Give them a break! Did activation of young welfare recipients overshoot in Germany? (A Regression Discontinuity Analysis)

Anton Nivorozhkin[§] and Joachim Wolff[‡]

30.01.2012

Abstract

In Germany, due to special rules 15- to 24-year-old welfare recipients, registered with Public Employment Office, are highly targeted by mandatory activation policies. This paper investigates the effects of the special rules in terms of enhancing the (re-)employment probability, increasing earnings and reducing benefit dependency of targeted people in East and West Germany in the short- and the long-run. Using registry dataset of the inflow into unemployment and welfare over the period October 2005 to January 2006 the paper exploits the age related eligibility rule to identify a suitable counterfactual using a regression discontinuity design. Our estimates imply zero or negative effects of targeting for selected population subgroups. A possible explanation to our finding is that an excessive targeting of young welfare recipients by active labour market programmes may lead to a low quality matches between programmes and participants.

[§]Institute for Employment Research, Nuremberg, Germany, email: Anton.Nivorozhkin@iab.de

[‡]Institute for Employment Research and Labor and Socio-Economic Research Center, Nuremberg, Germany, email: Joachim.Wolff@iab.de

Give them a break! Did activation of young welfare recipients overshoot in Germany? (A Regression Discontinuity Analysis)

1. Motivation

Currently, youth unemployment stands at unprecedented high levels in OECD countries and is expected to remain high in the coming years (Scarpetta et al., 2010). High rates of youth unemployment impose significant costs on the society and may hinder the development of the human capital. High unemployment among youth may lead to a rise in crime (Fougère et al., 2009). More importantly, youth unemployment may contribute to a deepening social exclusion and in some cases lead to a political unrest as in North Africa and Middle East (Taiwo and Moyo, 2011).

On the individual level, unemployment at the start of the career may have a "scarring effect". The experience of unemployment can have a negative impact on future earnings and employment prospects either through a loss of some human capital while being unemployed (Pissarides, 1992) or through signalling effects, if employers use work histories to separate good workers from bad workers (Lockwood, 1991). Empirical evidence shows that those people affected by unemployment in the young age are likely to face a future loss of income and a decreased employment probability. However, the magnitude of the effect varies in terms of persistence depending on the period and country under investigation (Arulampalam, 2001; Mroz and Savage, 2006). A scarring effect may also manifest itself in decreased life satisfaction. People who experienced unemployment in the past are on average less satisfied with their lives, comparing to a full-time employed counterparts, even though they found employment (Clark et al., 2001).

When young people cannot find employment, the society might support them through active labour market programmes (e.g. job search assistance and monitoring, training,

subsidised employment). On the individual level such measures are only successful, if they address and thus help to overcome the specific obstacles that impede a participant's success in the labour market. There is a large literature that is concerned with the effectiveness of such measures both for unemployed job-seekers in general and for young unemployed on an individual basis (Martin and Grubb, 2001; Card et al., 2010; Kluve, 2010). Nevertheless, the literature is not much concerned with another question. Do policy-makers get the scale right? An effective policy regime is designed such that the bulk of programme participations lead to a high quality match of programme and participant. Hence, it mainly produces programme participations that improve the participants' effectiveness of job search and their future prospects in the labour market. The incentives for the public employment service (PES) though might be set such that too many low quality matches between programme and participants become likely. In turn no or even adverse impacts on the labour market performance of groups targeted by such policies would emerge. We study such a case that resulted from a reform of the German welfare benefit system in 2005.

In the years 2002 to 2005 Germany reformed the unemployment benefit and welfare system following the advice of the European Commission (1997, 1999) and OECD (1994). The idea of the reform was to implement policies that guarantee the sustainability of social protection systems due to challenges like increased job insecurity, high and persistent unemployment and the ageing of the society. A special emphasis was put on the redistribution from passive to active labour market policies and investment in human resources to address the question of how to combine obligations and opportunities in a modern social protection system. In particular, the reform at the beginning of the year 2005 introduced a new welfare benefit regime with a strong emphasis on mutual obligations of the welfare recipient and PES in order to reduce welfare dependency. Since the reform, all employable members of a poor household have to search for jobs and cooperate with the PES in order to reduce their dependence on welfare benefits. They have to accept nearly any wage offer. The PES

3

supports them through advice and active labour market policies that aim at improving their employability.

The reform of the year 2005 raised the share of welfare recipients that are subject to activation policies and increased the scale of active labour market programmes (Hohmeyer and Wolff, 2011). Moreover, it put a very special emphasis on activating welfare recipients aged younger than 25 years. First, the PES is obliged to place them immediately after their benefit claim into work, training/education or "work opportunities".[1] Hence, the reform led to an incentive for the PES to target young unemployed welfare recipients much more than those aged 25 years or older by workfare and other active labour market policies. This incentive was reinforced by a goal set by the German government at the start of the year 2005: Welfare recipients below the age of 25 years are supposed to be (registered as) unemployed for no longer than three months (Federal Employment Agency, 2006). During participation in most active labour market programmes (ALMPs) participants are not registered as unemployed. By placing young welfare recipients into ALMPs the PES can achieve this goal. Second, welfare recipients aged younger than 25 years are subject to stronger benefit sanctions if they do not cooperate with the job centres than those aged at least 25 years.

Against this background, we study impacts of the special rules for young unemployed welfare recipients on their performance in the labour market. Our key hypothesis is that the new welfare regime overemphasized their activation leading to too many inadequate matches between programme and participant. Therefore, under the new policy regime their activation might have no or even adverse impacts on their success in the labour market. As the age threshold of 25 years implies an abrupt change of the rules, we can study the question empirically by the regression discontinuity design (Imbens and Lemieux, 2008; Lee and Lemieux, 2010). We use administrative data to study the impacts for the population of welfare

---

[1] Work opportunities consist of two types of subsidized jobs of public interest: Contributory gainful jobs or workfare, where participants receive their welfare benefit and a small compensation of one to two Euro for each hour worked, which in the public lead to the popular name "One-Euro-Jobs" of the workfare scheme.

recipients who were within +/- 1440 days from their 25th birthday and were for the first time unemployed while receiving the welfare benefit during the period from October 2005 to January 2006.[2]

The remainder of the paper is organized as follows. Section 2 presents a literature review on the impact of youth employment promotion measures and discusses important lessons that can be learnt from these studies. Section 3 explains the institutional set-up of German labour market programmes. In section 4 we describe our identification strategy. Section 5 discusses the administrative data and our specific sample. The estimation results are presented in section 6. We summarize the results and discuss key policy conclusions in the final section.

2. Youth unemployment trends and the effects of the labour market programmes in Europe

In this section we review the youth unemployment trends in Germany and EU15 countries and summarize the results of the recent econometric evaluation studies of youth employment programmes in Europe.

Figure 1 shows unemployment rates for young people in Germany and EU15 in the past ten years. The youth unemployment rate of 20 to 24 year olds is more than twice as high than the one of adults aged 25 to 54 years in the EU15 countries and remained relatively stable during the past decade. In contrast, over the same period young people in Germany are only 1.2 up to 1.5 times as likely to be unemployed than prime age workers. Levels of youth unemployment in Germany were generally smaller than for the EU15 average at the beginning of the last decade. The unemployment rate of young people sharply increased during the period 2004 – 2005 in Germany. Yet, only in the year 2005 was the German youth

---

[2] We choose to concentrate on the effect of the programme for men subgroup. In the preceding analysis we investigated the effect of the programme for women. It appears that one of the main assumptions of regression discontinuity design, continuity assumption, is violated for the women subsample. For more details see Section 5.3.

unemployment rate (slightly) higher than the one of the EU15 countries. Finally, during the period 2007 – 2010 the youth unemployment rate was much smaller than the EU15 average. With respect to youth unemployment during the recent global crisis Germany fairs better than the EU15. Nevertheless, in 2010, more than one out of nine young people in the German labour force were unemployed.

High levels and persistency of youth unemployment attracted considerable attention of academics and policy makers to the results of evaluation of youth employment programmes. In Table 1 we review the results of the econometric evaluation studies of youth employment programmes implemented in European countries starting from the year 1990.[3]

The United Kingdom introduced the New Deal for Young people (18 to 24 year old) in 1998. In the framework of the programme, support was given to young unemployed who claimed the job seeker allowance for more than 26 weeks.[4] Participation in the programme was mandatory and non-compliance can be sanctioned. During the first four months of the programme young people are subject to an intensive job counselling. If an individual has not found a job he is assigned to one of four possible measures lasting from six to eight month: full-time education or training, work in the voluntary sector, work in an environmental task force or subsidized employment. Upon completion of the measure a young unemployed person who still has not found a job returns to a job centre and agrees with case worker to a new action. Several micro-economic evaluations of the programme were conducted in recent years. The studies found robust short- and long-run gains in re-employment probabilities for participants (Blundell et al., 2004; Georgi, 2005). More important, social benefits of the programme outweigh its costs (Reenen, 2004).

Evaluation results of two youth employment programmes in Sweden are presented in Larsson (2003). Youth practice and labour market training programmes were implemented in

---

[3] We limit the review of the literature to evaluation studies of the European youth employment programmes because of apparent similarities in institutional set-up and labour market trends.
[4] Some groups of young unemployed were allowed to enter a programme before the standard 26 weeks requirement (e.g. single parents, disabled).

the first half of the 1990s. Participants of the youth practice were supposed to be unemployed for four months prior to joining the programme. The programme provided participants with either public or private subsidised employment options. Labour market training was available to every unemployed individual and there were no additional preconditions to enter a programme. Results suggest that both programmes did not improve earnings and employment probabilities of participants. Early targeting of unemployed youth in Sweden was studied in Carling and Larsson (2005). Within the framework of the programme pilot job centres were committed to target young unemployed within 100 days after registration. The empirical results of the study suggest that early targeting did not have a significant effect on the employment probability.

Another programme for young unemployed in Denmark was studied in Jensen et al. (2003). The programme was offered to low educated persons under the age of 25 years who had been unemployed for 6 months during the last 9 months. The programme consisted of 18 months of vocational education during which benefit level is reduced by 50 percent. As an alternative unemployed people could enrol into regular full time studies and receive a government grant. Non-compliance was subject to a strict sanction policy up to a full termination of the unemployment benefits. The authors find strong positive effects of the intervention on the transition rates from unemployment to formal schooling, while weaker positive effects were found for the transition from unemployment to employment.

Programmes for unemployed youth in Norway at the beginning of 1990s are analysed in Hardoy (2005). In the framework of Norwegian youth programmes young unemployed were given a priority to participate in various activation measures. Participants of the programmes received allowances on top of unemployment benefits. Results of evaluation indicate that most of the analyzed programmes did not yield positive effect on employment probabilities of participants.

Experimental evidence on the effect of private placement services for long-term, high educated French unemployed are presented in Crépon et al. (2011). The programme targeted university graduates. The programme was divided into two stages. In the first stage the person was assisted in finding a regular employment. In the second stage the person received further counselling aiming to help him to keep the job or to find a new one. The results of the evaluation study of Crépon et al. (2011) indicate a strong positive impact of private placement services compared with the same type of services provided by PES on employment probabilities of participants.

Job-search assistance and short-term training courses for young long-term unemployed in Portugal are analysed in Centeno et al. (2009). The programme offers job-search assistance and short-term training courses. Results of the evaluation study imply that the measures did not reduce unemployment duration of participants.

The impact of subsidised part-time employment programme on the transition rates to regular employment of Belgian long-tem unemployed women, aged 18 to 25 is investigated in Cockx et al. (2011). The authors find that the programme increased transition rates into regular employment of participants.

