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Original Article

Does Deregulation Help? The Impact of Employment Protection Reforms on Youths' Unemployment and Temporary Employment Risks in Europe

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Abstract

Rigid employment protection legislation (EPL) has been blamed as the root of youths' labour market integration problems in Europe. Many European countries have reacted by deregulating employment protection laws, often targeting youths as a group. However, doubts about the effectiveness of EPL reforms have arisen. Against this background, this article investigates whether EPL reforms succeeded in integrating youths into labour markets or whether they were ineffective and just promoted temporary employment as a crucial new social inequality in Europe. Based on two-step, three-level analyses using micro-data from the European Labour Force Survey for 19 European countries for the period from 1992 to 2012, our results show that deregulating the use of temporary contracts increased temporary employment risks of youths but did not reduce (for low-educated young men, even increased) unemployment risks. In contrast, we find some evidence that decreasing the protection of permanent jobs was successful in decreasing risks of inequality/insecurity (in terms of temporary jobs) without affecting the risks of labour market exclusion.

Introduction

Across Europe, youths experience increased risks of labour market exclusion in terms of unemployment (Dietrich, 2013) and increased risks of insecure, temporary jobs (Blossfeld *et al.*, 2008). However, the degree of youths' labour market problems varies strongly across countries. Previous comparative research identified specific institutional configurations of the education and training system (such as the existence of apprenticeship systems), the labour market, and welfare state [such as employment protection legislation (EPL) and activation measures] as well as specific macro-structural conditions (such as economic growth and globalization) as explanations for country differences (Müller and Gangl, 2003). Among institutional factors, rigid EPL has been particularly blamed for youths' integration problems. Empirical studies mainly confirm this view by finding higher youth unemployment rates (Esping-Andersen, 2000; Breen, 2005), higher youth temporary employment risks (de Lange, Gesthuizen and Wolbers, 2014), longer jobs search periods for youths (Wolbers, 2007), and lower

chances of getting a job for unemployed youth (Russell and O'Connell, 2001) in countries with strict EPL.

Thus, many European countries reacted by deregulating EPL starting in the 1990s, often targeting youths as a group (Barbieri, 2009). However, doubts have arisen whether EPL reforms succeeded in reducing youth unemployment (Noelke, 2015). Moreover, concerns have been voiced that a deregulation of fixed-term contracts exacerbated social inequality by contributing to the spread of temporary employment (Gash and McGinnity, 2007) without improving youths' labour market chances. Against this background, we will evaluate the effectiveness of EPL reforms and their implications for patterns of social inequality. Specifically, we will answer the following main research questions: (i) did the EPL reforms succeed in integrating youths into labour markets by *reducing youth unemployment risks*? (ii) Did the EPL reforms just exacerbate social inequality by *increasing temporary employment risks of youths*?

The present article complements previous studies in several aspects. First, by studying both risks of labour market exclusion and insecurity, we try to reach a broader, multidimensional evaluation of youth labour market problems. With respect to labour market exclusion, we apply the common youth unemployment indicator. In addition to exclusion, we investigate the risk of having a temporary contract, which is seen as a crucial dimension of labour market inequality/dualism (Giesecke and Groß, 2003, Gash and McGinnity, 2007).

Secondly, whereas the vast majority of previous sociological studies focused on between-country EPL differences, we use within-country EPL variation in terms of the exact timing and strength of EPL reforms during the period from 1992 to 2012 to get closer to the identification of causal effects as compared to studies that just rely on a cross-sectional approach. This is achieved by implementing a multilevel model with three levels (individuals, countries, and years) and using harmonized micro-data from the European Labour Force Survey (EULFS).[1]

Thirdly, we explicitly consider heterogeneities of EPL effects. Heterogeneous effects are taken into account by distinguishing EPL effects on unemployment and temporary employment risks for different education-sex subgroups. In addition, we take into account the distinctiveness of two important dimensions of EPL. This is done by differentiating between regulations concerning permanent employment and those regarding temporary employment, an issue that was often neglected by previous studies.

This article is organized as follows: Section 2 provides theoretical reflections and hypotheses regarding EPL effects on youth labour market chances. Section 3 describes the data set, variables, and the statistical methods used. Section 4 presents descriptive evidence and the results of the multilevel analysis. Finally, Section 5 concludes the article.

Theory and Hypotheses

What is the impact of EPL on labour market chances of young people? To answer this question, we need to take into account at least two important issues. First, theorizing on the macro-level relationship between EPL and the distribution of employment outcomes of labour market entrants needs to address employees' and employers' behaviour at the micro level (Polavieja, 2003). This is also in line with micro-macro-models of youth labour market integration. These models emphasize that the micro level can be understood as a two-sided matching process in which both employers and young job seekers face uncertainties while institutions shape the decisions of individuals (Müller and Gangl, 2003). However, though it is obvious that micro-level behaviour of both employers and employees is influenced by institutional settings (e.g. EPL) and economic conditions, predicting net effects of institutional change is not straightforward as some micro-level mechanisms might be working in opposite directions. Secondly, from a theoretical perspective it seems to be important to distinguish between regulations concerning permanent jobs and those regarding temporary contracts, because they presumably affect youth labour market outcomes differently (Baranowska and Gebel, 2010; Noelke, 2015). While EPL for permanent employment is related to direct costs (e.g. severance payments) and procedural difficulties (e.g. length of notification period) involved in dismissing workers, EPL for temporary employment refers to restrictions on the use of temporary contracts, as well as restrictions with respect to temporary agency work. This problem has been often neglected by previous studies which theoretically discussed and empirically measured EPL as a composite index.

In the following, we will address these issues by discussing to what extent labour market chances of young people are influenced by employment protection of permanent work contracts (first subsection) and by regulations of the use of temporary contracts (second subsection). Moreover, heterogeneous effects of EPL reforms are discussed (third subsection). Figure 1 offers an overview on the expected effects.

