

Running head: DOES REGULATION WORK?

Does regulation work? Temporary employment, gender and poverty in a European perspective

Wim Van Lancker

Herman Deleeck Centre for Social Policy

University of Antwerp

Sint-Jacobstraat 2

2000 Antwerpen, Belgium

Wim.VanLancker@ua.ac.be

PRELIMINARY RESULTS. PLEASE DO NOT QUOTE.

Paper presented at the 8th ESPANET Conference, *Social Policy and the Global Crisis: Consequences and Responses*, Session 9.2. Employment policies requested – social risks and risk management of globalised economy. September 2010, Budapest.

Abstract

Departing from the proliferation of nonstandard work and the growing concerns about increasing in-work poverty the main aim of this paper is to explore the relationship between nonstandard employment and the risk of living in poverty. We look at the poverty risk associated with temporary employment vis-à-vis permanent. In other words, to what extent differs temporary employment from other employment arrangements in terms of poverty risk? In doing so, we focus specifically on possible gender dimensions, because some are concerned that the impact of flexible employment will be different for men and women and that gender inequality will increase as a consequence. Finally, we aim to shed light on the effectiveness of institutions and regulations in reducing the poverty risk.

We find that temporary employment is associated with a higher poverty risk than permanent working arrangements, but the main reason for this observed difference does not stem from the type of contract *per se*, but from differences in earnings. Our analyses also showed that the low skilled and the youngest cohort face the highest risk. Moreover, the individual profile of the temporarily working poor does not differ much from the working poor in general. Interestingly, we find an unexpected gender dimension: *ceteris paribus* temporarily working women have a lower risk of living in poverty than their male counterparts. Furthermore, we show that regulations and institutions supporting dual earnership and benefit levels are most effective in reducing the poverty risk among the temporarily employed. Finally, we identify the Netherlands and Czech Republic as good practices.

Introduction

It is often said that being employed is the best strategy for an individual to prevent living in poverty, and that claim is indeed backed by a vast amount of research. (e.g. Cantillon et al., 2003; Atkinson et al., 2005; OECD, 2009) However, as in-work poverty was only a decade ago considered a marginal issue only occurring in Anglo-Saxon countries (the so-called McJobs), nowadays scholars and policymakers are more and more worried about the incidence of in-work poverty in all European member states. (Nolan & Marx, 2001; Lohmann, 2008) These worries are justified by the growing emphasis on flexibility to help increase employment rates in an attempt to adapt European labour markets to structural changes and the emergence of new risks. Since 1997, these reforms are streamlined on the European level by the *European Employment Strategy* (EES).

More flexibility on the labour market is often translated in non-standard forms of employment, assumed to improve employment chances for certain groups at risk on the labour market, such as young people and the low skilled, and to make labour cheaper for firms. However, previous research has shown that nonstandard employment can also have problematic consequences in terms of job security, income security, employer-provided social security benefits, on-the-job training et cetera. (Leschke & Watt, 2008; OECD, 2002) If the growth and distribution of flexible nonstandard work is associated with such negative consequences in terms of income security, this phenomenon could be very well related to the incidence of in-work poverty in Europe. However, research into the poverty risks associated with non-standard working contracts is rather scarce (see Debels, 2008a & 2008b, for an exception).

Furthermore, some are concerned that the impact of flexible employment will be different for men and women and that gender inequality will increase as a consequence. (Hansen, 2007)

Indeed, one has to bear in mind that women are already a more flexible workforce than men as they tend to work more in part-time arrangements because they still share the main burden of parental childcare. If a further increase in female labour market participation is achieved by non-standard working arrangements, one can easily assume that these gender inequalities will be reinforced. Tentative studies concerning the Netherlands, France and Germany showed that in these traditional male breadwinner regimes women operate as ‘second earners’ and occupy temporary, part time and flexible jobs with less protection from income loss and a widening of the gender wage gap as a consequence (an evolution coined by some as *flexploitation*). (Plantenga, Remery & Rubery, 2007; Lewis & Plomien, 2009) Moreover, the flexicurity literature assumes that labour market participation as such results in income security, which is not necessarily the case as exemplified by the growing concerns about the working poor, (Lewis & Plomien, 2009) but this issue has not yet been adequately addressed taking a gender dimension into account. (Jepsen, 2005)

Finally, it is quite established from the welfare state literature that European countries differ in the extent of their social security systems and labour market regulations; differences that can lead to different poverty outcomes. In this respect, it would be of great interest to know which labour market institutions and regulations are effective in reducing the poverty risk among the temporarily employed. Previous research has engaged in such endeavor on in-work poverty in general (cf. Lohmann, 2009), but did not address the specific case of temporary employment.