Recent evidence on the effects of the German ALMPs for the young unemployed is presented in Caliendo et al. (2011). The authors analyze seven main programmes which included job-search assistance, short and long term training, wage subsidies and job creation schemes. Observation window allows the authors to trace effects of the programme up to the 60th month after the programme start. The results of the study suggest that, with the exception of the short locking-in effects, the analyzed measures yield a significant increase in reemployment probability of participants in East and West Germany and contributed to the transition to further education. A notable exception is public sector job creation schemes which appear to be harmful for employment prospects of participants. However, the authors studied the inflow into unemployment of below 25 year olds of the year 2002; they neither

studied the period after the introduction of the welfare reform in 2005 and its special rules for young welfare recipients nor did they only regard welfare recipients in their study.

To summarize results of the reviewed evaluation studies, youth programmes mostly work well by increasing chances of unemployed to reintegrate into the labour market and increase earnings. At the same time the success of the measures depends on the design of the programme. One of the critical components for the success of the youth employment measures which we identified is the timing of intervention and the scale of the programme. Programmes that aimed at targeting young unemployed in the beginning of their unemployment spell or/and have a broad coverage tend to have no or negative effects on future labour market success of participants (Larsson, 2003; Carling and Larsson, 2005; Hardoy, 2005; Centeno et al., 2009).

Evaluation of German programmes makes an interesting case study given relatively low levels of youth unemployment and proactive targeting of young individuals with active labour market programmes. Moreover, with an exception of small scale evaluations of pilot projects (Kluve et al., 2011) none of the studies looked at the results of German active labour market programmes that are exclusively targeted at young unemployed.[5]

3. The new welfare system and special rules for young welfare recipients

At the start of the year 2005 Germany introduced a new welfare benefit system, the Basic Income Support for Job-Seekers or Social Code II (SC II). It was the last of the four "Hartz" reforms that were implemented during the years 2003 to 2005. In order to fight high and persistent unemployment they aimed at improving the effectiveness of the PES and at providing unemployed job-seekers with stronger incentives to search for work. One major

---

[5] Indirect evidence on the effects of active labour market programmes on young unemployed in Germany are presented in (Card et al., 2010). Using meta-analysis the authors show that the program mes which were targeted at individuals older than 25 performed worse comparing to programmes targeted to a broader population.

issue of the reforms was to shift the emphasis of the unemployment insurance and of the welfare benefit system towards activation policies.

With the welfare reform of January 2005 the means-tested unemployment benefit II (UB II) replaced two different welfare benefits: the flat rate social assistance (SA) and earnings-related unemployment assistance (UA). Like SA the new welfare benefit UB II is a flat rate benefit. For former UA but not for SA recipients, the UB II tends to be less generous (Blos and Rudolph, 2005). The key issue of the welfare reform and for our study was the introduction of a system of mutual obligations. On the one hand all welfare recipients and members of their household who are capable of working have to undertake efforts to reduce their welfare dependence, in particular by raising their employability and by finding a job. Before the reform this was not necessarily the case: Not all SA recipients capable of working were registered at the PES. Moreover, the partner or adult children of an UA recipient were not required to search for work, to improve their employability or to register at the PES. On the other hand the PES has to support the process of improving the welfare recipients' employment perspectives by counselling and a wide variety of active labour market programmes.

The welfare reform implemented a set of special rules for welfare recipients aged younger than 25 years. In contrast to other age groups, immediately after their benefit claim the PES is supposed to place welfare recipients aged 15 to 24 years into work, training or work opportunities (Article 3 SC II). Moreover, at the beginning of the year 2005 the German government and the Federal Employment Agency agreed upon a specific goal for unemployed people aged 15 to 24 years (Federal Employment Agency, 2006). They should be registered as unemployed for no longer than three months. Therefore, since the start of the year 2005 young welfare recipients were defined as a very special target group. Yet, a quick placement of young welfare recipients into work or training is often not possible. If job centres try to avoid that young welfare recipients are registered as unemployed for longer than three

months, they can place them rapidly into work opportunities or into another ALMP that technically ends their status of registered unemployment. The special rules imply incentives for job centres to target young welfare recipient aged below 25 years much more by ALMPs than unemployed welfare recipients who are aged at least 25 years. It is therefore no surprise that the inflow rate into ALMPs of young welfare recipients is characterised by a sharp drop at the threshold of 25 years.

Table 2 provides some evidence for this by examining aggregate data of the Department of Statistics of the Federal Employment Agency. Later we will also provide such evidence from an analysis of administrative records of individual welfare recipients. Table 2 displays the average monthly inflow into different ALMPs relative to the average stock of unemployed welfare recipients. It displays such monthly inflow rates separately for the age cohorts from 20 up to 29 years, so that a potential sharp drop of the inflow rates at age 25 becomes visible. We both display these statistics for the period 2005 to 2007 and 2008 to 2010. This allows us to judge whether even many years after the reform of the year 2005 sharp differences in the treatment of age groups just below or above the age threshold of 25 years persist. Table 2 is concerned with the inflow rates into work opportunities and into other ALMPs. Two types of work opportunities exist. Both schemes provide welfare recipients with subsidized employment in the public or non-profit sector. The tasks that participants perform should not compete with tasks performed by regular employees. Participation often lasts at around six months (Hohmeyer et al., 2006). The dominant form of work opportunities is the workfare scheme "One-Euro-Job". Participants in the alternative scheme instead work in a contributory job and receive a wage, though since the year 2008 these subsidized jobs are exempt from contributions to unemployment insurance. We also display the inflow rates into the remaining major active labour market programmes taken together, including subsidized training and general employer subsidies for hiring unemployed workers.

Whether we regard the two work opportunity programmes or other active labour market programmes taken together, the major conclusion is the same. The inflow rates of a specific programme are very similar for the age cohorts of 20 up to 24 years (Table 2). Next, there is very little variation of the inflow rates over the age cohorts of 25 up to 29 years. But for each of the three inflow rates we find a sharp decline at the age threshold 25 years; this finding holds for both periods: E.g., both during the period 2005 to 2007 and the period 2008 to 2010 the monthly inflow rate into One-Euro-Jobs falls from about five percent for those unemployed welfare recipients aged 24 years to roughly two percent for welfare recipients aged 25 years.[6]

On the one hand, young unemployed welfare recipients are highly targeted by ALMPs. On the other hand they face harsher sanctions if the refuse to participate than welfare recipients aged older than 24 years. Welfare recipients for instance can be sanctioned for refusing a suitable job offer or refusing to participate in an ALMP or not completing an ALMP participation without good reason. In the case of a first refusal this leads to a benefit reduction of 30 per cent of the (full) cash benefit for those welfare recipients aged at least 25 years, while those aged less than 25 years lose their cash benefit entirely.[7] The punitive sanction lasts for three months. The job centres though can provide some relief to a sanctioned welfare recipient, e.g. by providing them with a non-cash benefit like food stamps. Since August 2006 they might also shorten a sanction period to six weeks for young welfare recipients.

4. Identification strategy – a regression discontinuity design

Let us next turn to our identification strategy. Following the notation of the potential outcome approach to causal inference, let us define treatment as being younger than 25 at the

---

[6] We did also analyze these figures by gender and for West and East Germany separately. The findings confirm the general conclusions in each case.
[7] Repeated infringements within a period of one year after a previous sanction lead to even higher benefit cuts and those aged less than 25 years always face a higher sanction than older welfare recipients.

time of registration with PES, so that $D = 1$ if individual is younger than 25 and $D = 0$ otherwise. Furthermore, let $Y(1)$ and $Y(0)$ be respective outcomes of the treatment and the non-treatment state. The causal effect of treatment on the outcome is then defined as: $\beta = E(Y(1) - Y(0)|D = 1)$. The parameter β represents the change in the outcome induced by a treatment. Ideally, in order to assess the role of treatment on some outcome we need to observe both outcomes $Y(1)$ and $Y(0)$ simultaneously. Yet both outcomes cannot be observed for the same individual at the same time, thus β is an unobservable parameter.

The idea underlying the regression discontinuity design is to compare individuals who are marginally above or below some known eligibility cut-off where the probability of treatment changes discontinuously. Such individuals should have similar characteristics except for treatment status. In other words, inference made on the basis of a sample of individuals marginally above and below some known cut-off, c, under certain conditions, can be as good as a randomized experiment (Lee and Lemieux, 2010). It is important to mention that without further assumptions the regression discontinuity design provides the effect of treatment only for the subpopulation of people close to the cut-off, c. If the impact of treatment is heterogeneous, this local average treatment effect may be substantially different from the average treatment effect. At the same time the local average treatment effect is relevant for policy making, for example when deciding on expanding the scope of the programme or limiting eligibility by alerting the cut-off (Hahn et al., 2001; van der Klaauw, 2008).

Let X be the age of an individual and c be the age threshold of 25 years. In our analysis treatment D is a deterministic function of the assignment variable $X,$ so that if $D = 1\{X < c\}$ all observations with $X < c$ are assigned to the treatment group, and all observations with $X \geq c$ are assigned to the control group, not receiving treatment $D = 0\{X \geq c\}$. The local average treatment effect of the special rules for young welfare

recipients is then defined as a difference in the conditional expectations of some outcome variable on each side of the cut-off of 25 years.

$$\lim_{x \uparrow c} E[Y|X = x] - \lim_{x \downarrow c} E[Y|X = x] = \lim_{x \uparrow c} E[Y(1)|X = x] - \lim_{x \downarrow c} E[Y(0)|X = x]$$

and may be interpreted as the local average causal effect of the treatment at the discontinuity:

$$\tau = E[Y(1) - Y(0)|X = c].$$

In order to give the effect a causal interpretation, we need to impose an assumption of smoothness.

Assumption 1 (Continuity of Conditional Regression Functions)

If $E[Y(1)|X = x]$ and $E[Y(0)|X = x]$ are continuous in x then

$$\tau = \lim_{x \uparrow c} E[Y|X = x] - \lim_{x \downarrow c} E[Y|X = x].$$

The continuity assumption allows using the average outcome of observations immediately above the cut-off (the control group) as a valid counterfactual for those immediately below the cut-off (the treatment group). Importantly, the assumption implies that all other baseline covariates influencing Y are smooth functions with respect to X. If one or more covariates changes discontinuously at the cut-off, then $\hat{\tau}$ will be a biased estimator.

5. Data

In our study we use administrative data of the Department of Statistics of the German Federal Employment Agency. They contain information collected by job centres which are responsible for the welfare recipients since the beginning of the year 2005. The data also stem from labour agencies which are in charge of administering unemployment insurance benefit recipients and prior to the welfare reform of 2005 were responsible for unemployment assistance benefit recipients. These data consist of daily spells of different types of

unemployment and welfare benefit receipt (excluding social assistance benefit), of registered unemployment and of active labour market programme participation by programme type. They provide a number of socio-demographic characteristics as well as benefit amounts. For UB II recipients a household identifier is available, so that for each individual in our sample, we can retrieve characteristics of any other member of his welfare recipient household.

Employers have to provide information on contributory and minor employment spells together with characteristics of their employees as well as individual wages and characteristics of the companies to the Federal Employment Agency. Therefore, the data base is also informative on employment spells. Our sample is in particular drawn from the "Integrated Employment Biographies" (Integrierte Erwerbsbiographien) and the "Welfare Benefit History Records" (Leistungshistorik Grundsicherung).[8]

These data have considerable advantages for our analysis. Firstly, we can study the full population and not only a small sample of young welfare recipients. Secondly, for the regression discontinuity analysis we need a very precise measure of their age and the data provide us with the exact birthday. Thirdly, precise daily information on active labour market programme participation allows us to demonstrate that the inflow rates into ALMPs are characterised by a considerable discontinuity at the age threshold of 25 years even when we regard small intervals of a length of 30 days around the threshold. Finally, with the data at hand we can study impacts on a wide variety of outcomes including different employment states, earnings and welfare benefit levels.