	EXCLUSION Youth unemployment	INEQUALITY Youth temporary employment
EPL regular ↑ (e.g. increasing restrictions on firing of permanent workers)	↑ *(Hyp. 1)* lower hiring rates (dominates) lower firing rates	↑ *(Hyp. 2)* increased incentives to use temporary contracts
EPL temporary ↓ (e.g. lower regulations on use of temporary contracts)	↓ *(Hyp. 3a)*, ↑*(Hyp. 3b)* job creation effect: ↓ substitution and trap effect: ↑	↑ *(Hyp. 4)* increased opportunities to use temporary contracts
Heterogeneous effects	*exclusion and inequality effects of EPL reforms more pronounced for the low-skilled vis-à-vis the high-skilled*	

Figure 1. Expected effects of EPL on youth unemployment and temporary employment risks

The Effects of Employment Protection of Permanent Work Contracts

In general, one can expect stricter protection of permanent contracts to produce two opposing effects with regard to overall unemployment, which cancel each other out (Bentolila and Bertola, 1990). On the one hand, stricter regulations reduce employers' capacity to dismiss workers, thus stabilizing newly established employment relationships and protecting from unfair dismissal. On the other hand, facing uncertainty, employers may refrain from hiring job seekers because, at the time of hiring job applicants, they anticipate costs of dismissals (in terms of direct costs, procedural difficulties) in case of economic downturns (Müller and Gangl, 2003). This joint effect reduces variability of employment, while having no effect on average employment levels. However, strict labour market regulations are likely to have their most visible effects on the composition, rather than the level, of unemployment. In line with this reasoning, it is often argued that the effect of reduced hiring rates should dominate the effect of reduced firing rates among young workers, because for employers it is difficult to assess young workers' productivity and trainability (Esping-Andersen, 2000). Thus, we expect that increasing the level of employment protection of permanent work contracts induces increasing levels of youth unemployment (*Hypothesis 1*).

Furthermore, EPL can be expected to (conditional on employment) affect important job characteristics such as the type of contract. Regarding temporary employment risks of youths, we assume at least three underlying mechanisms that produce a positive association of EPL for permanent jobs and rates of temporary employment among young workers. First, it can be expected that strict regulation of permanent contracts will encourage employers to hire workers on temporary contracts, because this type of contract eliminates potential firing costs as they end automatically after their expiration. According to this cost-saving argument, employers—with the support of employees holding permanent jobs—will form a 'buffer stock' of temporary jobs, making it possible to respond to market volatilities without having to dismiss any of the core workers (Polavieja, 2003). Secondly, employers may also use temporary contracts as 'screening devices' (Korpi and Levin, 2001) to minimize risks of poor job-worker matches. In particular, this holds for young workers whose productivity and trainability are difficult to assess due to their limited work history. Thirdly, along with using temporary employment as buffer or screening devices, employers may also find it profitable to use temporary contracts as an incentive mechanism: by offering the possibility of converting a temporary contract into a permanent one, employers can use temporary contracts as an efficient effort-eliciting tool (Güell, 2000). In light of these three plausible mechanisms, we expect that making the employment protection for regular jobs more stringent increases the incidence of temporary employment for young workers (*Hypothesis 2*).

Regulations of the Use of Temporary Contracts

What is the impact of deregulating the use of temporary contracts on young workers' labour market chances?

There are two opposing scenarios for such an EPL-deregulation: according to the integration perspective, temporary contracts ease youth integration into the labour market, whereas the segmentation scenario doubts positive employment effects of temporary jobs (Gebel, 2010). Eased labour market integration may happen via job creation, i.e. if restrictions on temporary employment are lowered, there are increased options for employers to hire young workers for temporary buffer jobs that had not existed before. Moreover, temporary jobs used as 'screening devices' may help with the integration process of young inexperienced workers and with solving the matching problem in youth labour markets. In contrast, segmentation occurs when employers use cycles of repeated/prolonged temporary jobs as an alternative to firing or conversions (trap effect) or just replace permanent jobs with temporary jobs for young workers (substitution effect). If, in addition, employers have fewer incentives to convert temporary contracts into permanent ones, young temporary workers face an increased risk of becoming unemployed. Thus, in total, the net effect of deregulating the use of temporary contracts on youth unemployment rates depends on the strength of two opposing mechanisms. If job creation effects dominate, youth unemployment rates will decrease when restrictions on the use of temporary employment are lowered (*Hypothesis 3a*). However, if substitution and trap effects are predominant, the higher turnover rate may even lead to rising unemployment for young workers (*Hypothesis 3b*).

While the net effect of deregulating the use of temporary contracts on youth employment rates is theoretically ambiguous, such kind of deregulation can be expected to increase youth temporary employment risks. If the restrictions on temporary employment are lowered, there are increased options for employers to create new temporary buffer jobs and use fixed-term contracts for screening purposes, but employers will also replace permanent workers with temporary workers (substitution effect). Furthermore, employers have incentives to use cycles of temporary jobs as an alternative to firing or conversions, which creates trap effects for the employees. In sum, all four mechanisms will increase the amount of temporary contracts among young workers if regulations on the use of temporary employment are lowered (*Hypothesis 4*).

Heterogeneous Effects of EPL

For various reasons, it does not seem to be plausible to assume a homogeneous impact of EPL on youths' employment chances across different socio-economic groups. Instead, we would expect the effects of EPL reforms to be particularly moderated by the skill level of young people. We expect moderating effect of skill levels based on assumptions about skill differentials in monitoring costs and the degree of task specificity (Gebel and Giesecke, 2011). In this respect, Gebel and Giesecke (2011) argue and empirically show that the strength of employment protection for permanent contracts is positively associated with the relative incidence of both unemployment and temporary employment among the low skilled vis-a-vis the high skilled. At the same time, deregulating the use of temporary contracts is shown to increase skill gaps in both unemployment and temporary employment. While this empirical evidence is restricted to prime-age workers, we would still expect to find a skill-specific impact of EPL on employment chances of young people. In particular, one may expect that the effect of EPL regular on hiring and firing as well as the trap and substitution effects of temporary jobs vary between youths with different qualifications (Wolbers, 2007; Gebel, 2010). Moreover, the use of temporary jobs as a buffer stock, as screening devices, or incentive mechanisms should vary across youth groups possessing different education levels.

