1. Introduction

In many European countries, widespread and persistent long-term or recurrent unemployment is a serious social problem as well as an expensive economic burden for the welfare state. It is a continuous concern of policy makers. Although studies on the distribution of lifetime unemployment over a 25 years period show that almost 50 percent of the total amount of unemployment spells falls upon only 5% of the labour force population (Möller/Schmillen, 2012) there are considerable segments of the labour force that seem to be excluded from steady employment at the open labour market (Aho, 2004; Aho/Mäkiahö 2016).

The point of departure of this study is the observation that conventional statistics - register based national as well as survey based international statistics on long-term unemployment - do not adequately reveal how widespread long-term exclusion from regular, genuinely market-based employment actually is (Konle-Seidl/Lüdeke 2017).

Individual unemployment spells are frequently interrupted by participation in active labour market policy (ALMP) measures, periods outside labour force because of illness, family reasons, education or short casual employment. Such episodes end unemployment spells. However, after interruption, unemployment often continues, and the statistics do not grasp the actual length of the individual problem of being without a “real” job.

Our concept of “chronic unemployment” (henceforth: CU) is a category that assesses the share of people with weak links to the labour market: Persons with recurrent spells of unemployment or workers who interrupt their unemployment spells due to participation in active labour market programs or thanks to short-term employment. It aims to give a more realistic picture of the problem of the lack of a proper job in the longer run than conventional statistics. A valid
measurement of the problem is a precondition for the analysis of its prevalence, structure and dynamics, as well as evaluating policies aiming at providing effective cures. Our empirical analysis applies unique comparable and very detailed longitudinal register data to study the problem in three countries.

Our comparative study aims to answer the following questions with a special focus on differences between Finland, Denmark and Germany:

1. Is “chronic unemployment” a common feature of post-industrial labour markets and advanced welfare states, or are there clear differences in scope and dynamics of “chronic unemployment” across the countries under scrutiny? If so, how can they be explained?
2. Which socio-demographic factors, e.g. age, education, nationality, affect the risk of becoming chronically unemployed and the probability to leave chronic unemployment?
3. Is the intensity and structure of activation of chronically unemployed due to participation in measures of active labour market policy different in three countries?
4. Which factors, e.g. individual characteristics or participation in labour market policy measures have an effect on the probability to leave chronic unemployment?

Our aim is to analyse the structure and dynamics of individual unemployment careers from a longitudinal perspective from 2001 to 2014 (period covered by our comparable data). We include analysis of the labour market situation during a three years period before the first incidence of (chronic) unemployment to the labour market situation five years later. Our study compares three countries: Denmark, Finland and Germany. This comparison is interesting, because it allows to analyse the incidence of CU against the background of varying labour market institutions like the social security system, active labour market policies or employment protection legislation.

It is also interesting to see how CU shares calculated on the basis of comparable and large administrative data sets relates to long-term unemployment rates based on harmonized survey data. Given that the long-term unemployment rates in Denmark and Finland are traditionally much lower than in Germany we would expect that CU shares are also lower in the two Scandinavian countries.

The paper is organized as follows. In the next chapter we expand on our conceptual framework in more detail. We outline the differences between structural and long-term unemployment, on the one hand, and chronic unemployment, on the other hand, and explain why the latter is better suited to capture the long-term exclusion of individuals from the labour market. In chapter 3 we describe our data and methodology. In the following chapter we analyse the magnitude and evolution of chronic unemployment in the three countries over the years 2006-2013 and compare it to official Eurostat figures on long-term unemployment as defined by the ILO. Chapter 6 present evidence on the structure of chronic unemployment, or more specifically, on the prevalence by gender, age, education and nationality. Furthermore we turn to the dynamics of chronic unemployment by looking at inflows and outflows and we investigate, in a backward looking perspective, the labour
market situation of the chronically unemployed in the past. Chapter 6 looks at different activation regimes and the participation in ALMP measures of the chronically unemployed in comparison to other types of unemployment. In a forward looking perspective we then apply a probit model to analyse which factors have an impact on the transition from chronic unemployment to non-subsidized, long-lasting employment in the following five years. Chapter 8 concludes.

The evidence presented in this paper is descriptive and thus allows only tentative conclusions about the determinants of the magnitude, structure and dynamics of CU.