From this administrative data base we drew a sample of young welfare recipients who were within 1440 days before and after 25th birthday. The sample consists of individuals who for the first time in their life were both registered as unemployed and as UB II recipients

---

during the period of October 2005 until the end of January 2006.[9] Hence, on the one hand our sample contains people who started their unemployment in this period. But they not necessarily started their welfare receipt at this point in time, since they already could have lived before the start date in a poor household and went to school, were on vocational training or participated in some ALMP. On the other hand the sample consists of individuals who started their welfare receipt in the above mentioned period but were already registered as unemployed before this start date, e.g., UI recipients who ran out of their time-limited UI benefit and thereafter qualified for welfare. The moment at which our sample members were first registered as unemployed and as welfare recipients at the same time is also the moment where they start to be targeted by activation policies under the SC II. For simplicity, we will refer to this moment as time of registration.

We chose the inflow period October 2005 until the end of January 2006 for three reasons. First of all, together with the introduction of the UB II in January 2005 new job centres were set up. At the start of the year 2005 they were implementing for the first time a new-means-test for all claimants of welfare receipt, still had to hire new personnel and organize the job centres and the implementation of new ALMPs. Therefore, the policies for activating young welfare recipients were not fully at work at the start of the year 2005. Second, depending on the source of data the information available for our analysis lasted at most until the end of the year 2009. In order to study longer term-impacts, we decided to analyse a sample at the end of the year 2005 and the beginning of the year 2006. Third, there is a further reason for studying an early inflow cohort after the reform. Once the special rules for young welfare recipients become common knowledge, this might change the likelihood of entering welfare for people aged around 25 years. It might create an incentive to postpone entry into welfare for people who are slightly younger than 25 years. Just a year after the

---

[9] From the more than 400 German job centres 69, in which only municipalities and not the Federal Employment Agency are responsible for the welfare recipients and their activation, were excluded from our sample. The reason is that according to the Statistics Department of the Federal Employment Agency administrative data from these 69 job centres is incomplete during the period under review.

introduction of the reform, however, we expect that this type of behaviour is not yet of major importance.

As outcomes affected by the policy we consider:

1. Cumulative number of days spent in unsubsidized contributory employment during first, second and third year since registration with PES.

2. Real annual earnings, in Euros in the years 2006, 2007 and 2008. We deflated earnings by the consumer price index. The price level was normalized to one in October 2005

3. Monthly average equivalent real UB II income of household, during first, second and third year since registration with PES. We deflated income from UB II in the same way as we deflated earnings. The data provide full information on UB II received by each member of a poor household together with their age, so that we could compute the equivalent UB II income by applying an OECD equivalence scale.[10]

The initial number of observations in the sample is 128,071. A small number of observations were deleted from the sample due to the missing information on outcomes. To avoid extreme values in annual real earnings we impose an upper cap on earnings information in the data equal to 50,000 Euros. We deleted 949 observations; the final number of observations used in the analysis is equal to 127,122.

6. Empirical implementation

Testing the continuity assumption

An important assumption underlying the regression discontinuity design is the assumption of continuity. Essentially it implies that the influence of all factors, except for the

---

[10] The first adult in the household got a weight of 1, each additional person in a welfare recipient household who is aged 15 years or older received a weight of 0.5, and to each child under the age of 15 years we allocated a weight of 0.3. The equivalent UB II income is then household's UB II income divided by the sum of the weights of the household members.

treatment, is the same on either side of the threshold. We test for the continuity of the density function of the assignment variable X, as well as continuity in the observed variables at the cut-off.

An intuitive test of the continuity of the density function of the assignment variable X is suggested in McCrary (2008). The test involves an examination of the density of the assignment variable X. A jump in the density of X at the threshold may indicate that there is some sorting around the threshold. Figure 2 shows a graph of the raw densities computed over the bins with the width of 30 days, along with the second order polynomial model. For two subsamples of men in East and West Germany the graph shows no apparent signs of discontinuity. A test for a subsample of women in East and West Germany indicates a presence of a significant discontinuity in the density of the assignment variable at the threshold which may potentially indicate a sorting process. Based on these results we choose to concentrate our further discussion on the subsample of men. Results for women are available on request.

We further test for the continuity in the observed variables at the cut-off.[11] The test may be done by plotting every variable as in the graphical analysis presented in the previous section and checking for the discontinuity at the cut-off. Although desirable, due to the space limitations, we do not present graphical results of the test. Instead we follow the approach suggested by Lee and Lemieux (2010) and combine multiple tests into a single test statistics. We estimate a system of equations similar to equation 1, using as outcome potentially confounding covariates, and allow error terms to correlate across equations. We then test whether eligibility coefficients are jointly equal to zero. The test follows a χ^2 distribution. The null hypothesis is that coefficients are jointly equal to zero. We assume that the underling functional form is linear and restrict the observation window to 720 days before and after 25th

---

[11] We use the following variables: German nationality, education (5 categories); number of children (3 categories); presence of a partner and employment status of the partner; duration of contributory employment in the past two years, real annual earnings in 2000-2004.

birthday. The p-value of the χ^2 test statistics is 0.23 for East German men and 0.80 for West German men, implying that we cannot reject the null hypothesis that the coefficients of the dummy for age below 25 years are jointly equal to zero.

Results

We start our analysis with a graphical analysis to confirm the presence of the break in treatment intensity at the 25 years threshold. We proceed further by estimating regression discontinuity model for specific outcomes. We present estimates for men in East and West Germany separately.

Graphical presentation

An important advantage of identification using regression discontinuity design is that it allows a graphical presentation of the assignment variable and outcomes of interest. The presence of visual discontinuity reinforces the validity of our identification strategy. In order to enhance visualization, the assignment variable is divided into a number of bins according to the age specific intervals. Then, the average value of the outcome variable can be plotted for each bin. It is also useful to supplement a plot with a flexible regression function, for example a polynomial, which is fitted separately on each side of the cut-off (Imbens and Lemieux, 2008; Lee and Lemieux, 2010). The regression function illustrates better the discontinuity at the cut-off, while bin averages show the noise in the data.

Visual inspection of graphs with different bin width did not reveal large differences in the average outcomes across age intervals. Keeping in mind that the purpose of the graph is to present how the raw data looks like and, thus oversmoothing is not desirable, we choose to

present graphs based on 30 days bins.[12] To illustrate discontinuity further, we plot a fit of quadratic polynomial regression fitted separately on each side of the cut-off.

Similar to the results found on aggregate data (see Table 2), we observe in Figure 3 a discontinuity in treatment intensity occurring in the direct proximity to the age threshold. As a measure of treatment intensity, we considered the share of people who within the first 30 days after registration either started a work opportunities programme or short-term training, since these were the most important ALMPs in terms of programme inflow. For every group considered in the analysis we find large, unequivocal discontinuities in the intensity of targeting with work opportunities and short-term training programmes within 30 days of registration with PES. Discontinuities are larger in East Germany than in West Germany. For men in East German marginally older than 25 years, we find a 41 per cent reduction in the probability of being targeted by training programmes and One-Euro-Jobs compared with their counterparts who are marginally younger than 25 years old. For West German men the effect is smaller; the probability declines by 28 per cent.

Figures 4 to 6 plot selected outcome variables against age bins and displays the fit of quadratic polynomial regression.[13] The number of days in unsubsidized contributory employment was higher for men in West Germany than for men in East Germany. The slope of the regression lines in Figure 4 suggest the presence of a small discontinuity in the number of days spent in unsubsidized contributory employment for men in East Germany. An inspection of real annual earnings in the year 2008 in Figure 5 shows that they increase with age for both groups. At the same time visible discontinuities are present only in subsample of men in East Germany. Finally, Figure 6 demonstrates a small visible discontinuity in the average equivalent real UB II income of household at the cut-off for East German men but not for West German men.

---

[12] We conducted two tests on the choice of the bin width as described in Lee and Lemieux (2010). We consider bin widths equal to 15, 30 and 60 days. Results of the test are similar and do not reject the chosen bin width for any of the considered specifications.
[13] We present graphs for the latest outcomes date.

Estimation

An important issue in estimation of regression discontinuity is the specification of a correct functional form of the difference between age and the age threshold. An incorrectly specified functional form can lead to biased estimates of the treatment effect. A common way of approximating the functional form in the context of regression discontinuity is the inclusion of a series of polynomials. Taking into account that identification in a regression discontinuity design depends on the estimates in close proximity to the cut-off and polynomial regression presents estimates across all age range, it is important to test the model with flexible functional forms (higher order polynomials). Another useful approach is to test the robustness of the results by restricting the estimation window towards observations that are quite close to cut-off.

Following Lee and Lemieux (2010) we define pooled regression for the estimation of the treatment effect as:

$$Y = \alpha_1 + \tau D + f(X - c) + \varepsilon, \tag{1}$$

where $f(\cdot)$ is a functional form. The transformation of X to $X - c$ allows the difference in intercepts to yield the treatment effect, such that τ is the parameter of the treatment effect. Equation 1 constrains the regression functions to be the same on both sides of the cut-off. It is generally advisable to allow regression functions to differ on both sides of the cut-off (Lee and Lemieux, 2010). This can be done by including interaction terms between D and $X - c$ so that equation 1 can be transformed, for linear case, as:[14]

$$Y = \alpha_1 + \tau D + f(X - c) + f^*(X - c) + \varepsilon, \tag{2}$$

where $f^*(X - c)$ represents a function of interaction between the polynomial terms of $(X - c)$ with D. An important issue in the estimation of polynomial regression is the choice of the order of the polynomial. The Akaike information criterion (AIC) of model selection can

---

[14] For derivation (Lee and Lemieux, 2010).

be one guide for choosing the polynomial order.[15] A drawback of using AIC is that it does not provide information on how a particular parametric model compares to a more general non-parametric alternative. Lee and Lemieux (2010) and Card and Lee (2008) suggest a goodness of fit test as a second criterion, which shows how well a parametric model fits the set of unrestricted bins of an outcome variable, as used in the graph in the previous section. A goodness of fit test can be implemented by adding a set of bin dummies to polynomial regression and jointly testing the significance of parameter estimates of these dummy variables.[16] Moreover, Lee and Lemieux (2010) point out that the same test gives indication of the presence of outcome discontinuities away from the cut-off.

Model estimation

For each outcome variable we estimate polynomial specifications up to the fourth degree. The polynomial function is assumed to be constant within 30 days intervals but varies over different intervals.[17] As a robustness check we present, in Appendix (Table 1A – 3A), the results of estimation assuming that the polynomial function is constant within intervals of 15 and 60 days but varies across intervals. Our results remain robust. We repeat the estimation for observation windows of 720 and 360 days before and after 25th birthday to check the robustness of our results towards the width of observation window. Results of the estimation are presented in Tables 3 to 5 separately for each outcome. First we present the estimation results of equation 2. Next we present estimation results that include additional covariates.[18,19] If our analysis is valid, inclusion of additional covariates should not affect the size of the estimated treatment effects, but should reduce the sample variability. We also choose to report

---

[15] $AIC = N\ln(\delta)^2 + 2p$, where δ^2 the mean is squared error of the regression, and p is the number of parameters of the model.
[16] The null hypothesis is that the parameters of the bin dummies are jointly equal to zero
[17] To correct for a group structure we compute cluster standard errors.
[18] Additional regressions for the specifications with covariates include: German nationality, education (5 categories); number of children (3 categories); presence of a partner and employment status of the partner; duration of contributory employment in the past two years, real annual earnings in 2000-2004.
[19] Inclusion of the additional covariates may also be viewed as an further test of continuity assumption. A consequence of a random assignment is that treatment is independent of baseline characteristics, i.e., estimates of the treatment effect should not change if we include additional covariates.

treatment effects resulting from the estimation of the model based on equation 1. Due to a space constraint, we do not report results of all specifications. In the following we report estimated treatment effects for the specifications that yielded the lowest AIC. Overall we find that our results are robust toward the choice of estimated specification and observation window width. As expected, inclusion of covariates into the estimation does not significantly affect the size of the estimated treatment effect but decreases sample variability. In the proceeding discussion we will focus on the estimated treatment effect from the model based on the observation window of 720 days before and after 25th birthday. Table 6 presents a P-value of the test of comparing a restricted model to an unrestricted one. According to the results of the test we cannot reject the hypothesis that the restricted model fits the data better than an unrestricted one that contains additional bin dummies as regressors.