We have no clear predictions regarding a moderating effect of gender. Previous empirical research on this issue could not find evidence of gender-specific effects of deregulating EPL (Dieckhoff, Gash and Steiber, 2015). However, since it is common practice in labour market research to conduct separate analyses for men and women, we will allow for gender-specific effects in our models.

Research Design

Data and Sample

We use micro data from the EULFS 1992–2012, which provides large-scaled, standardized, cross-sectional information compiled from national labour force surveys (Eurostat, 2012). The EULFS covers a longer time period and provides a much higher number of observations than any of the other European surveys. Data are available for 19 European countries: Belgium, Denmark, Greece, Ireland, Italy, Portugal, Spain, and the UK (since 1992), France and Germany (since 1993),[2] Austria (since 1995), Norway, Sweden, Finland, and the Netherlands (since 1996), Hungary (since 1997), Poland (since 2001), Czech Republic and Slovakia (since 2002).

We implement our definition of labour market entrants by restricting the sample to young people who were not in any education and training (including

apprenticeship training) during the previous 4 weeks, i.e. we exclude students and apprentices as well as unemployed youths in training programs as well as youths with the double status of 'work and study' (Wolbers, 2003). Country-years with completely missing information about the education and training status were excluded from the analysis. Youths in compulsory military or community service were left out. Moreover, we excluded inactive youths because in some countries and waves the data did not allow differentiating between youths attending education and youths being inactive.

Instead of relying on a youth definition of people aged 15–24 which mainly excludes the sizeable group of tertiary graduates, we rely on a sample definition of labour market entrants based on information on age (5-year intervals) and highest education level attained (three levels) during our observation period: we analyse the age group 15–24 for those who completed primary or secondary education and the age group 20–29 for those who completed tertiary education.[3]

Variables at the Individual Level

Youth *unemployment* is our first outcome variable. Following common International Labor Office (ILO) definitions, youths were classified as being unemployed if they were without work but currently available for work and seeking for work, i.e. taking specific steps to seek (self-)employment.[4] As a second outcome variable, youths' risks of being in *temporary employment* are investigated among employed youths. The group of employed people is restricted to dependent workers because contract status is not defined among the self-employed and family workers. Temporary employment is characterized by the agreement between employer and employee on the objective conditions under which a job ends, such as a specific date, the completion of a task, or the return of another employee who has been temporarily replaced (Eurostat, 2012). While the unemployment indicator captures youths' risks of being excluded from education and employment, the temporary employment indicator measures the risk of being exposed to insecure temporary jobs. By considering temporary employment risks only among employed youths, we disentangle the 'exclusion' and 'inequality/insecurity' dimensions. This allows us to detect potential trade-offs between youths' employment chances and quality of employment.

At the *micro level*, we consider a respondent's gender and his/her educational level to account for compositional changes in the youth population across time and across countries. Gender is dummy coded, whereas the level of education is measured in terms of a collapsed version of the International Standard Classification of Education (ISCED), which distinguishes three levels: lower secondary (ISCED 0–2); upper secondary and post-secondary, below tertiary education (ISCED 3–4); and tertiary education (ISCED 5–6). Potential effect heterogeneity of EPL reforms is considered by effectively stratifying the analysis along the six groups formed by crossing respondents' information on gender and education.

Variables at the Contextual Level

While many previous studies focused on time-constant country differences in the overall EPL index, we rely on a time-varying, yearly measurement to account for exact timing and the magnitude of EPL reforms (OECD, 2015). Following our theoretical arguments, we differentiate between regulations governing permanent and temporary contracts. Figure 2 displays trends in EPL for 19 European countries observed in this study. The dominant model of partial deregulation in six countries (Belgium, Denmark, Germany, Italy, the Netherlands, and Sweden) is characterized by reforms that reduced restrictions on the use of temporary employment but left restrictions on dismissal of permanent workers unchanged. Greece, Portugal, and Spain experienced a similar pattern of deregulating the use of temporary contracts but additionally a reduction of EPL for permanent employment, in particular during the years of the crisis. Norway, Poland, and Slovakia experienced a weak deregulation of the use of temporary contracts and a re-regulation afterwards. The regulation of temporary contracts moderately increased in the Czech Republic and Hungary, slightly increased in Ireland, Finland, and the UK, and remained unchanged in Austria and France.

The levels of EPL for permanent employment were lowered in 10 countries (Austria, the Czech Republic, Finland, Greece, Ireland, the Netherlands, Portugal, Slovakia, Spain, and Sweden), slightly raised in four countries (Belgium, France, Germany, and the UK), and remained stable in five countries (Denmark, Hungary, Italy, Norway, and Poland). A moderately low correlation of .31 in our sample of countries during the period 1992–2012 shows that both indices measure distinct features of EPL.

To disentangle the effects of labour market deregulation on youth labour market chances, we additionally control for other time-varying institutional and structural conditions. First, we control for collective bargaining coverage (CBC) [from ICTWSS database, Visser (2013)[5]] as a proxy for union power in negotiating wages and employment conditions. Assuming that unions represent collective interests of older insiders and

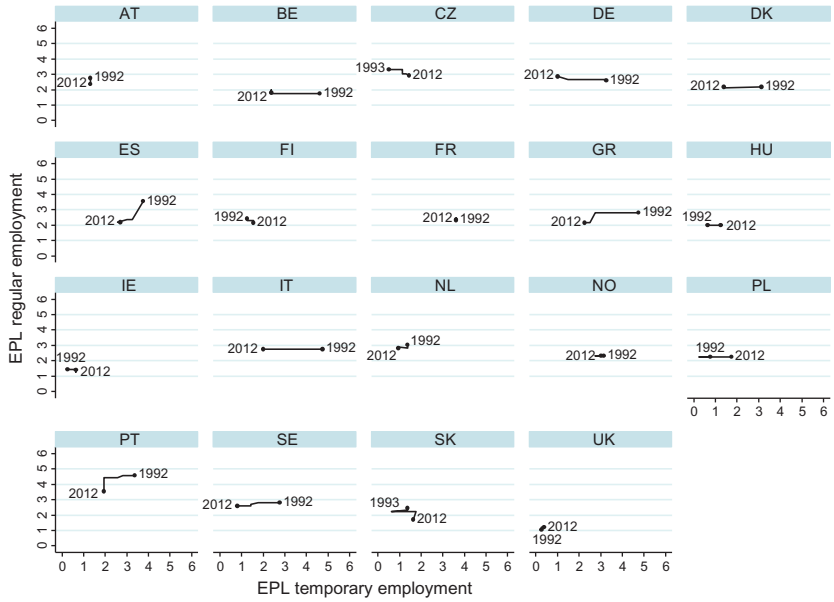

Figure 2. Trends in employment protection legislation in Europe 1992–2012

Note: Graphical illustrations based on the OECD indicators of employment protection for temporary and permanent employment, which theoretically range between 0 (least stringent) and 6 (most restrictive). Regarding CZ and SK, indicators are only available from 1993 onwards, respectively.