2. Conceptual framework

2.1. Structural vs. chronic unemployment

In the theory of unemployment, the distinction between cyclical and structural unemployment refers to the problem that, partly, the level of unemployment seem not to depend on cyclical variations in labour demand, but is caused by structural reasons, and do not disappear even when general demand of labour increases. The causes of structural unemployment are considered to be either a matching problem (quality or geographical location of supply and demand do not match) or institutional factors limiting the efficiency of the labour market. Institutional factors mainly relate to the unemployment and/or social benefit system, the design of active labour market policies, the tax system, minimum wages and employment protection legislation. When unemployment, caused by a cyclical lack of demand is prolonged enough, there is a high risk of becoming structural. The concept of hysteresis refers to the following phenomenon: when duration of unemployment is long enough, it will continue even when demand finally increases again, and prolonged economic recessions seem to lead to permanent increase in the level of unemployment. Hysteresis effects are indeed likely to push up structural unemployment since workers who remain unemployed for long periods become less attractive to employers as a result of their declining human capital or as they reduce the intensity of their job search (Machin/Manning, 1999). Long-term unemployment plays a key role in the hysteresis effect. The longer the spells are the harder it is to get out of unemployment. Due to such a negative duration dependence, the already long-term unemployed find it difficult to exit from long-term unemployment.

Question is whether chronic unemployment is relatively independent of business cycles and caused rather by structural reasons? However, CU is not equal to structural unemployment. The latter is a macro-level concept that cannot be measured at the individual level. Structural unemployment does not only depend on the employability of the labour supply, but also on the structure of demanded qualifications and offered wages. It is a question of empirical analysis, how far the causes of chronic unemployment are structural (in contrast to cyclical) and whether the level of CU can serve as a proxy of the level of structural unemployment. When unemployment is caused by structural reasons, it becomes “chronic” only after defined duration, which is, in principle, based on voluntarist decision.
2.2. Long-term vs. chronic unemployment

Our concept of chronic unemployment is a micro-level category that is based on length (not causes) of individual lack of open market employment. A chronic unemployed person is defined as being out of regular employment for at least two consecutive years or longer, while mainly in labour force. Mainly in labour force means that the person is not “inactive” but unemployed or participating in ALMP for more than half of the year. Our concept of CU, however, does not intent to the detachment of the “inactive” working age population from the labour market but focus on the share of “active” people being excluded from genuine market based employment at the open labour market. According to the labour force concept of the ILO people not available for work and/or not seeking employment are “inactive” or outside the labour force. Early retirement, disability benefit receipt and health problems are still important reasons of “inactivity” although their relevance as an exit route out of the labour market has declined in recent years (Konle-Seidl/Rhein, 2015). Strikingly, countries with a relatively low share of long-term unemployed among all non-employed have markedly higher shares of people being retired or “inactive” for health reasons (e.g. Denmark, Austria).

In harmonized statistics long-term unemployed are generally defined as those who have been unemployed for twelve consecutive months. The term ‘consecutive’ implies that those having worked (or been inactive) for a short period between two spells of unemployment are excluded from the measure. However, it is very common that several unemployment spells follow each other with shorter or longer intervals of temporary employment and/or activation measures. This may happen when a jobseeker works for a short duration (for instance, under a temporary contract) in the middle of a long spell of unemployment or even, in some countries, when a jobseeker participates in a labour market programme (since this may reset the duration of the unemployment spell). Participation and repetitive participation to activation measures is also very common if unemployment continues for long or is repeated. Due to the recurrence of unemployment spells among certain groups and the problem of discouragement among jobseekers (becoming inactive), the measure of long-term unemployment underestimates the extent of “long-term joblessness”.

3. Comparison of three countries: data and measurement

Comparative research on transitions from and into (long-term) unemployment is usually based on harmonized survey data, mainly the European Labour Force Survey (EU-LFS) and the European Union Statistics on Income and Living Conditions (EU-SILC). Both data sets, however, provide only limited possibilities to explore the unemployment problem over longer periods. Although EU-SILC has a longitudinal component, the data set is limited by small sample sizes and the short length of the panel. Longitudinal information for a given four year framework is available only for a quarter of the sample due to its rotational framework: every year, a quarter of the sample is new
(interviewed for the first time). A four-year period is extremely short for fully observing long-term trajectories, such as persistence and recurrence of chronic unemployment over time.