Table 4 presents effects of the intensified targeting of the young people on the number of days in unsubsidized contributory employment. The effect is close to zero for East German men during the first two years since registration with PES. It is somewhat more negative during the third year but remains statistically insignificant. A negative, but statistically insignificant, effect on days spent in contributory employment is found for West German men. Overall, our analysis of the effect of regulation on the days spent in contributory employment points to a zero effect for men.

Effects of the special rules for the under 25-year-olds on real annual earnings mirror our results on the effects of regulation on the number of days spent in contributory employment (Table 5). We find no statistically significant effect of regulation on earnings of East German men. The earnings loss of men in West Germany who were younger than 25 at time of registration with PES is equal to 588 Euro in the year 2006 and increases to 1,210 Euros in the year 2007.

Given that activation policies should reduce transfer incomes, our final results concern is with the monthly average equivalent real UB°II income of the individuals (Table 6). We do

not find statistically significant effect of the special rules for the under-25-year-olds on the monthly average equivalent real UB II income for East German men. A positive effect on the average amount of UB°II is found for men in West Germany during the second year since registration.

7. Summary and conclusions

Youth unemployment is a serious concern in many countries. It can imply strong adverse effects for the career of the young unemployed. It might lead to serious costs for the society including political unrest. Even though Germany is one of the EU-countries with the lowest youth unemployment rates, its welfare reform of the year 2005 was very concerned about bringing young and unemployed welfare recipients into work or training. The reform introduced various special rules for young welfare recipients aged less than 25 years. In particular, job centres are supposed to place them into jobs, vocational training or work opportunities, immediately after their welfare benefit claim was made. In turn they are much more targeted by various ALMPs than older welfare recipients. Moreover, they face harsher punitive sanctions than welfare recipients aged at least 25 years. We therefore studied the question, whether these special rules actually contribute to improving the labour market performance of young unemployed welfare recipients.

To study the question, we analysed administrative data of young welfare recipients below and above the age-threshold of 25 years. The sample consisted of all individuals, who began for their first time a period of both welfare receipt and unemployment during the months of October 2005 until January 2006. The choice of this early period allowed us to study long-term impacts of the special rules for the under-25-year-olds We use the regression discontinuity design, and impose an identifying assumption that the outcomes would be the same around the threshold of age eligibility if there would be no targeting of unemployed younger than 25.

The estimated marginal effects of the special rules at the age threshold of 25 years provide a relatively clear picture. Whether we regard as outcomes periods of regular employment, annual earnings of the amount of welfare benefit, the results are not optimistic. The activation regime does neither improve the performance of the young welfare recipients in the short-term nor does it help them in the longer-term after three years. This applies to both men living in East and in West Germany. In the longer term we even partly find adverse effects on earnings and a rise of income from welfare that is caused by a marginal treatment. One potential reason for the failure of the policy is the strong and immediate targeting of the young welfare recipients by ALMPs. This might lead to too many assignments of young unemployed into different programmes that do not fit their needs. In turn this can lead in many cases rather to a delayed re-entry into jobs or training and the acceptance of less well paid work, reinforced by the threat of high benefit sanctions.

Our results at first sight contrast findings of Caliendo et al. (2011), but they are not directly comparable. Caliendo et al. (2011) did study a period prior to the welfare reform of the year 2005 and were only concerned with effects of participating in programmes. Our study instead is concerned with a different impact: the impact of the entire special rules for young welfare recipients irrespective of the fact whether or not they did participate in an active labour market programme. Our estimates refer to impacts of a higher (expected) treatment intensity (and more severe sanctions) for welfare recipients aged marginally younger than 25 years. They therefore refer to a strong change in the scale of treatment. But there are further reasons why the overall conclusions of our study and those of Caliendo et al. (2011) differ. First, Caliendo et al. (2011) analyzed a population of unemployment benefit recipients that differs drastically in terms of observed and unobserved factors (e.g. education levels, motivation to find a job, etc.) from our population of unemployed welfare recipients. Second the programme mix offered to welfare recipients in our observation period includes, as the dominant component, One-Euro-Jobs as a workfare version of public job creation schemes

(see Table 2). This is not the case in the study of Caliendo et al. (2011). But their analysis showed that public job creation was the only measure that did not yield employment gains for young participants.

The policy conclusion for Germany is straightforward, the special rules of immediately placing the young welfare recipients into work opportunities as an ALMP should be abolished. As an empirical investigation of the impact of participating in this programme point towards adverse employment effects for welfare recipients aged below 25, but not at least 25 years also support this conclusion (Hohmeyer and Wolff, 2011). Recent plans of a draft law actually take this point, so that in April 2012 could abolish this regulation. Though other special rules for the young, like the rules on sanctions, will remain untouched. A general lesson though can be taken from our research. Focussing efforts of job centres and in particular their ALMPs too much and at an extremely high scale on one group of individuals is highly likely to achieve no progress for the target group. It can even lead to adverse impacts on their future performance in the labour market.

References

Arulampalam, Wiji. 2001. Is Unemployment Really Scarring? Effects of Unemployment Experiences on Wages. Economic Journal 111 (475):F586-606.

Blos, Kerstin, and Helmut Rudolph. 2005. Simulationsrechnungen zum Arbeitslosengeld II: Verlierer, aber auch Gewinner. In Kurzbericht Nuremberg: Institute for Employment Research

Blundell, Richard , Monica Costa Dias, Costas Meghir, and John van Reenen. 2004. Evaluating the Employment Impact of a Mandatory Job Search Program. *Journal of the European Economic Association June 2004 2(4):569–606.*

Caliendo, Marco, Künn Steffen, and Schmild Ricarda. 2011. Fighting Youth Unemployment: The Effects of Active Labor Market Policies In *IZA Discussion Paper, N 6222*. Bonn.

Card, David, Jochen Kluve, and Andrea Weber. 2010. Active Labor Market Policy Evaluations: A Meta-Analysis. *Economic Journal* 120 (548):452-477.

Carling, Kenneth, and Laura Larsson. 2005. Does early intervention help the unemployed youth? *Labour Economics* 12 (3):301-319.

Centeno, Luis, Mário Centeno, and Álvaro A. Novo. 2009. Evaluating job-search programs for old and young individuals: Heterogeneous impact on unemployment duration. *Labour Economics* 16 (1):12-25.

Clark, Andrew E, Yannis Georgellis, and Peter Sanfey. 2001. Scarring: The Psychological Impact of Past Unemployment. *Economica* 68 (270-221).

Cockx, Bart, Christian Göbel, and Stephane Robin. 2011. Can Income Support for Part-Time Workers Serve as a Stepping Stone to Regular Jobs? An Application to Young Long-Term Unemployed Women. *Empirical Economics* forthcoming.

Crépon, Bruno, Esther Duflo, Marc Gurgand, Roland Rathelot, and Philippe Zamora. 2011. Do labor market policies have a displacement effect? Evidence from a clustered randomized experiment.

Estevão, Marcello. 2003. Do Active Labor Market Policies Increase Employment? In *IMF Working Paper*: International Monetary Fund.

European Commission (1997). Modernising and improving social protection in the European Union. Brussels, European Commission.

European Commission (1999). A Concerted Strategy for Modernising Social Protection. Brussels, European Commission.

Federal Employment Agency (2006): "Sozialgesetzbuch Zweites Buch – Grundsicherung für Arbeitsuchende, Jahresbericht 2005: Zahlen, Daten, Fakten", Nürnberg.

Fougère, Denis, Francis Kramarz, and Julien Pouget. 2009. Youth Unemployment and Crime in France. Journal of the European Economic Association 7 (5):909-938.

Georgi, Giacomo. 2005. The New Deal for Young People five years on. Fiscal Studies 26 (3).

Hahn, Jinyong , Petra Todd, and Wilbert Van der Klaauw. 2001. Identification and Estimation of Treatment Effects with a Regression-Discontinuity Design. *Econometrica* 69 (1):201-209.

Hardoy, Inés. 2005. Impact of Multiple Labour Market Programmes on Multiple Outcomes: The Case of Norwegian Youth Programmes. *LABOUR* 19 (3):425-467.

Hohmeyer, Katrin, Christoph Schöll, and Joachim Wolff. 2006. Arbeitsgelegenheiten in der Entgeltvariante * viele Zielgruppen werden noch vernachlässigt. In *IAB-Forschungsbericht*, edited by IAB. Nuremberg.

Hohmeyer, Katrin, and Joachim Wolff. 2011. A fistful of Euros: Is the German One-Euro-Job workfare scheme effective for participants?. International Journal of Social Welfare, online first, DOI: 10.1111/j.1468-2397.2011.00830.x.

Imbens, Guido W., and Thomas Lemieux. 2008. Regression discontinuity designs: A guide to practice. *Journal of Econometrics* 142 (2):615-635.

Jensen, Peter, Michael Rosholm, and Michael Svarer. 2003. The response of youth unemployment to benefits, incentives, and sanctions. *European Journal of Political Economy* 19 (2):301-316.

Kluve, Jochen. 2010. The effectiveness of European active labor market programs. *Labour Economics* 17 (6):904-918.

Kluve, Jochen, Christoph Ehlert, and Sandra Schaffner. 2011. Training + Temp Work = Stepping Stone? Evaluating an Innovative Activation Program for Disadvantaged Youths. In *Ruhr Economic Papers*.

Larsson, Laura. 2003. Evaluation of Swedish Youth Labor Market Programs. *Journal of Human Resources* 38 (4).

Lee, David S., and Thomas Lemieux. 2010. Regression Discontinuity Designs in Economics. *Journal of Economic Literature* 48 (2):281-355.

Lockwood, Ben. 1991. Information Externalities in the Labour Market and the Duration of Unemployment. *Review of Economic Studies* 58 (4):733-758.

Martin, John, and David Grubb. 2001. What works and for whom: a review of OECD countries' experiences with active labour market policies. *Swedish Economic Policy Review* 8 (2):9–56.

McCrary, Justin. 2008. Manipulation of the running variable in the regression discontinuity design: A density test. *Journal of Econometrics* 142 (2):698-714.

Mroz, Thomas A., and Timothy H. Savage. 2006. The Long-Term Effects of Youth Unemployment *Journal of Human Resources* 41 (2).

Nickell, S. J. . 1997. Unemployment and labour market rigidities: Europe versus North America. *Journal of Economic Perspectives* 11 (3):55-74.

Oberschachtsiek, Dirk, Patrycja Scioch, Christian Seysen, and Jörg Heining. 2009. Integrated employment biographies sample IEBS. Handbook for the IEBS in the 2008 version. In FDZ Datenreport. 03/2009.

OECD (1994). The OECD Jobs Study. Facts, Analysis, Strategies. OECD, Paris.