favour high wage floors, this may have the unintended side effect of hindering the employment chances of youths (Baranowska and Gebel, 2010). Furthermore, unions representing insiders may encourage employers to form a buffer stock of temporary jobs to protect core workers at the cost of higher risks of temporary employment among youths.

Secondly, it can be assumed that in countries with pronounced active labour market policies (ALMP), a larger proportion of young people are actually engaged in training and subsidized work programs. ALMP measures are expected to reduce the risks of unemployment because their explicit aim is to reintegrate unemployed youths into work (Russell and O'Connell, 2001). We measure ALMP on a yearly base, using the absolute amount of money (measured in thousands of US dollar, constant Purchasing Power Parities (PPPs), base year 2010) spent on ALMP categories 2–7 per unemployed worker (OECD, 2015).[6]

Thirdly, we control for national gross domestic product (GDP) growth as a proxy for general labour market conditions (Eurostat, 2015). Unfavourable macroeconomic conditions may tighten competition among school leavers, thus making transitions to work problematic and increasing the risk of dismissal because youths are the least protected workers (Gangl, 2002). Depressed labour market conditions may also induce firms to use—and to exert pressure on individuals to accept—temporary contracts.[7]

Fourthly, we control for youth cohort size [proportion of population aged 15–29 years, Eurostat (2015)] since previous studies identified demographic pressures as being potentially influential on youth labour market chances (Gangl, 2002). Finally, we use the Konjunkturforschungsstelle (KOF) economic globalization index (Dreher, Gaston and Martens, 2008), which is assumed to have an impact on youth labour market chances (Blossfeld *et al.*, 2008; Mills, 2009). We use contemporaneous measures of all macro-level variables when measuring their impact on youth unemployment rates and temporary employment rates.

Statistical Method

We apply multilevel models with three levels (individual, country, and time levels) implemented in a two-step estimation procedure to investigate macro-contextual influences on individual youth temporary employment and unemployment risks. We decided for a two-step procedure instead of a simultaneous estimation because it offers a more flexible specification, since all individual-level effects are allowed to vary across countries and time without imposing any further distributional assumptions. Simultaneous multilevel models that assume a multivariate normal distribution of the error terms do

not converge because of our complex three-level data structure with a large number of cross-level interactions and error terms and binary outcomes (Franzese, 2005). Moreover, since level-1 parameters are easy to display graphically, both description and outlier diagnostics are simplified in the two-step procedure.

The two-step procedure is implemented as follows. The *first step* involves running separate mean estimations for each country-time observation and estimating (i) the probability of being unemployed and (ii) the probability of being employed based on a temporary contract for each education–sex combination. Having two sex and three education groups, we obtain six mean estimates per outcome variable and country–year combination based on individual data for individuals *i*:

$$\hat{\bar{Y}}_{gct} = \frac{1}{N_{gct}} \sum_{i=1}^{N} Y_{igct}$$

where *g* is the indicator for the education–sex group, *c* represents the country, and *t* symbolizes the time period. In the *second step*, we examine the impact of macro-factors on the group-specific mean estimates of youth temporary employment and unemployment risks:

$$\hat{\bar{Y}}_{gct} = \beta_{g0} + \sum_{q=1}^{Q} \beta_{gq} Z_{qct} + u_{gct}$$

where $\hat{\bar{Y}}_{gct}$ is the estimated dependent variable (EDV; group-specific youth temporary employment or unemployment risk from the first-stage model) for education–sex subgroup *g* that varies across countries *c* and time period *t*. This variation is modelled as a function of *Q* (time-varying) macro-level variables Z_{qct} and a macro-level error term u_{gct} (level 2 and 3). Among the *Q* time-varying macro-level variables, we focus on the impact of EPL reforms controlling for other time-varying macro-institutional and macro-structural factors. This second stage consists of pooled time-series cross-section data for each of the six education–sex groups. We use this structure to estimate panel models with country fixed-effects, which has the advantage of conditioning on time-constant country characteristics. In this way, we are able to control, for example, for country differences in the structure of the education and training system that have been shown to play a crucial role for youth labour market chances (Breen, 2005; Brzinsky-Fay, 2007). Moreover, in these panel models we account for fixed time-effects to capture unobserved period-specific effects. We additionally introduced an interaction effect between the period of the crisis (2008–2012) and the four countries most affected (Greece, Ireland, Portugal and Spain).

Finally, since we use estimate parameters from the first stage as dependent variables in the second stage, we implement an EDV-correction by a feasible generalized least square as suggested by Lewis and Linzer (2005). In this way we can account both for uncertainties stemming from the first-step mean estimation and the macro-level error term from the second-step regression.

Empirical Results

Results of First-Step Analyses

Our results from first step mean estimations reveal quite diverse trends regarding inequality in youths' unemployment and temporary employment risks.[8] As can be seen from Figure 3, the levels of youth unemployment vary considerably between countries and across time.[9] These differences notwithstanding, however, high-educated people face the lowest risk of unemployment in all countries. Furthermore, with the exception of youths in Denmark, Greece, Italy, and Portugal, risks of unemployment are highest for the group of young people with lower education degrees. Thus, in most observed countries, the risk of being unemployed gradually decreases the higher the level of education is. Moreover, with regard to changes over time, it becomes obvious that unemployment risks have evolved differently across education groups. For example, there is a long-term increase in unemployment rates among low-educated youths in Austria, Germany, and France, while the extent of unemployment among the high skilled did not change in a substantive manner. These results clearly demonstrate the importance of considering skill-specific levels and trends of exclusion when analysing labour market risks for youths.