Although the sample sizes of the second data base, the EU-LFS, are larger it has the clear disadvantage that it’s cross-sectional and not longitudinal, in principle. Although on the basis of a so-called retrospective question it’s possible to take advantage of repeated interviews with the same persons and thus exploring the persistence of labour force statuses from one year to the next. But this procedure has some clear weaknesses compared to real longitudinal data as it does not allow comparisons for periods longer than one year. Moreover, for some countries (e.g. Germany) there are no repeated interviews at all.

Our study, in contrast, is based on extensive and rich longitudinal register data sets, including detailed information on individual labour market histories, allowing long follow up periods of individuals. The data is fairly well comparable between the three countries. To the best of our knowledge, our approach using comparative longitudinal register data is unique in the research of unemployment.

The data for Finland is based on a sample of one third of the total working age population for the years 2000 to 2013. It contains very detailed information on the labour market history of individuals (employment, unemployment and participation in ALMP measures), especially from 2005 onwards. Relatively detailed biographical data is available already from 1997 onwards.

The data used for Germany is a two percent random sample of administrative data (IEB V12.01) for the years 2000 to 2013 covering employed, registered unemployed, participants in ALMP measures and participants in vocational/apprenticeship training, marginal as well as subsidized employment (Ganzer et al. 2017).

The dataset for Denmark is a 1.5 percent random sample of the DREAM database for the years 2002-2013, containing administrative data on registered unemployed, unemployed and participating in measures of ALMP, not registered unemployed but participating in ALMP as well as employees subject to labour market contribution and subsidized employment.

As a measure of the severity of unemployment we construct a policy relevant typology that is based, essentially, on individual and unambiguously measurable duration of absence from open labour market employment. The target population in our analysis are the unemployed or those participation in measures of ALMP at the end of a given year or fulfilling the criteria of CU. We construct four different types of unemployment defined as follows:

- **Chronic unemployment (CU):** Out of regular labour market for at least two consecutive years or longer while still mainly in labour force (=time in labour force (LFT) > 183 days & open employment < 30 days for two successive years)
• **Prolonged unemployment**: Mainly in labour force, partially employed but more unemployed (=not belonging to previous category & added LFT > 365 days during past two years & number of added unemployment + ALMP days >= added employment days during past two years)

• **Intermediate**: all others belonging to the target population of “all unemployed”

• **Short-term**: added unemployment days < 91 during past two years

4. **Comparing magnitude and evolution of long-term and chronic development**

Before we come to the empirical results on chronic unemployment, we continue with a look at the development of long-term unemployment (henceforth: LTU) as defined by the ILO. Figure 1 gives an overview of LTU as a share of total unemployment in the years 1995-2013. In 2013, LTU accounted for roughly 35 percent of total unemployment in the OECD. The share of LTU has risen since 2010, primarily due to the financial crisis. Note that the crisis already started in 2007/8, but the share of LTU kept decreasing up to 2009. This is because the layoffs at the onset of the crisis first increased short-time unemployment, which translated into higher long-term unemployment only with a time lag. This also applies to the three comparison countries.

**Figure 1: Long-term unemployment (ILO-definition), share of total unemployed**

Source: EU-LFS, own calculations.

Compared to the OECD average, the share of LTU was consistently lower in Denmark since 1995 and was down to 9.5 percent in 2009, but has risen afterwards, as in the OECD, and peaked at 28 percent in 2012. The trend in Finland was similar up to 2010, even though the LTU share was slightly higher than in Denmark, but it started to decrease again already in 2011, and in 2013 it was at the lowest
level in the three comparison countries. Compared to the Scandinavian countries, Germany stands out with an exceptionally high share of LTU, peaking at over 56 percent in 2006/7. The share has decreased since 2008 and has fallen to 44.6 percent in 2013. Despite this downward trend, the German LTU share was still above the OECD average, not to speak of Denmark and Finland. Taken the LTU incidence as an indicator of unemployment persistence, the German value is still worrying although total unemployment almost halved between 2006 and 2013.

We now turn to chronic unemployment as defined above. As can be seen from Figure 2, in 2006 CU made up roughly 40 percent of total unemployment in Finland and Denmark. By 2013 the share had gone down to 34.9 and 36.8 percent, respectively. In Germany the downward trend was more pronounced, from 48 to 37.1 percent, so that in 2013 the share of CU was almost equal in the three countries. Of the four unemployment types, CU has the biggest share, at least in Finland and Germany, whereas in Denmark “prolonged unemployment” is most frequent.

Figure 2: Distribution of different types of unemployment, in percent of total unemployment

![Figure 2](image)

Source: EU-LFS, IEB, DREAM Database and Statistics Finland, own calculations.

