 1960s, as shown by Ljungqvist and Sargent (1998, 2008). To generate rising unemployment, the standard search and matching model without skill heterogeneity would require counterfactual increases in unemployment benefits and other institutions which historically have undergone only relatively little change.[4]

In the first part of the analysis, we calibrate the model to characterize the German labor market before the reforms, and then simulate the transition after the so-called Hartz IV reform stage in 2005. For our baseline calibration, we find that the reduction of the duration of unemployment benefits, essentially brought about by the removal of the long-lasting earnings-dependent unemployment assistance, accounts for an about 2.8% point reduction in the unemployment rate. Labor market tightness and job acceptance rates both increase, leading to a drop in the fraction of low-skilled workers with high benefits. The number of long-term unemployed workers drops, but since the reforms removed the earnings-dependent unemployment assistance which was only slightly lower than the unemployment insurance benefits, a much larger fraction of those workers is now on welfare. Output is higher not only due to the higher employment rate, but also because workers find jobs faster and jobs last longer. Both factors lead to an overall improvement in the quality of the workforce. Further reductions in the unemployment rate may have been generated by other aspect of the reforms. For example, the earlier stages (Hartz II and III) aimed at improving job matching. Guided by findings of Fahr and Sunde (2009), increasing the match efficiency parameter in the model by 10% yields an additional reduction of more than 0.6% in the unemployment rate.[5]

Most of the transition to the post-reform steady state takes place within the first three years. That is, by 2008, the adjustment would have largely concluded. Returning to the argument by Gartner and Merkl (2011), the 2009 drop in output would then have hit an economy already in the new steady state, so that the employment adjustment to the crisis should have followed normal cyclical patterns. But even if the transition had been still ongoing during the crisis, there is a second issue pertaining to the level of the post-reform steady state. Suppose the steady-state unemployment rate in 2005 was at the 10.8% predicted by the model. Then with an overall reduction of 2.8% points induced by the reforms, apart from match efficiency gains, the new natural rate of unemployment would still be above the roughly 7.4% during the crisis. Only if the natural rate were much lower could the reforms have potentially have mattered for the performance during the crisis. Whether this may actually have been the case requires simultaneous analysis of aggregate shocks and transitions.

We calculate how the model economy responds to an intertemporal preference (or discount factor) shock. The discount factor shock can be regarded as a proxy to financial market turmoil as it affects the interest rate, and thus the long-run incentives to invest in new jobs, and thereby as a simple stand-in for the driver of the 2008/2009 recession. Even fairly small changes in the discount factor induce large changes in unemployment. This is a potential candidate for the large drop in employment in the U.S. and several European economies, but would not help understand the evolution of the German labor market, where unemployment barely changed, unless other factors played a role, such as policy. We focus on short-time work subsidies in particular[6]: in times of exceptionally reduced product demand, firms can apply for such subsidies, inducing the government to finance part of the proportional shortfall in wages that workers would suffer, while allowing firms to cut costs. During the crisis, the German government also increased the maximum duration of the subsidies. We model such subsidies as a transfer payment to those job-worker matches that would otherwise separate after an aggregate shock. To generate the observed drop in German output during the recession while at the same time leaving unemployment roughly constant requires large movements in output-per-worker. On the other hand, a discount factor shock of a size sufficient to force unemployment up by as much as in other European G7 countries, i.e., about 2–2.5% points, can be offset by a relatively moderate subsidy.

The paper is related to a quickly developing literature. The approach followed in our paper is most closely related to the contributions of Ljungqvist and Sargent (2004, 2007) and Nie (2010). In a series of papers, Ljungqvist and Sargent develop

[4] See Costain and Reiter (2008) and Pissarides (2009). The key element originally introduced by Ljungqvist and Sargent (1998) is an increase in the degree of skill obsolescence after workers' job loss, which they term "turbulence". In their model, an increase in turbulence increases unemployment in a European-style welfare state because formerly high-skilled workers maintain high earnings-dependent benefits after job loss, muting job search incentives. Our analysis is thus complementary to theirs in that we analyse changes in labor market institutions while instead leaving the dynamics of skill loss unchanged.

[5] Fahr and Sunde (2009) were the first to present evidence on job matching after the reforms. The relevant reforms were actually conducted in 2002 and 2003, prior to the observed reduction in unemployment.

[6] See Cahuc and Carcillo (2011) and OECD (2010) for a survey and assessment of short-time work subsidies.