Pissarides, Christopher A. 1992. Loss of Skill during Unemployment and the Persistence of Employment Shocks. The Quarterly Journal of Economics 107 (4):1371-1391.

Reenen, John Michael van. 2004. Active Labor Market Policies and the British New Deal for the Young Unemployed in Context. In Seeking a Premier Economy: The Economic Effects of British Economic Reforms, 1980-2000, edited by D. Card, R. Blundell and R. B. Freeman: NBER.

Scarpetta, S. 1996. Assessing the role of labour market policies and institutional settings on unemployment: a cross country study. *OECD Economic Studies* 26:43-98.

Scarpetta, Stefano, Anne Sonnet, and Thomas Manfredi. 2010. Rising Youth Unemployment During The Crisis: How to Prevent Negative Long-term Consequences on a Generation? In *OECD Social, Employment and Migration Working Papers*. Paris.

Taiwo, Olumide, and Nelipher Moyo. *The Crisis in Tunisia: Africa's Youth Unemployment Time-Bomb*. The Brookings Institution 2011 [cited Thursday May 26, 2011. Available from http://www.brookings.edu/opinions/2011/0126_tunisia_youth_taiwo.aspx?p=1.

van der Klaauw, Wilbert. 2008. Regression-Discontinuity Analysis: A Survey of Recent Developments in Economics. *Labour: Review of Labour Economics and Industrial Relations* 22 (2):219-245.

Figure 1 Unemployment rates in Germany and EU 15
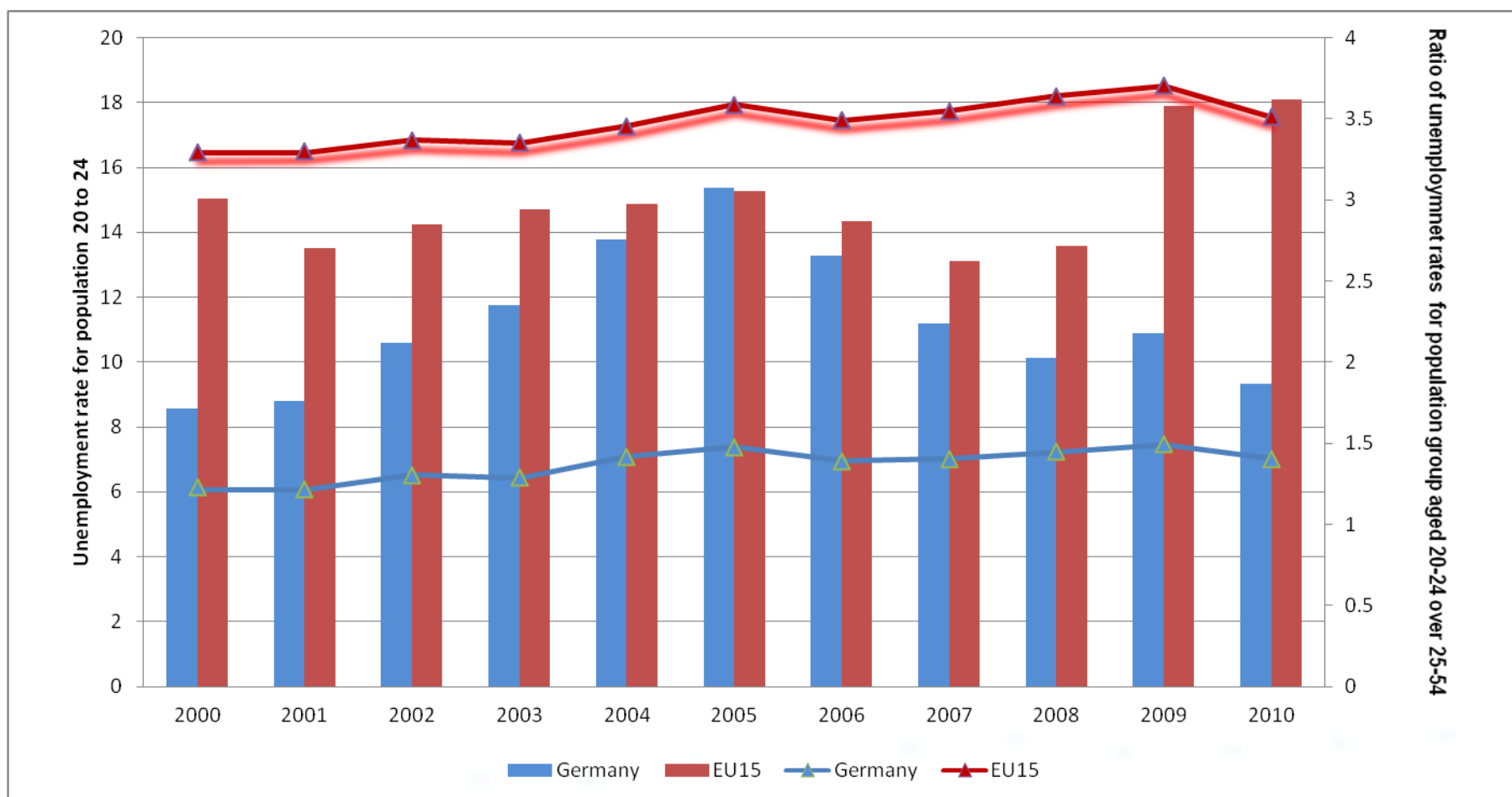
Note: Horizontal bars stand for unemployment rates of the population aged 20-24. Vertical lines stand for the ratio between the unemployment rates of the population group aged 20-24 years to population group 25-54 years.

Figure 2 Density of the Forcing Variable (Age)
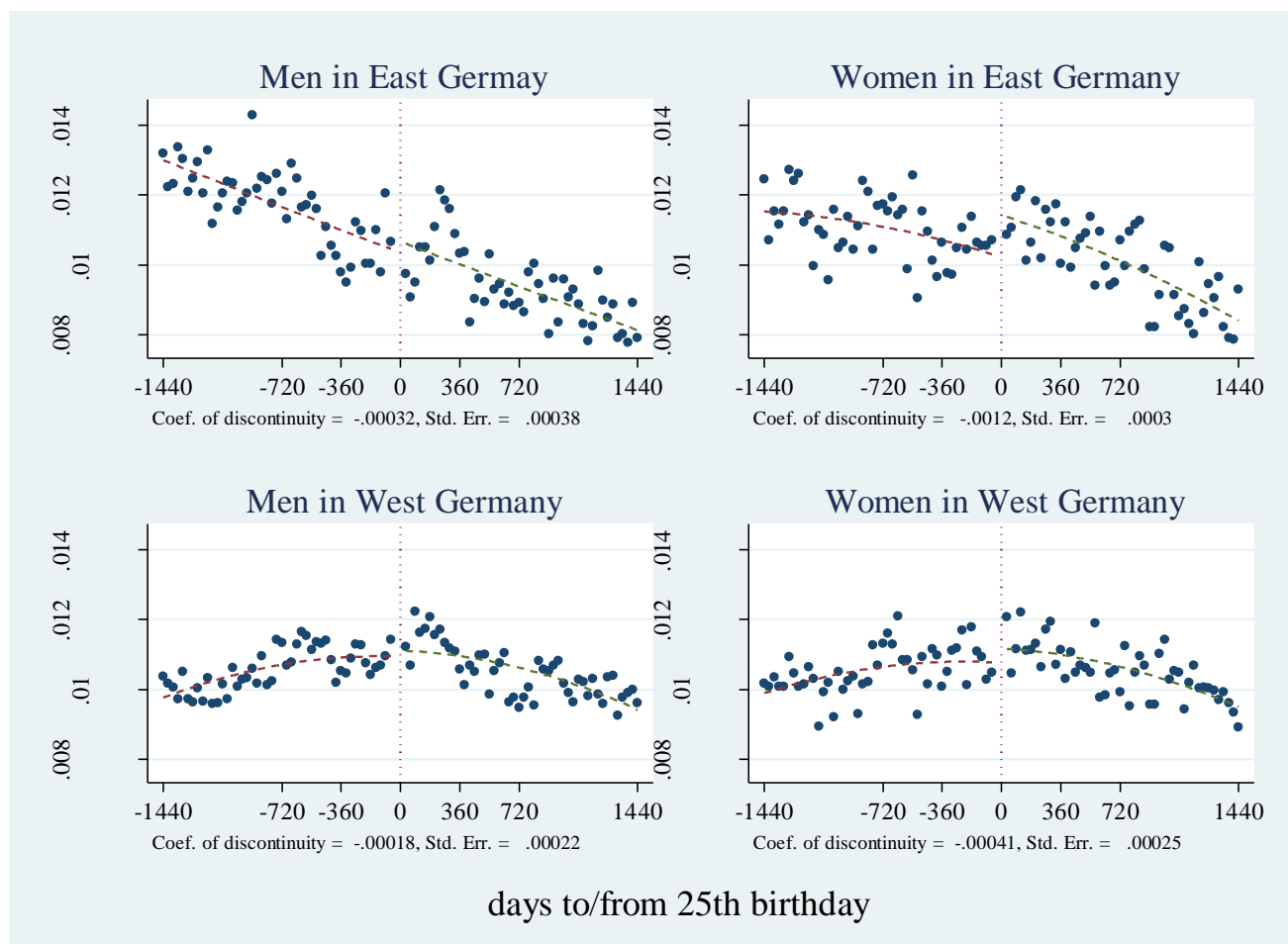
Note: The bin width used to construct the bin dummies is 30 days. Dashed lines are fit of a quadratic polynomial regression.

Figure 3 Participation in One-Euro-Jobs or in short training programmes within 30 days since registration with PES
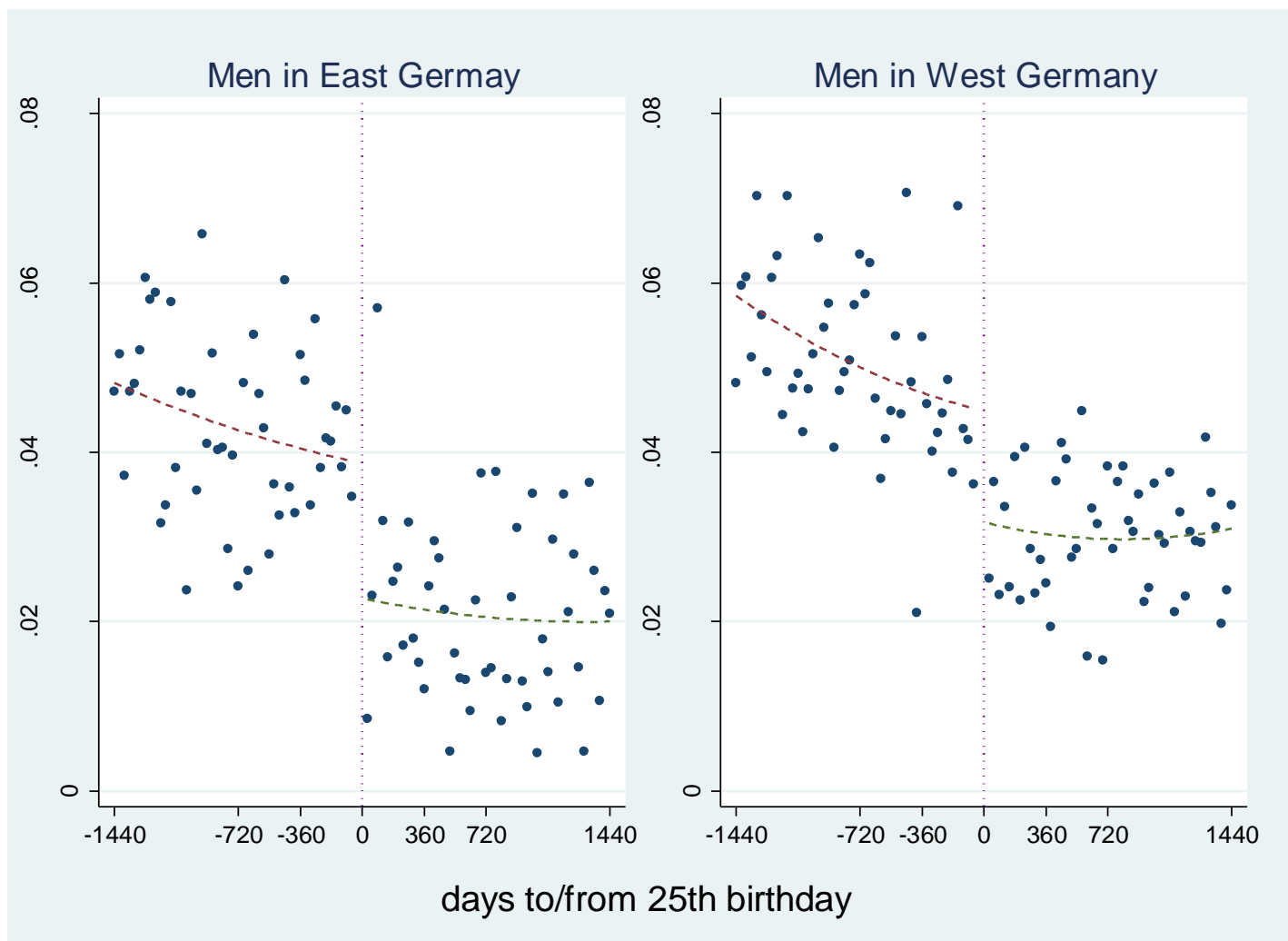
Note: The bin width used to construct the bin dummies is 30 days. Dashed lines represent the fit of a quadratic polynomial regression