Despite the downturn of CU in Germany, the level of very long-term exclusion from the labour market is still very high: Of those who were chronically unemployed in 2012/13, more than 35 percent had not been in regular employment during the last 10 years, compared to 28 percent in Finland and only 7 percent in Denmark.

Using CU as indicator for long-term exclusion of unemployed from the labour market, instead of LTU, provides a different picture. This becomes even more evident when we relate the number of chronically unemployed not to total unemployment, but to the labour force as a whole (see Figure 3). In Germany, the share of CU in the labour force has decreased continuously since 2006, and in
2013 it was down to 3.2 percent, lower than in the two Scandinavian countries. The latter experienced a rise of CU since 2010.

**Figure 3: Evolution of chronic unemployment over time, in percent of total labour force**

![Graph showing the evolution of chronic unemployment over time](image)

Source: IEB, DREAM Database and Statistics Finland, own calculations.

When comparing the numbers on LTU and CU for 2013, it becomes evident that the concept of LTU tends to underestimate the level of long-term exclusion from regular employment, as already stated above. This is true for all three countries, but most for Finland and least for Germany. This conclusion is confirmed by a comparison of the absolute numbers for LTU and CU (Table 1): In Germany, more than 1.3 million persons were chronically unemployed in 2013, compared to 963 thousand persons who were classified as long-term unemployed, so CU exceeds LTU by a factor 1.4, and in Finland even by a factor 3.2.

**Table 1: Chronic unemployment vs. long-term unemployment – absolute numbers for 2013**

<table>
<thead>
<tr>
<th></th>
<th>Germany</th>
<th>Denmark</th>
<th>Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) chronic unemployment (in 1,000)</td>
<td>1347</td>
<td>93</td>
<td>145</td>
</tr>
<tr>
<td>(2) long-term unemployed, ILO-classification (in 1,000)</td>
<td>963</td>
<td>52</td>
<td>46</td>
</tr>
<tr>
<td>(1) / (2)</td>
<td>1.4</td>
<td>1.8</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Source: EU-LFS, IEB, DREAM Database and Statistics Finland, own calculations.
We now turn to the prevalence of chronic unemployment by individual characteristics, conditional on being unemployed, i.e. belonging to one of the four categories defined above. We focus on four characteristics, namely gender, citizenship, age and educational level.

### Figure 4a: Distribution of types of unemployment in Germany, 2013

Source: IEB, own calculations.

### Figure 4b: Distribution of types of unemployment in Finland, 2013

Source: Statistics Finland, own calculations.
The results are shown in Figures 4a -4c. They refer to the year 2013 and can be summarized as follows: Gender doesn’t matter much for the prevalence of one of the four unemployment categories, nor does nationality. But there are pronounced differences between educational levels between Finland and Germany.\(^1\) Out of the low-skilled unemployed persons in Finland or Germany, more than 40 percent are chronically unemployed. This share is considerably lower among those with vocational training and even lower among university graduates. As to age, CU tends to be less widespread among the young unemployed in the three countries. This is not surprising since they usually have spent less time in the labour force than older workers. Finland stands out with an exceptionally high share of CU in the oldest age bracket (55-64).

In order to understand the dynamics of CU over time, a look at inflows into and outflows from CU is useful. The evidence for the years 2006-2013 can be found in Figure 5. Both inflows and outflows fluctuate in a margin between 20 and 40 percent of total CU in the respective year, so there are sizeable movements into and out of CU every year. This is especially true for outflows in Germany before 2009 and after 2010. This high outflow level could be related to the German labour market reforms initiated between 2002 and 2005 and aiming at diminishing unemployment persistence. However, the level of very-long-term exclusion from employment in Germany is still substantial. As to inflows, they increase after 2009, especially in Denmark and Finland, so they seem to be at least partly driven by cyclical factors. Anyway, most of those entering CU over the period 2003-2013 had been only weakly attached to the labour market before, or had been even completely outside the labour force. This conclusion emerges from Figure 6, which informs about the individual labour

\(^1\) Educational levels are not available for the Danish data at present.
market status before getting chronically unemployed. In Finland, only 32 percent had been mainly employed before, in Germany even only 23 percent.

**Figure 5: Inflows into and outflows from chronic unemployment in Finland, Denmark and Germany**

![Graph showing inflows and outflows into and out of chronic unemployment in Finland, Denmark, and Germany from 2007 to 2013.]