The impact of the economic crisis is clearly visible in most countries. However, while youth unemployment rates increased substantially in Ireland and southern European countries, the impact of the economic crisis on youth labour markets seem to have been less severe in the other countries considered in our analysis.

With respect to first evidence of the impact of EPL reforms on youths' labour market chances, we find that countries that lowered EPL for regular jobs do not show a clear pattern of reduced or increased unemployment rates. Instead, trends in unemployment rates differ across (reform) countries as well as across education groups. At the same time, only in two out of nine countries that lowered restrictions on the use of temporary employment, youth unemployment actually decreased (Italy and Spain)—and this holds true only if we exclusively consider the years before the economic crisis. In

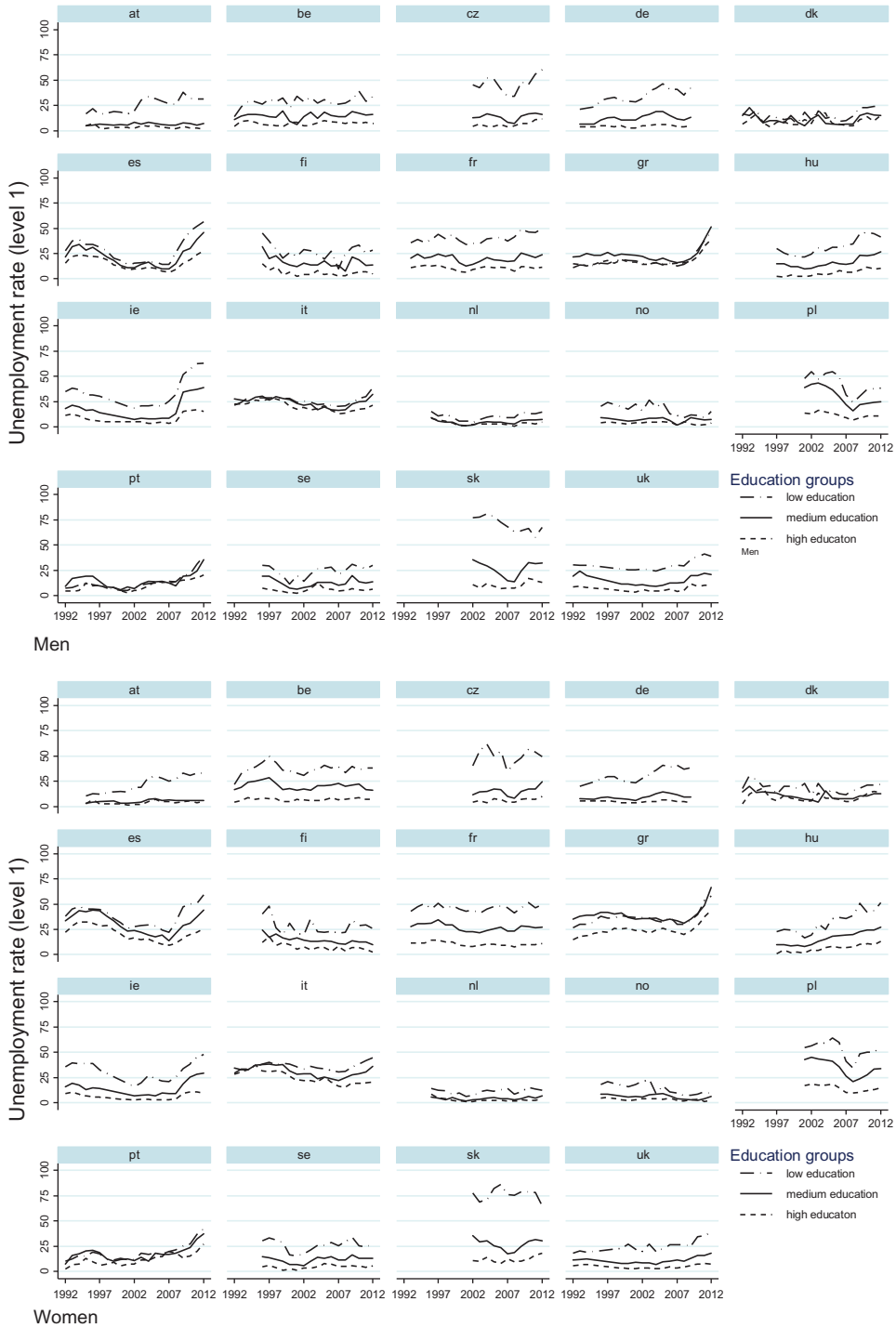

Figure 3. Trends in youth unemployment rate (in per cent) in Europe 1992–2012, by sex and education

Note: EULFS 1992–2012; our own calculations. First step (individual level) mean estimates by education–sex groups.

most of these reform countries, we find some temporal variation in the incidence of unemployment without witnessing a clear upward or downward trend. Remarkably, the risk of labour market exclusion for those with low education even increased in Belgium and Germany, two countries that implemented a fairly strong partial deregulation of their employment protection.

The levels and evolution of temporary employment rates are depicted in Figure 4. Again, we want to highlight three important findings of this descriptive exercise. First, as in the case of unemployment rates, we find substantial variation of temporary employment rates both between countries and across time.[10] However, when compared to the results found for unemployment risks, the education gradient is less pronounced regarding temporary employment risks. While in some of the observed countries there is no skill divide in youth temporary employment (in particular Ireland and the UK), in many others we find higher risks for those with low and medium education vis-a-vis youths with higher education (e.g. France, Hungary, Poland, Sweden, and Spain).

Secondly, with respect to the impact of the economic crisis, Ireland and Spain are the only two countries where a strong effect of the crisis can be observed in terms of surging temporary employment rates. In contrast, all other countries did not experience a substantial increase in youth temporary employment.[11] Thus, young people seem to be affected by the crisis mainly by higher rates of unemployment and not so much by increasing shares of temporary jobs. Thirdly, in countries that lowered EPL for regular jobs we observe rising (the Czech Republic, the Netherlands, Portugal, Sweden) as well as stable (Austria, Greece) or even decreasing rates of temporary employment (Finland, Spain). Moreover, in the majority of those countries that partially deregulated their labour markets, we observe an increase in the share of temporary employed youths, particularly in Belgium, Germany, Italy, and Sweden.