Figure 4 Cumulative number of days spent in unsubsidized contributory employment, 3rd year after registration with PES
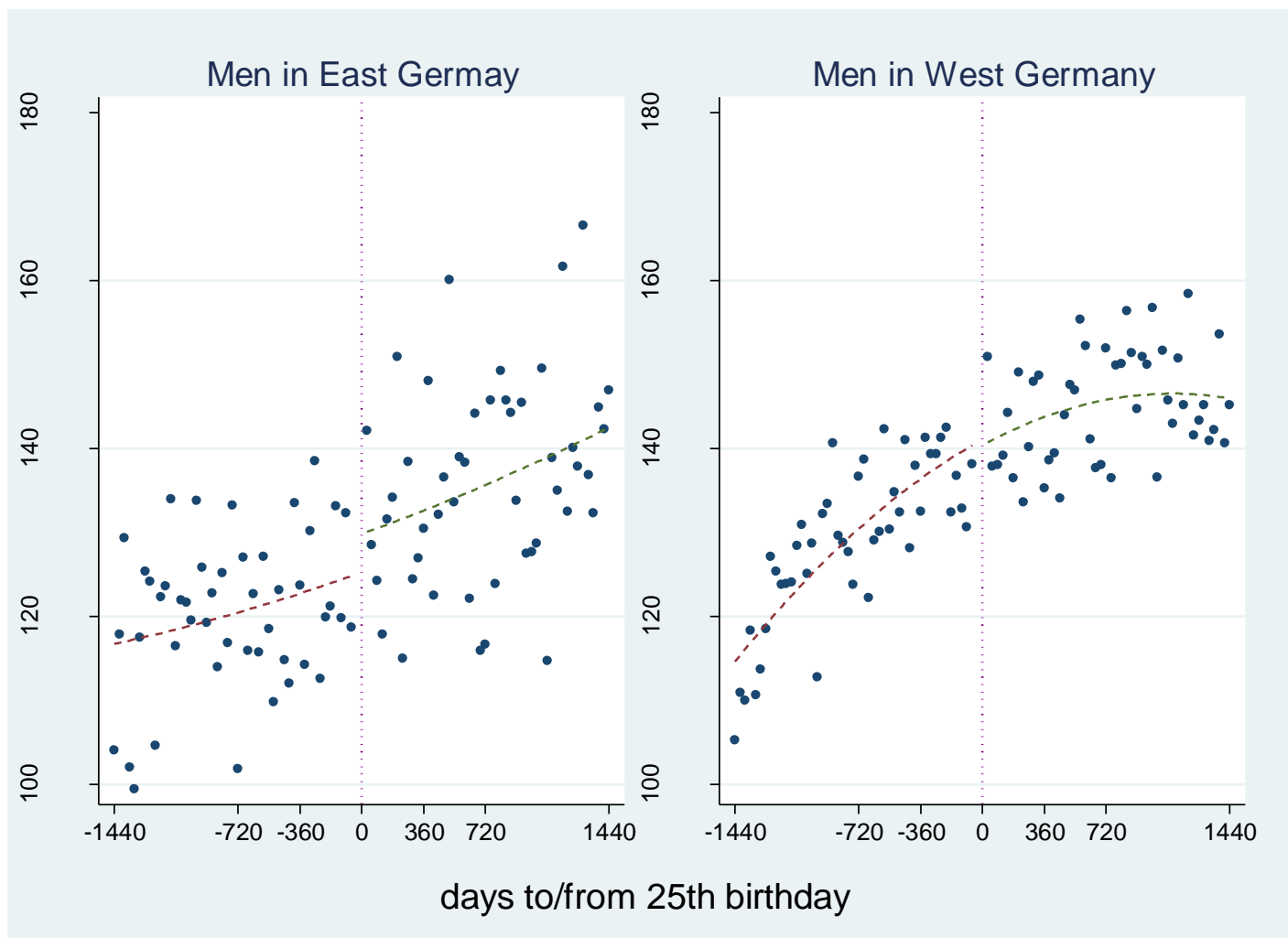
Note: The bin width used to construct the bin dummies is 30 days. Dashed lines represent the fit of a quadratic polynomial regression.

Figure 5 Real annual earnings in 2008
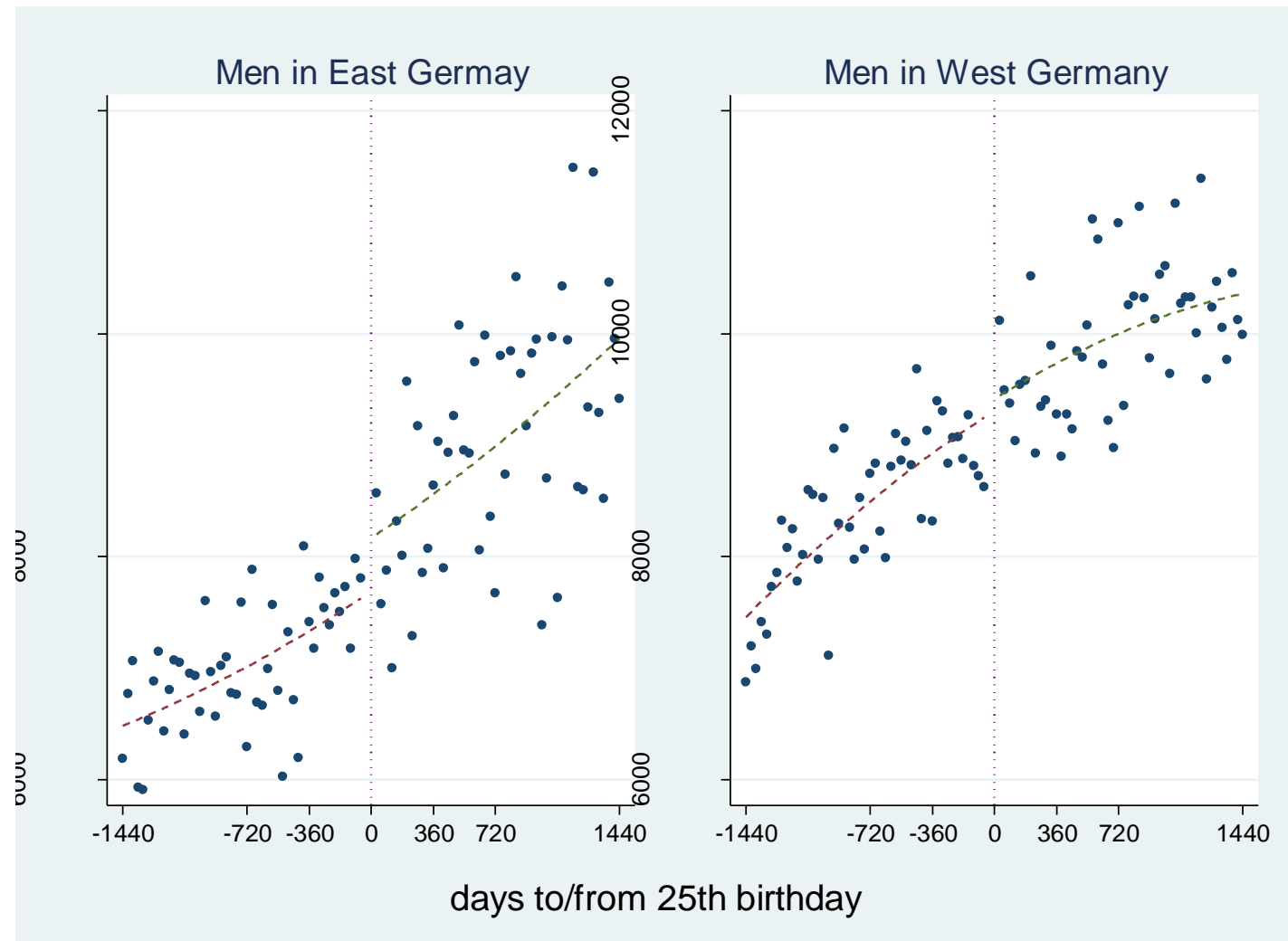
Note: The bin width used to construct the bin dummies is 30 days. Dashed lines represent the fit of a quadratic polynomial regression