Source: IEB, DREAM Database and Statistics Finland, own calculations.

**Figure 6: Labour market situation 3 years before the start of CU in 2012/2013**

![Pie charts showing the distribution of labour market statuses 3 years before the start of CU in 2012/2013 for Germany and Finland.]

Source: IEB and Statistics Finland, own calculations.

Despite the considerable dynamics, most persons either remain in CU, or find only transitory jobs, or leave the labour force altogether. Only a minority find their way into regular, long-lasting employment. Of those chronically unemployed in 2008, just 15 percent in Germany and about 11 percent in Denmark and Finland were mainly employed five years later.
6. Activation of the chronically unemployed and its impact

ALMP was originally created to solve the problem of structural unemployment. The aim is to increase the employability of the unemployed by raising the relevant qualifications, in case this seems to be the problem. Since the early 1990’s, activation in the sense of enabling and demanding is widely introduced in Europe to increase the incentives of taking up employment. In this context sanctions for benefit recipients are also imposed for non-participation in mandatory ALMP programs. Although the overall objective of activation is to improve economic self-reliance and societal integration via gainful employment instead of joblessness and benefit receipt, a major instrument to achieve this goal is still enhancing the employability of jobless people (Eichhorst et al., 2008). Thus, ALMP in the activation context still tries to remove structural causes of unemployment at the individual level.

From extensive empirical evaluation research considering the direct effects (“treatment effects”) of single programmes we know that the effectiveness of ALMP programmes depends very much on jobseeker’s profile and type of programme. Work first style job search assistance and sanction/threat programmes have larger short term effects while human capital style training and private sector employment subsidies programmes have larger gains in the medium or longer run. Public sector employment programmes have negligible, or even negative programme impacts at all time horizons. The meta-analysis by Card et al. (2015) examining the evaluation results of more than 200 programmes all over the world also finds systematic differences across participant groups with larger impacts for females and participants who enter from long term unemployment. The general finding of the meta-study, however, is that short run effects of ALMP measures are rather low and active labour market policy can only contribute little to reduce structural unemployment.

However, single ALMP evaluations might fail to capture important aspects of real-world labour market policy. On the one hand, implementation studies show that ALMPs need to be selective. Individual targeting is a key success factor. Programmes works best when the “personalisation potential” of the available portfolio is high. On the other hand a country’s “activation regime” might in general affect the effectiveness of single ALMPs, at least indirectly. Arni et al. (2015) propose to take into account a “regime effect” which acts over and beyond single treatments.

Governments spend substantial amounts on ALMP programmes and services. The spending in terms of GDP among the three countries included in our analysis is highest in Denmark (1.7%) followed by Finland (0.97%) and Germany (0.65%). Figure 7 shows that the structure of ALMP differs considerably between the three countries. Whereas in Denmark 40 percent of ALMP expenditures were spent for “supported employment and rehabilitation” the spending in this category is just about 10 percent in Finland and still minor in Germany. The main spending category in Finland is training and in Germany it is labour market services, including job search assistance, counselling and job placement.
In contrast to impact evaluation studies we do not look on the importance or effectiveness of single ALMP measures, i.e. comparing the outcome in term of re-employment of participants vs. a non-participating control group. Our focus is on the impact of (repeated) ALMP participation for individual CU on inflow, duration and outflow of CU over a period of 10 years. By taking into account the country variation in volume and structure of ALMP shown in Figure 7, we try to give an answer whether the impact of ALMP on CU vary with national variation.

**Figure 7: ALMP expenditure by type of programme, 2013 in percent of GDP**

Active labour market policy (ALMP) measures may help to reduce structural or long-term unemployment, even though the evidence is mixed. We first just provide evidence on how much the chronically unemployed did participate in ALMP measures, without distinguishing between specific types of measures. A comprehensive indicator for this is the average number of days spent in ALMP during a given time span, such as the years 2012/2013. This average also includes persons with zero days, i.e. those who did not participate at all in ALMP measures. A second complementary indicator is the activation share, which is defined as the average time spent in ALMP measures as a percentage of the total time spent in either ALMP measures or in unemployment. The results for both indicators can be found in Table 2. Denmark stands out according to both indicators. The activation share for the chronically unemployed (see last column of Table 2) of 29 percent is roughly double the share in Finland and Germany. This does not come as a surprise, given the mandatory activation regime (right and duty of activation) in Denmark. This is also highlighted by the fact that in Finland and Germany more than 50 percent of all the chronically unemployed did not participate at all in ALMP, compared to only 31 percent in Denmark.