In sum, European societies apparently did not experience a general trend towards an increase in youth unemployment and temporary risks over the observed time period. In fact, the trends have evolved in different ways. Our first step results already cast some doubt on the notion that partial deregulation in the area of temporary employment have helped to improve employment chances of young people. There is evidence that temporary employment rates increased and unemployment rates did not decrease (and even increased in some countries) where partial deregulation reforms were implemented. Whether these descriptive results persist in macro-level regressions is tested in the next step.

The Effect of EPL Reforms: Results of the Macro-Level Regressions

In the second step the level-1 mean estimates are regressed on the EPL indicators and other time-varying macro-variables (see Tables 1 and 2 for unemployment and temporary employment, respectively). Spurious correlation between the EPL indicators and the outcome variables is eliminated by using country- and time-fixed effects. Uncertainty stemming from estimating group-specific unemployment is corrected for.

Table 1 shows that increasing levels of regular employment protection has no statistically significant effect on youth unemployment rates across all education–sex groups. Thus, contrary to previous cross-sectional studies (Esping-Andersen, 2000; Breen, 2005; de Lange *et al.*, 2014) and *Hypothesis 1*, we find no evidence that high protection of regular jobs is at the root of youth labour market exclusion problems. However, rising restrictions on dismissals tend to increase the incidence of temporary jobs for young workers (see Table 2), which is in line with *Hypothesis 2*. Obviously, employers are inclined to use temporary contracts if they are confronted with high firing costs for permanent contracts. Interestingly, effects are quite substantial and statistically significant for five of six education–sex groups. Increasing the EPL-regular index by one unit (on a scale from 0 to 6) increases youth temporary employment rates by 4–8 percentage points. In addition, for male workers we find somewhat stronger effects for persons with low and medium education vis-a-vis those with higher education. Thus, at least for men the data support the notion of heterogeneous EPL effects.

What, then, is the total effect that EPL reforms in the area of regular employment have on exclusion and inequality risks of young people? Combining the results of both analyses, we conclude that making employment protection for regular jobs more stringent increases youth job insecurities but it does not lead to increasing levels of labour market exclusion of youths.

Regarding the effects of deregulating the use of temporary contracts, we postulated two conflicting hypotheses. The results provide no support for the notion that lowering restrictions on the use of temporary employment relations can help reduce youth unemployment (*Hypothesis 3a*). In contrast, effects are not statistically different from zero for five of six education–sex groups (see Table 1). For low-educated young men, we find that deregulation of the use of temporary contracts even led

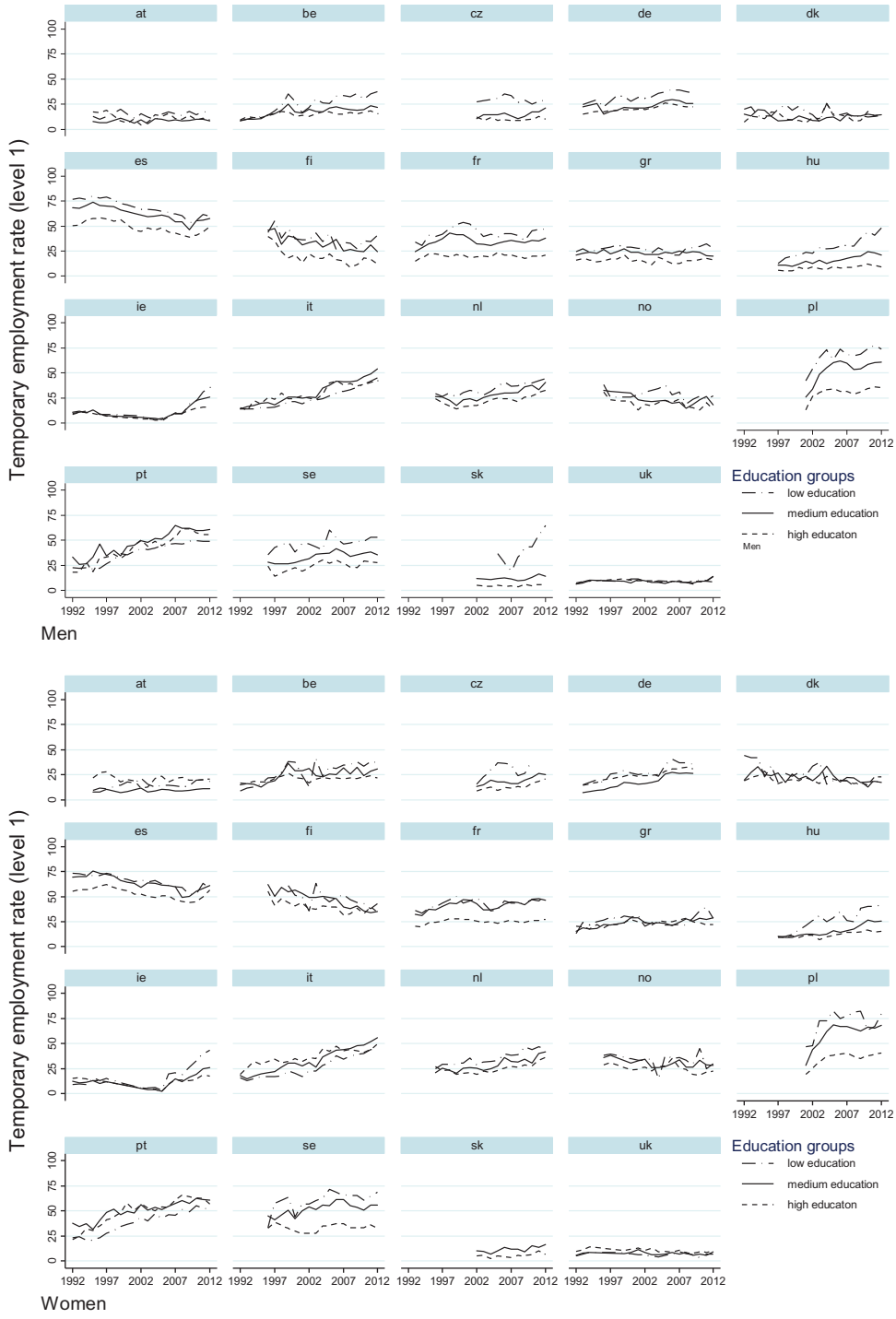

Figure 4. Trends in youth temporary employment rate (in per cent) in Europe 1992–2012, by sex and education

Note: EULFS 1992–2012; our own calculations. First step (individual level) mean estimates by education–sex groups.