Figure 6 Monthly average of real equivalent UB II income, three years after registration
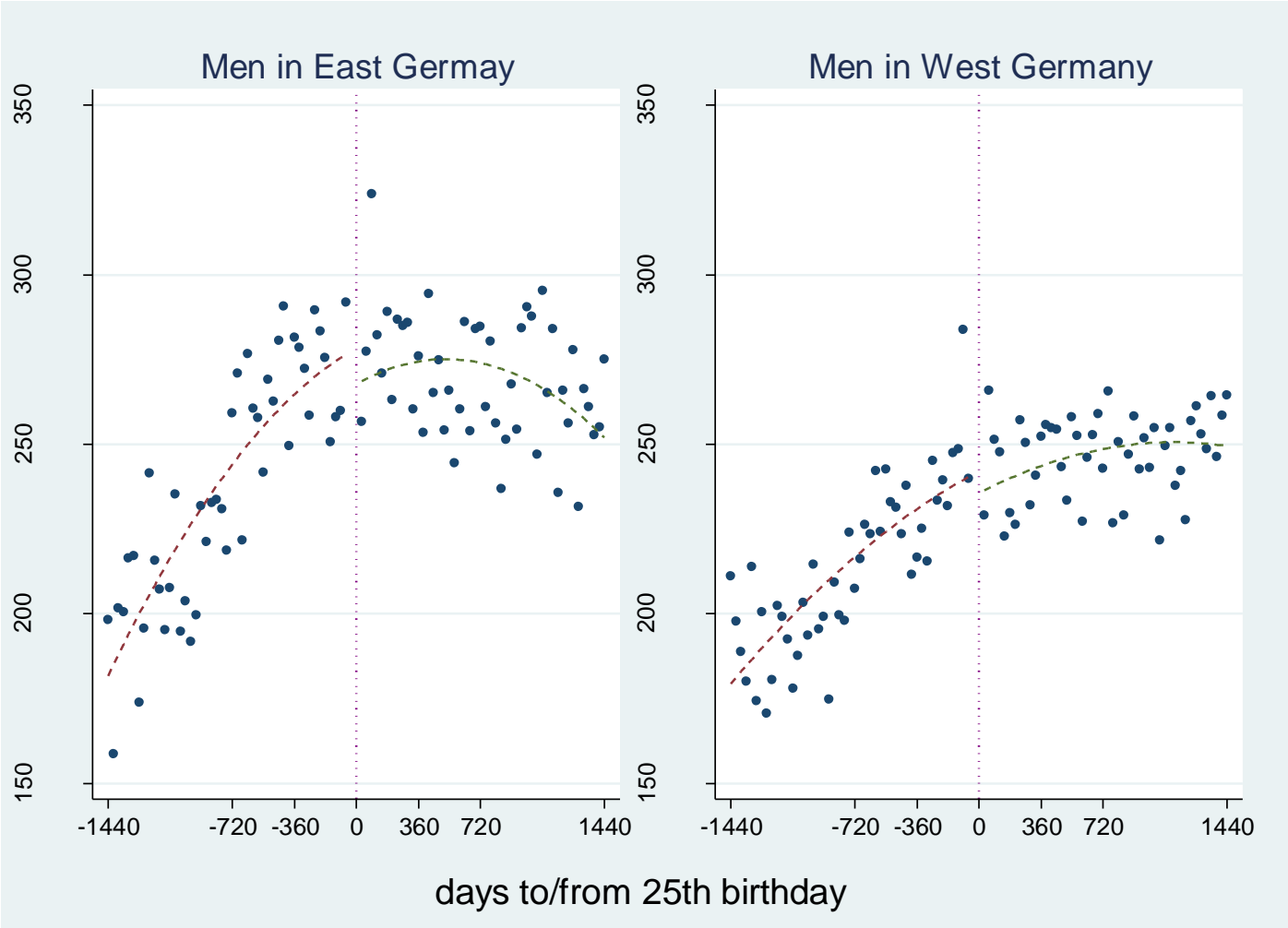
Note: The bin width used to construct the bin dummies is 30 days. Dashed lines represent the fit of a quadratic polynomial regression.

Table 1 Summary of evaluation studies of schemes to activate young unemployed

| Country	Study	Programme	Sample, period	Method	Result
UK	Blundell et al., 2004	Job-search assistance and wage subsidies to employers	19 – 24 year olds; 1997 – 1998;	Difference-in-difference; propensity score matching;	Positive short run effect on re-employment probability for participants
	Van Reenen, 2004	Job-search assistance and wage subsidies to employers	same as Blundell et al., 2004	Difference-in-difference; regression analysis; cost benefit analysis	Strong positive short run effect on re-employment probability; Social benefits outweigh its social costs.
	De Giorgi, 2005	Job-search assistance and wage subsidies to employers	19 – 24 year olds men, 1998-2001	Regression discontinuity design	Positive long run effect on probability of re-employment for individuals marginally younger than 25.
Sweden	Larsson, 2003	Youth practice and labour market training	20 – 24 year olds, 1992-1993	Propensity score matching	Negative short run effect for re-employment and earnings; Zero effect in the long run.
	Carling and Larsson, 2005	Guaranteed of employment or ALMP within 100 days of unemployment	20 – 24 year olds, 1997 – 1998	Difference-in-difference	Small positive short run effect on re-employment probability; Negative long run effect
Denmark	Jensen et al., 2003	Vocational education.	16 – 24 year olds, 1996	Timing of events	Positive effect on transition rates to formal schooling
Norway	Hardoy, 2005	Subsidized employment and training programmes	16 – 25 year olds, 1991	Multilevel, multinomial choice model	Negative effect on employment probability
Portugal	Centeno et al., 2009	Garanty of employment or ALMP within 6 month of unemployment	younger than 25 year olds, 1997-2002	Propensity score matching;	Week negative effect on employment duration
France	Crèpon et al., 2011	Job-seeker counselling	university graduates, 2008 – 2010	Randomized experiment	Positive effect of the employment probability

Belgium	Cockx et al., 2011	Subsidized part-time employment	18 – 25 year olds, women, 1998 – 2001	Timing of events	Positive effect of transition rates to regular employment
Germany	Caliendo et al. 2011	Various ALMP targeted to unemployed youth	younger than 25, 2002	Inverse probability weighting	Positive effect on transition rates to regular employment and schooling for all programmes except of public sector job creation schemes

Table 2: Monthly average inflow rates (in per cent) into Work Opportunities and other ALMPs by age[1],[2],[3]

Age	20	21	22	23	24	25	26	27	28	29
	Period: 2005 to 2007									
Work Opportunities										
as One-Euro-Jobs (workfare)	5.50	5.47	5.50	5.31	5.06	2.03	1.83	1.76	1.76	1.72
as subsidized contributory jobs	0.39	0.38	0.40	0.40	0.37	0.12	0.10	0.10	0.09	0.09
Selected other ALMPs[3]	5.97	6.52	6.77	6.84	6.66	4.26	3.94	3.83	3.69	3.56
	Period: 2008 to 2010									
Work Opportunities										
as One-Euro-Jobs (workfare)	6.48	6.17	5.97	5.70	5.34	2.09	1.91	1.90	1.86	1.85
as subsidized contributory jobs	0.76	0.72	0.71	0.71	0.66	0.22	0.21	0.21	0.21	0.21
Selected other ALMPs[3]	8.47	8.91	9.07	9.14	8.96	6.57	6.06	5.88	5.65	5.46

Source: Department for Statistics Federal Employment Agency and own calculations

1) Average monthly inflow of welfare recipients into the programmes considered relative to the average stock of unemployed welfare recipients during the period under review.

2) The statistics provided in this and all following tables exclude job centres in which only municipalities were in charge of administering the welfare benefit. For these job centres no systematic information on welfare recipients was available for the period just after the welfare reform due to problems with data collection. According to estimates of the Department for Statistics of the Federal Employment Agency, around 13 per cent of all unemployed welfare recipients belonged to such job centres in 2005 (Source: Department for Statistics of the Federal Employment Agency, calculations from the Data Warehouse).

3) The selected programmes are general employer subsidies (Eingliederungszuschüsse), subsidized short and longer term training (Eignungsfeststellungs- und Trainingsmaßnahmen, Förderung der beruflichen Weiterbildung), contracting out of placement services (Beauftragungen Dritter mit der Vermittlung, Beauftragungen von Trägern mit Eingliederungsmaßnahmen). In the year 2009 the rules on short training programmes and contracting out of placement services were reformed, but both programmes can still be implemented under a new name (Maßnahmen zur Aktivierung und beruflichen Eingliederung) and are still included in these statistics.

Table 3. P-values of the test of equality of bin dummies, +/- 720 days, model with interaction terms

Outcome	Period	Men in East Germany	Men in West Germany
Real annual earnings	2006	0.33	0.79
	2007	0.19	0.55
	2008	0.08	0.41
Cumulative number of days spent in unsubsidized contributory employment	1st year since registration	0.72	0.67
	2nd year since registration	0.20	0.77
	3rd year since registration	0.11	0.85
Monthly average equivalent real UB II income of household	2006	0.33	0.16
	2007	0.77	0.46
	2008	0.78	0.46

The p-value of the test is obtained by jointly testing the significance of the bin dummies included as additional regressors in the model. The bin width used to construct the bin dummies is 30 days.

Table 4. Effect on cumulative number of days spent in unsubsidized contributory employment

+/-Days, Specification	Period	Men in East Germany		Men in West Germany	
		Coef.	Std. Err.	Coef.	Std. Err.
+/-1440, with interaction	1st year since registration	0.40	(2.27)	-2.53	(2.97)
+/-1440, interaction & covariates		-1.45	(2.06)	-2.99	(2.71)
+/-1440, no interaction		1.03	(2.71)	0.91	(2.82)
+/-720, with interaction		3.49	(3.23)	-2.24	(2.67)
+/-720,interaction & covariates		0.31	(2.85)	-3.44	(2.35)
+/-720, no interaction		3.40	(3.32)	-2.02	(2.76)
+/-360, with interaction		-0.38	(4.65)	-4.88	(4.24)
+/-360,interaction & covariates		-3.20	(5.74)	-3.70	(4.20)
+/-360, no interaction		-0.87	(6.12)	-4.39	(4.42)
+/-1440, with interaction	2nd year since registration	-0.39	(4.25)	-6.64	(5.00)
+/-1440, interaction & covariates		-2.92	(3.80)	-7.00	(4.70)
+/-1440, no interaction		0.31	(4.02)	-0.62	(4.00)
+/-720, with interaction		-0.39	(6.10)	-22.64	(13.13) *
+/-720,interaction & covariates		-5.07	(5.39)	-5.11	(4.24)
+/-720, no interaction		-0.45	(6.13)	-3.05	(4.73)
+/-360, with interaction		-1.14	(9.46)	-11.97	(15.30)
+/-360,interaction & covariates		-5.52	(8.37)	-5.09	(21.83)
+/-360, no interaction		-1.71	(8.91)	-8.43	(6.21)
+/-1440, with interaction	3rdyear since registration	-3.89	(4.18)	-4.04	(3.60)
+/-1440, interaction & covariates		-6.12	(3.95)	-0.82	(2.19)
+/-1440, no interaction		-3.09	(3.98)	-0.68	(3.92)
+/-720, with interaction		-4.15	(5.98)	-2.58	(3.35)
+/-720,interaction & covariates		-16.29	(10.82)	-4.15	(3.09)
+/-720, no interaction		-4.31	(5.95)	-2.58	(3.38)
+/-360, with interaction		-5.75	(7.27)	-7.84	(5.04)
+/-360,interaction & covariates		-9.86	(8.31)	-5.48	(5.79)
+/-360, no interaction		-6.05	(8.81)	-7.45	(6.10)
Number of observations		23,801		45,716	

Note: * p<0.05, ** p<0.01, *** p<0.001. Standard errors (in parentheses) are estimated assuming a cluster structure by age. The order of polynomial was chosen according to AIC criterion separately for each regression. Additional regressors for the specifications which include covariates are: German nationality, education (5 categories); number of children (3 categories); presence of a partner and employment status of the partner; duration of contributory employment in the past two years, real annual earnings in 2000-2004.