Source: Eurostat, LMP-database
Table 2: Participation in measures of active labour market policy in 2012 and 2013

<table>
<thead>
<tr>
<th></th>
<th>total unempl.</th>
<th>short-term unempl.</th>
<th>intermediate unempl.</th>
<th>prolonged unempl.</th>
<th>chronic unemp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>activation share</td>
<td>9%</td>
<td>7%</td>
<td>3%</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>activation in days</td>
<td>77</td>
<td>37</td>
<td>14</td>
<td>87</td>
</tr>
<tr>
<td>Denmark</td>
<td>activation share</td>
<td>29%</td>
<td>13%</td>
<td>27%</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>activation in days</td>
<td>148</td>
<td>8</td>
<td>60</td>
<td>164</td>
</tr>
<tr>
<td>Germany</td>
<td>activation share</td>
<td>14%</td>
<td>14%</td>
<td>11%</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>activation in days</td>
<td>64</td>
<td>23</td>
<td>20</td>
<td>76</td>
</tr>
</tbody>
</table>

Source: IEB, DREAM Database and Statistics Finland, own calculations.

It is also of interest to see if the chronically unemployed participate more in ALMP than other unemployed persons. Therefore Table 2 also shows activation shares for the other types and for total unemployment. Compared to total unemployment (column 1), the activation share for CU is the same in Denmark and Germany, and slightly higher in Finland. But when looking at the number of days spent in ALMP, it turns out that the chronically unemployed spent more time in ALMP. This is easily explained by the fact that they also spend more time in unemployment than others.

7. Transition from CU to employment: The impact of active labour market policy

We apply a probit-model for Germany to estimate the impact of individual factors and ALMP on the probability to leave chronic unemployment and start a stable employment. Such a stable period of employment is assumed when a former chronically unemployed worker (in 2007/2008) is in regular employment for more than 30 months of the following 5 years (2009-2013). The average probability of a transition from chronic unemployment in 2007 and 2008 to stable employment is 14.5 percent in Germany.

We use gender, age, education, nationality and handicapped status as individual factors and control for regional variation by introducing 186 labour market districts. We are mainly interested in the impact of participation in measures of active labour market policy on the transitions out of chronic unemployment into sustainable employment. Therefore we use the individual duration in five different types of labour market measures in the years 2007 and 2008, namely further occupational qualification, training and qualification measures, wage subsidies, direct job creation measures and a rest group of other measures.

If a person remains in unemployment for a longer period of time or if she finds a job is highly influenced by the individual labour market biography e.g. employment and unemployment
experience. As mentioned above this phenomenon is well known and widely discussed as negative duration dependence. To allow for duration dependence we introduce two further control variables in the probit models: the duration in unemployment and in regular employment during five years before chronic unemployment in 2007 and 2008.

**Table 3 : Transitions from chronic unemployment to regular employment in Germany**

*Probit regression: marginal effects*

*Dependent variable: mainly regular employed after chronic unemployment in 2007/2008 (at least 30 months of regular employment in the years 2009 – 2013)*

<table>
<thead>
<tr>
<th></th>
<th>coef.(dy/dx)</th>
<th>std.err.</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>-0.046 ***</td>
<td>0.004</td>
</tr>
<tr>
<td>age (reference group: 20 – 29 years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 - 49 years</td>
<td>-0.017 **</td>
<td>0.005</td>
</tr>
<tr>
<td>50 - 60 years</td>
<td>-0.088 ***</td>
<td>0.006</td>
</tr>
<tr>
<td>education (reference group: without vocational training)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vocational training or high school degree</td>
<td>0.042 ***</td>
<td>0.005</td>
</tr>
<tr>
<td>college or university degree</td>
<td>0.061 ***</td>
<td>0.008</td>
</tr>
<tr>
<td>german</td>
<td>-0.006</td>
<td>0.006</td>
</tr>
<tr>
<td>handicapped/disabled</td>
<td>-0.068 ***</td>
<td>0.022</td>
</tr>
<tr>
<td>participation in measures of active labour market policy (in months)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>wage subsidy</td>
<td>0.021 ***</td>
<td>0.001</td>
</tr>
<tr>
<td>direct job creation</td>
<td>-0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>further occupational qualification</td>
<td>0.011 ***</td>
<td>0.001</td>
</tr>
<tr>
<td>training and qualification measures</td>
<td>0.010 **</td>
<td>0.002</td>
</tr>
<tr>
<td>other measures</td>
<td>0.003 **</td>
<td>0.001</td>
</tr>
<tr>
<td>pseudo R²</td>
<td>0.083</td>
<td></td>
</tr>
<tr>
<td>observations</td>
<td>38,049</td>
<td></td>
</tr>
</tbody>
</table>