Table 1. Macro-level determinants of the youth unemployment rates by education–sex groups

	Men			Women		
	Low education	Medium education	High education	Low education	Medium education	High education
EPL regular	3.53 (1.35)	0.98 (0.51)	0.59 (0.45)	2.65 (1.00)	0.26 (0.14)	0.81 (0.54)
EPL temporary	1.47** (2.01)	0.19 (0.35)	0.06 (0.16)	1.21 (1.64)	0.07 (0.14)	0.55 (1.30)
CBC	0.15 (1.00)	0.17 (1.51)	0.03 (0.40)	0.26* (1.70)	0.11 (1.01)	0.01 (0.06)
ALMP	0.58*** (4.22)	0.47*** (4.71)	0.23*** (3.38)	0.48*** (3.42)	0.46*** (4.59)	0.28*** (3.51)
GDP growth	0.71*** (3.02)	0.78*** (4.52)	0.54*** (4.59)	0.50** (2.09)	0.80*** (4.68)	0.60*** (4.44)
Youth cohort size	0.03 (0.06)	0.20 (0.63)	0.10 (0.46)	0.33 (0.75)	0.17 (0.54)	0.92*** (3.75)
Economic globalization	0.03 (0.24)	0.26*** (2.66)	0.13* (1.85)	0.29** (2.11)	0.00 (0.05)	0.26*** (3.37)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Period FE	Yes	Yes	Yes	Yes	Yes	Yes
N (country-years)	328	328	328	328	328	328
N (individuals)	399,761	604,392	344,727	222,459	493,230	453,239

Note: $^{*}P < 0.10$; $^{**}P < 0.05$; $^{***}P < 0.01$, *t*-values in parentheses. Second-step (macro level) estimation results using fixed effects with a correction for the insecurity of the estimated dependent variable (FE EDV). All models include fixed country-effects, fixed time-effects, and an interaction term between the period of the crisis and the countries most affected by the crisis (not shown).

Source: EULFS 1992–2012; our own calculations.

Table 2. Macro-level determinants of the youth temporary employment rates by education–sex groups

	Men			Women		
	Low education	Medium education	High education	Low education	Medium education	High education
EPL regular	6.98** (2.41)	8.16*** (3.30)	4.25* (1.91)	6.53* (1.87)	8.01*** (3.16)	6.49*** (3.25)
EPL temporary	2.23*** (2.73)	2.07*** (2.99)	2.30*** (3.70)	1.71* (1.72)	2.84*** (4.02)	2.27*** (4.07)
CBC	0.24 (1.43)	0.19 (1.33)	0.09 (0.67)	0.06 (0.30)	0.06 (0.42)	0.16 (1.34)
ALMP	0.34** (2.26)	0.61*** (4.72)	0.52*** (4.47)	0.64*** (3.56)	0.62*** (4.63)	0.59*** (5.64)
GDP growth	0.21 (0.79)	0.27 (1.20)	0.12 (0.62)	0.06 (0.17)	0.11 (0.50)	0.05 (0.26)
Youth cohort size	0.81* (1.71)	1.40*** (3.47)	1.20*** (3.30)	0.00 (0.01)	1.33*** (3.22)	1.05*** (3.22)
Economic globalization	0.60*** (3.56)	0.60*** (4.68)	0.36*** (3.08)	0.90*** (4.49)	0.68*** (5.15)	0.62*** (5.97)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Period FE	Yes	Yes	Yes	Yes	Yes	Yes
N (country-years)	325	328	328	312	328	328
N (individuals)	252,659	455,494	277,752	136,006	376,754	375,076

Notes: $^{*}P < 0.10$; $^{**}P < 0.05$; $^{***}P < 0.01$, *t*-values in parentheses. See notes of Table 1.

Source: EULFS 1992–2012; our own calculations.

to growing youth unemployment rates (*Hypothesis 3b*).[12] Obviously, substitution and trap effects levelled off or, in case of low-educated young male workers, even dominated job creation effects. Overall, it seems that partial deregulation, as it was implemented in some European countries, was ineffective in reducing youth unemployment. Moreover, in support of *Hypothesis 4*, deregulation in the area of temporary employment significantly amplifies the temporary employment risks across all education–sex groups (see Table 2). Decreasing the EPL-temporary index by one unit (on a scale from 0 to 6) increases youth temporary employment rates by about 2–3 percentage points. Interestingly, the effects are of rather equal size across all education–sex groups. Thus, there are almost no heterogeneous EPL effects with regard to reforms of EPL temporary.

Finally, our results show that, next to the effects of EPL reforms, there are also some significant effects of other macro-level indicators. There is clear evidence that accelerating GDP growth lowers unemployment risks even after controlling for fixed effects and other macro-factors. One extra percentage point of GDP growth decreases unemployment by about 1 percentage point for all education–sex groups. In case of men, GDP effects are slightly stronger for lower-educated and medium-educated youths as compared to high-educated youths. The yearly time-dummies (not displayed) show strong effects of the recent crisis even after controlling for GDP growth. Crisis effects are strongest for young men, especially low and medium educated men, whereas young women are less affected. In contrast, GDP growth has no statistically significant effect on temporary employment rates and there is also no evidence of an extra crisis effect on youth temporary employment rates. Obviously, economic growth and the financial crisis only matter for youth unemployment risks but not for job insecurity. Youth cohort size matters insofar as larger cohorts have fewer labour market problems as temporary employment rates decrease with cohort size. Interestingly, in line with theoretical predictions of Blossfeld *et al.* (2008), we find that globalization induces higher levels of uncertainty among youths in terms of increasing youth temporary employment rates. Results are mixed with respect to the effect of globalization on youth unemployment risks.