Table 5. Effect on real annual earnings, in Euro

+/-Days, Specification	Period	Men in East Germany		Men in West Germany		
		Coef.	Std. Err.	Coef.	Std. Err.	
+/-1440, with interaction	2006	113.97	(166.12)	-206.71	(153.26)	
+/-1440, interaction & covariates		105.69	(145.07)	-228.01	(151.63)	
+/-1440, no interaction		132.77	(161.53)	-51.65	(176.57)	
+/-720, with interaction		321.92	(251.69)	-588.47	(319.72)	*
+/-720,interaction & covariates		148.48	(216.82)	-213.28	(136.16)	
+/-720, no interaction		321.71	(250.50)	-118.59	(169.26)	
+/-360, with interaction		505.86	(391.75)	-215.94	(179.43)	
+/-360,interaction & covariates		317.30	(339.42)	-96.07	(259.60)	
+/-360, no interaction		497.97	(369.15)	-187.63	(276.28)	
+/-1440, with interaction	2007	-220.38	(232.91)	-483.05	(283.68)	*
+/-1440, interaction & covariates		-186.10	(200.74)	-500.79	(271.36)	*
+/-1440, no interaction		-213.21	(227.90)	-143.06	(245.82)	
+/-720, with interaction		-48.57	(327.55)	-1209.69	(520.71)	**
+/-720,interaction & covariates		-688.50	(529.43)	-368.65	(245.57)	
+/-720, no interaction		-46.95	(328.50)	-484.00	(357.57)	
+/-360, with interaction		260.20	(401.81)	-435.41	(394.23)	
+/-360,interaction & covariates		17.27	(468.09)	-730.66	(1319.64)	
+/-360, no interaction		262.87	(512.62)	-394.03	(379.55)	
+/-1440, with interaction	2008	-400.01	(265.67)	-458.21	(249.37)	*
+/-1440, interaction & covariates		-331.52	(230.57)	-146.32	(157.56)	
+/-1440, no interaction		-410.66	(253.07)	-192.18	(272.53)	
+/-720, with interaction		-73.15	(357.03)	-370.47	(236.37)	
+/-720,interaction & covariates		-838.14	(508.81)	-455.15	(205.62)	**
+/-720, no interaction		-73.88	(360.87)	-367.87	(244.00)	
+/-360, with interaction		51.17	(384.12)	-789.96	(321.05)	**
+/-360,interaction & covariates		-207.70	(521.51)	-558.40	(397.42)	
+/-360, no interaction		94.36	(568.26)	-798.19	(425.48)	*
Number of observations		23,801		45,716		

Note: * p<0.05, ** p<0.01, *** p<0.001. Standard errors (in parentheses) are estimated assuming a cluster structure by age. The order of polynomial was chosen according to AIC criterion separately for each regression. Additional regressors for the specifications which include covariates are: German nationality, education (5 categories); number of children (3 categories); presence of a partner and employment status of the partner; duration of contributory employment in the past two years, real annual earnings in 2000-2004.

Table 6. Effect on monthly average real equivalent UB II income, in Euro

+/-Days, Specification	Period	Men in East Germany		Men in West Germany		
		Coef.	Std. Err.	Coef.	Std. Err.	
+/-1440, with interaction	2006	6.31	(19.98)	26.70	(20.20)	
+/-1440, interaction & covariates		11.57	(15.37)	22.14	(17.45)	
+/-1440, no interaction		-3.00	(9.01)	-3.47	(6.68)	
+/-720, with interaction		-12.63	(9.30)	9.68	(15.68)	
+/-720,interaction & covariates		-10.22	(8.06)	7.62	(13.17)	
+/-720, no interaction		-13.05	(9.31)	2.31	(13.55)	
+/-360, with interaction		-6.54	(14.75)	3.44	(14.76)	
+/-360,interaction & covariates		-1.85	(14.06)	1.80	(10.19)	
+/-360, no interaction		-6.55	(14.67)	2.19	(10.56)	
+/-1440, with interaction	2007	8.01	(7.68)	40.06	(15.25)	**
+/-1440, interaction & covariates		8.64	(7.72)	37.50	(13.75)	***
+/-1440, no interaction		5.42	(11.35)	5.07	(8.00)	
+/-720, with interaction		10.48	(11.42)	18.88	(9.19)	**
+/-720,interaction & covariates		15.70	(11.66)	20.34	(7.93)	**
+/-720, no interaction		9.16	(11.00)	17.62	(9.71)	*
+/-360, with interaction		-1.37	(16.85)	16.66	(15.89)	
+/-360,interaction & covariates		5.88	(17.51)	13.05	(12.26)	
+/-360, no interaction		-2.74	(18.28)	15.17	(12.63)	
+/-1440, with interaction	2008	10.27	(7.56)	26.39	(24.21)	
+/-1440, interaction & covariates		10.54	(7.31)	9.63	(5.15)	*
+/-1440, no interaction		2.72	(11.08)	11.37	(7.72)	
+/-720, with interaction		-4.92	(11.29)	9.55	(9.65)	
+/-720,interaction & covariates		1.04	(10.82)	11.14	(8.24)	
+/-720, no interaction		-5.39	(11.25)	9.08	(9.80)	
+/-360, with interaction		-16.82	(18.75)	25.20	(16.42)	
+/-360,interaction & covariates		-10.13	(17.03)	21.52	(11.84)	*
+/-360, no interaction		-16.69	(17.85)	23.68	(12.22)	*
Number of observations		23,801		45,716		

Note: * p<0.05, ** p<0.01, *** p<0.001. Standard errors (in parentheses) are estimated assuming a cluster structure by age. The order of polynomial was chosen according to AIC criterion separately for each regression. Additional regressors for the specifications which include covariates are: German nationality, education (5 categories); number of children (3 categories); presence of a partner and employment status of the partner; duration of contributory employment in the past two years, real annual earnings in 2000-2004.

Table A1. Effect on cumulative number of days spent in unsubsidized contributory employment

+/-Days, Specification	Period	Men in East Germany		Men in West Germany		
		Coef.	Std. Err.	Coef.	Std. Err.	
60 day intervals						
+/-1440, with interaction	1st year since registration	1.36	(2.11)	-3.03	(2.89)	
+/-1400, interaction & covariates		-1.29	(2.09)	-12.42	(2.19)	***
+/-1440, no interaction		1.31	(2.27)	0.11	(2.88)	
+/-1440, with interaction	2nd year since registration	1.10	(3.81)	-7.76	(5.15)	
+/-1400, interaction & covariates		-2.58	(3.76)	-9.24	(4.73)	*
+/-1440, no interaction		1.13	(3.77)	-2.75	(4.89)	
+/-1440, with interaction	3rd year since registration	-2.88	(3.57)	-4.74		
					(3.75)	
+/-1400, interaction & covariates		-6.10	(3.65)	-5.99	(3.51)	*
+/-1440, no interaction		-2.86	(3.55)	-2.60	(3.11)	
15 day intervals						
+/-1440, with interaction	1st year since registration	0.10	(2.51)	-9.37	(4.20)	**
+/-1400, interaction & covariates		-1.53	(2.25)	-9.06	(3.62)	**
+/-1440, no interaction		0.22	(2.54)	-1.37	(2.84)	
+/-1440, with interaction	2nd year since registration	-1.07	(4.33)	-7.43	(4.50)	
+/-1400, interaction & covariates		-3.38	(3.87)	-7.33	(3.98)	*
+/-1440, no interaction		-1.22	(4.33)	-3.96	(4.04)	
+/-1440, with interaction	3rd year since registration	-4.40	(4.27)	-4.16	(3.59)	
+/-1400, interaction & covariates		-6.46	(4.03)	-0.81	(2.20)	
+/-1440, no interaction		-4.48	(4.25)	-2.86	(3.21)	
Number of observations		23,801		45,716		

Note: * $p<0.05$, ** $p<0.01$, *** $p<0.001$. Standard errors (in parentheses) are estimated assuming a cluster structure by age. The order of polynomial was chosen according to AIC criterion separately for each regression. Additional regressors for the specifications which include covariates are: German nationality, education (5 categories); number of children (3 categories); presence of a partner and employment status of the partner; duration of contributory employment in the past two years, real annual earnings in 2000-2004.

Table A2. Effect on real annual earnings, in Euro

+/-Days, Specification	Period	Men in East Germany			Men in West Germany		
		Coef.	Std. Err.		Coef.	Std. Err.	
60 day intervals							
+/-1440, with interaction	2006	188.66	(161.91)		-238.99	(143.30)	
+/-1400, interaction & covariates		132.36	(144.61)		-310.09	(122.65)	**
+/-1440, no interaction		187.07	(163.02)		-56.00	(146.37)	
+/-1440, with interaction	2007	-157.51	(208.42)		-480.77	(269.52)	*
+/-1400, interaction & covariates		-185.52	(189.43)		-565.75	(277.70)	**
+/-1440, no interaction		-155.80	(211.64)		-201.69	(247.49)	
+/-1440, with interaction	2008	-348.87	(208.15)		-392.40	(247.82)	
+/-1400, interaction & covariates		-340.84	(187.87)	*	-140.45	(155.52)	
+/-1440, no interaction		-345.00	(220.07)		-242.73	(206.24)	
15 day intervals							
+/-1440, with interaction	2006	89.62	(175.86)		-206.99	(164.90)	
+/-1400, interaction & covariates		97.08	(152.42)		-207.18	(155.34)	
+/-1440, no interaction		93.07	(176.35)		-86.96	(150.39)	
+/-1440, with interaction	2007	-260.11	(256.55)		-477.84	(257.25)	*
+/-1400, interaction & covariates		-206.61	(223.79)		-466.54	(241.82)	*
+/-1440, no interaction		-266.55	(255.16)		-286.75	(231.94)	
+/-1440, with interaction	2008	-448.68	(283.44)		-421.74	(261.76)	
+/-1400, interaction & covariates		-363.16	(254.21)		-125.54	(161.18)	
+/-1440, no interaction		-461.61	(282.03)		-304.37	(234.19)	
Number of observations		23,801			45,716		

Note: * $p<0.05$, ** $p<0.01$, *** $p<0.001$. Standard errors (in parentheses) are estimated assuming a cluster structure by age. The order of polynomial was chosen according to AIC criterion separately for each regression. Additional regressors for the specifications which include covariates are: German nationality, education (5 categories); number of children (3 categories); presence of a partner and employment status of the partner; duration of contributory employment in the past two years, real annual earnings in 2000-2004.

Table A3. Effect on monthly average equivalent real UB II income of household, in Euro

+/-Days, Specification	Period	Men in East Germany			Men in West Germany		
		Coef.	Std. Err.		Coef.	Std. Err.	
60 day intervals							
+/-1440, with interaction	2006	-43.94	(16.67)	**	33.90	(18.72)	*
+/-1400,interaction & covariates		8.46	(17.85)		31.00	(15.76)	*
+/-1440, no interaction		-7.25	(10.01)		-0.19	(7.91)	
+/-1440, with interaction	2007	-34.73	(28.53)		26.60	(16.92)	
+/-1400,interaction & covariates		-16.73	(29.67)		50.88	(9.38)	***
+/-1440, no interaction		7.12	(13.39)		6.89	(10.52)	
+/-1440, with interaction	2008	10.07	(8.46)		42.02	(19.27)	**
+/-1400,interaction & covariates		11.93	(7.99)		12.60	(4.96)	**
+/-1440, no interaction		3.48	(12.42)		15.45	(9.21)	
15 day intervals							
+/-1440, with interaction	2006	-28.21	(13.20)	**	25.01	(14.77)	*
+/-1400,interaction & covariates		-4.22	(16.94)		21.11	(12.97)	
+/-1440, no interaction		-7.49	(8.21)		1.15	(7.09)	
+/-1440, with interaction	2007	6.47	(7.50)		38.61	(11.71)	***
+/-1400,interaction & covariates		-15.39	(18.66)		34.97	(10.34)	***
+/-1440, no interaction		5.76	(10.12)		9.00	(8.34)	
+/-1440, with interaction	2008	8.70	(8.26)		25.21	(16.90)	
+/-1400,interaction & covariates		8.58	(8.00)		9.40	(4.94)	*
+/-1440, no interaction		3.36	(10.73)		14.00	(7.76)	*
Number of observations		23,801			45,716		

Note: * p<0.05, ** p<0.01, *** p<0.001. Standard errors (in parentheses) are estimated assuming a cluster structure by age. The order of polynomial was chosen according to AIC criterion separately for each regression. Additional regressors for the specifications which include covariates are: German nationality, education (5 categories); number of children (3 categories); presence of a partner and employment status of the partner; duration of contributory employment in the past two years, real annual earnings in 2000-2004.