Source: IEB, own calculations.
Note: Significance levels: * p<0.10, ** p<0.05, *** p<0.01.
The specification includes also previous unemployment duration and duration in regular employment between 2002 and 2006 and 186 regional dummy variables.

The results of the probit regression for Germany show that the probability to find a stable job is 4.6 percentage points lower for men than for women (see Table 3). Moreover chronically unemployed persons of higher age have lower chances to get a job and education have a positive influence on the probability to find a stable job. E.g. persons with a college or university degree have more than 8 percentage points higher job finding probability than low qualified workers without vocational training. Disabled or handicapped persons have 6.8 percentage points lower probability to find a stable job, while German nationality has a negative sign, but is statistically not significant.
For the group we defined as chronically unemployed in 2007 and 2008 participation in measures of active labour market policy in the same years shows a positive impact on the probability of being employed for more than 30 months in the following five years. The most distinct effect was achieved by wage subsidies, further occupational training and training and qualification. According to our probit modell an additional month in a job with wage subsidy increases the probability of a successful transition to a stable jobs by 2.1 percentage points. The effect of further occupational training and of qualification and training is also positive and significant but only one percentage point per additional month of participation. Other measures show only weak but positive effects, while the impact of job creation measures (incl. 1-euro-jobs) on stable employment is not significant.

However, it should also be mentioned that the group of chronically unemployed workers may differ from other unemployed persons by a number of unobservable characteristics, e.g. by motivation or search intensity. Therefore our estimation results cannot be interpreted as causal effects.

The strong positive effect of wage subsidies might be due to the fact that persons closer to the labour market have a better chance to find a subsidized job, compared to other chronic unemployed persons. Furthermore, so called deadweight effects (subsidies paid to employers who would recruit anyway) and substitution effects (subsidies paid to unemployed persons at the expense of non-unemployed) cannot be excluded.

8. Conclusions

Discontinuous career paths with short employment phases, unemployment and participations in labour market measures are widespread in many European countries. However, conventional unemployment statistics do not appropriately capture this phenomenon and statistical distortions arise. In contrast to the measurement of long-term unemployment, our approach of chronic unemployment takes these distortions that arise from participations in labour market measures and short-term employments between two unemployment periods into account and removes it at least partially. The official statistics classifies these circumstances as interruptions in unemployment. Our approach provides a more realistic picture of groups of persons with difficulties to integrate sustainably into the labour market as we classify periods of participations in ALMP measures and subsidized employment as periods of unemployment.

Comparing the labour markets of Denmark, Finland and Germany, it turns out that long-term unemployment rates in the Scandinavian countries are lower than in Germany. However, the magnitude of chronic unemployment is on a similar level, but the duration is longer in Germany. Remarkable is the strong decrease in chronic unemployment in Germany since 2006. Structural and economic trends might be responsible for this development.

Despite a high share of persons with very long durations of chronic unemployment, Germany realizes higher transition rates into employment. Within a five-year period, around 15% of the
chronically unemployed are able to take up a (relatively) stable employment relationship on the regular job market. In Finland and Denmark, only 11% achieve this. Labour market measures seem to have a positive impact on the transition from chronic unemployment to a stable employment. Wage subsidies and further occupational training and qualification show the largest effects. However, only some chronically unemployed are successful in changing their employment status. Therefore, the potential impact of ALMP might be limited. In our analysis we focused on the participation in labour market measures. Based on the register data we use it is not possible to estimate the impact of activation in a wider sense (supporting and demanding; “carrot and stick”) on search intensity or on transitions from chronic unemployment to regular employment.

In contrast to the group of persons in continuous long-term unemployment, a certain group among the chronically unemployed might be more employable, because they participated in labour market measures or were previously employed for short periods. For the larger group among the chronically unemployed which do not have a real chance for an integration in the regular labour market (e.g. unemployed for at least ten years), stabilizing and permanent employment subsidies might be worth considering in order to integrate them in the “second labour market”.

References
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