Moreover, in contrast to cross-sectional studies (Baranowska and Gebel, 2010), we find that CBC as a proxy for union power does not affect the risk of holding a temporary contract. At the same time, CBC reduces the risks of being unemployed among low-educated young women. Furthermore, there is clear evidence that increased spending on ALMP reduces unemployment risks. For example, raising the amount spent per unemployed worker by 1,000 US dollar decreases unemployment rates of low- and medium educated youths by about 0.5 percentage points. The integrative power of ALMP is somewhat weaker among workers with high education. There is also evidence that growing ALMP expenditures reduce the probability that employed youths are on temporary contracts. For every additional 1,000 US dollars, temporary employment rates are reduced by about half a percentage point.

Conclusions

Against the background that previous research blamed rigid EPL as the root of youths' integration problems in Europe and many governments partially deregulated EPL, this article has evaluated the effectiveness of EPL reforms. Based on two-step, three-level analyses using micro-data from EULFS for 19 countries for the period 1992–2012, our results cast doubt on the effectiveness of (partial) deregulation of temporary contracts, the dominant EPL reform pattern found in Western European countries. Deregulating the use of temporary contracts increased youth temporary employment risks but did not reduce unemployment risks. Results are rather robust across different education–sex groups. There is even evidence for low-educated young men that youths' unemployment risks grew due to such reform efforts.

In contrast, we find no statistically significant evidence that EPL reforms on regular contracts affect youth unemployment rates. While this result contradicts our theoretical expectations, we do find empirical support for the idea that stronger restrictions on dismissals increase youth temporary employment risks. Thus, making the employment protection for regular jobs more stringent increases youth job insecurities but it does not lead to more labour market exclusion of youths.

Returning to our initial question of whether deregulation is helpful, the answer is ambiguous. The widespread deregulation of temporary contracts dominant in Western Europe was unsuccessful in solving youth labour market problems. According to our evidence, it even aggravated circumstances for youths. However, there is some evidence that reducing employment protection of permanent work contracts (i.e. reducing insider protection) could solve youth labour market problems by reducing inequality/job insecurity, while risks of labour market exclusion are not affected. Given the fact that reforms on the 'EPL regular' dimensions were rather small in size (on the OECD scale), the question arises, however, whether the observed effects would persist if some European

governments implemented stronger reforms in this dimension (as was the case in Spain). This is an issue for future research if such reforms across the 'EPL regular' dimension are implemented.

Despite the robustness of our findings across different groups of youths, there is still need for further research. For example, if longer time series of repeated cross-sectional labour force data become also available for other European countries, our analyses should be extended to these cases. Another data limitation lies in the large-scaled comparative longitudinal data on youths' labour market transitions and sequences, which is still lacking but would be important for better comprehension of the impact of EPL on the *dynamics* of the school-to-work transition (Brzinsky-Fay, 2007).

Notes

1 This three-level design to estimate the effects of EPL reforms has been recently introduced (Gebel and Giesecke, 2011; Dieckhoff and Steiber, 2012). However, these previous studies focused on the core workforce neglecting the situation of young people.

2 We added harmonized data from German Mikrozensus 1993–2001. We excluded the years 2010–2012 for Germany because of too small sample sizes.

3 Defining youth in terms of labour market entry instead of age is further substantiated by the fact that the typical graduation age varies strongly across ISCED categories, while cross-country variation within ISCED categories is moderate (OECD, 2014). Moreover, country-specific deviations can be considered characteristics of national education systems that do not show much temporal variation and are thus taken into account by our within-country perspective.

4 Due to data limitations we could not implement the NEET definition in our sample. Hence, we cannot account for youths who have given up searching for a job and have become discouraged workers (i.e. being inactive) in reaction to or in anticipation of scarce employment opportunities.

5 In cases of gaps in ICTWSS trend series, values for missing years were linearly interpolated.

6 We calculated this amount by multiplying the proportion of GDP that is actually spent on ALMP categories 2–7 with the GDP (US Dollar, constant prices, constant PPPs, base year 2010) and dividing by the absolute number of unemployed persons for each country and each year (Eurostat, 2015; OECD, 2015).

7 An alternative way of measuring labour market conditions, to be found in the pertinent literature, is using the adult unemployment rate. However, as EPL is known to influence both the extent and the structure of (adult) unemployment, controlling for the level of adult unemployment would introduce a highly endogenous variable leading to substantial bias in the estimation of the total effect of EPL reforms. Moreover, if adult unemployment rates are controlled for in the models, we would predict unemployment rates of the youths relative to those of adults instead of absolute youth unemployment rates. However, our focus is on the absolute effects of EPL reforms on youth labour market problems and not on youths' labour market positions vis-a-vis prime-aged workers.

8 To ensure readability of Figures 3 and 4, we refrain from showing confidence intervals in addition to the point estimates.

9 Unemployment rates are particularly low in Austria and the Netherlands (in case of high-educated youth), reaching a rate of 3 per cent or even less in some years. In contrast, in case of low-educated youth unemployment rates reach a remarkable level of about 75 per cent in Slovakia as well as about 50 per cent in Greece, Ireland, and Spain in the years of the economic crisis. With respect to variability between countries and across time, estimations of intraclass correlations (ICCs, not shown) reveal that the ratio of between-country variance to total variance is lowest for the low-educated (about 0.4 for men and 0.6 for women) and highest for high-educated youths (about 0.7 for men and 0.8 for women).

10 Temporary employment rates are particularly low in Ireland and the UK (4 per cent or even less in some years), whereas temporary employment is rather common among young workers in Spain (for example, more than 70 per cent of low-educated youths hold temporary jobs in the 1990s). Between-country differences of temporary employment rates are slightly more important than in the case of unemployment rates (ICCs are estimated to be about 0.8 for men and women in all education groups).

11 The increasing temporary employment rate in Italy, Poland, and Portugal during the years following 2007 can be seen as the continuation of a long-term trend.

12 To interpret the results correctly, it is important to keep in mind that higher (lower) values on the EPL index correspond to higher (lower) restrictions on the use of temporary employment.

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