Given the above, the main aim of this paper is to explore the relationship between temporary employment and the risk of living in poverty. We look at the poverty risk associated with temporary employment *vis-à-vis* permanent employment. In other words, to what extent differs temporary employment from permanent employment in terms of poverty risk? In doing

so, we focus specifically on possible gender dimensions. Furthermore, we assess the role of institutional factors in explaining cross-country differences in the poverty risk associated with the temporarily employed. Finally, as cross-country comparisons are natural by-products of European survey data we hope to reveal ‘good practices’, i.e. countries succeeding in providing adequate income security for their flexible workforce. The most straightforward to do this is to compare outcomes between countries.

The paper is organized as follows: in the next section, we elaborate on the definition and the theoretical views on temporary work and summarize previous research. The second section consists of an overview of temporary work in Europe. Thereafter, we elaborate briefly on the definition of poverty and the link with temporary work and the role of institutions. In the following part we discuss our data, variables and the analytical strategy, followed by several multivariate analyses. Finally, we sum up our results and discuss some routes for further research.

Temporary employment: concept and theory

Temporary employment is commonly seen as a form of nonstandard work (also referred to as atypical employment), which is then juxtaposed against the notion of ‘standard work’, i.e. permanent and fulltime employment. (Kalleberg, 2000) Nonstandard work is often equated to precarious or vulnerable work, but that is not necessarily the case. Part-time work on a permanent basis, for instance, is the most common form of nonstandard employment and in particular a women’s affair. Although part-time work is associated with lower hourly wages, reduced access to social benefits and limited opportunities for advancement in the job (Tam, 1997; Bardasi & Gornick, 2007), it is for the overwhelming majority a deliberate choice to be

able to combine paid work with family care. (Eurofound, 2007) This cannot be said of temporary employment whereby more than 80% of the temporarily employed report to be involuntarily engaged in this kind of contractual arrangements. (European Commission, 2002) Something that is chosen voluntarily can hardly be seen as a societal problem while an employment relation with similar possible negative consequences one is however forced to endure, can easily be regarded as ‘precarious’ or ‘vulnerable’. That is the reason we are primarily interested in the negative consequences (e.g. poverty risk) of temporary working arrangements.

Temporary work is regularly defined as an “employment relationship with a limited duration”, but the exact definition is rather tricky. Critics have already pointed out that the international comparison of temporary work is sometimes problematic, because of the different meanings attached to certain forms of temporary work in different countries. (Campbell & Burgess, 2001; Conley, 2008) However, our dataset does not allow to distinguish between different forms of temporary work. In what follows, people with a seasonal job, agency work, specific training contracts and fixed-term contracts are taken together under the same umbrella of temporary employment.

In the scientific literature on the matter, the consequences of temporary work often have a ‘double meaning’. On the one hand, temporary employment is regarded as a stepping-stone or a springboard to a permanent contract (Atkinson et al., 1996) or as a tool for maintaining a flexible lifestyle. On the other hand, temporary jobs are seen as dead-ends or cheap firing devices associated with higher poverty risks and less career possibilities. (Debels, 2005) Most research shows that the majority of temporary worker move into permanent jobs within two year, although it varies depending on the type of temporary employment relations (e.g. seasonal workers have less chance to make the transition to permanent employment) and on individual

characteristics. For instance, the chance of finding permanent employment is lower (and the risk of entering non-employment is higher) for the less educated, older workers, workers who have already been unemployed et cetera. (OECD, 2009; Debels, 2008b)

If the poverty risk and thus the degree of income security associated with temporary employment is higher compared with other employment arrangements, it can be expected that especially those groups who cannot make the transition to permanent work, will be hit the hardest.

The European world of temporary employment

In contemporary debates about non-standard work it is often forgotten that also in earlier days labour contracts did not always conform to the so-called standard model of permanent fulltime work and that, despite the rhetoric, nowadays standard working contracts are still the norm in Europe. (Auer & Cazes, 2003) Nevertheless, atypical working relations such as temporary or part-time arrangements are on the rise. Eurostat reports an overall increase in the share of temporary workers in all countries of the European Union from 10.3% in 1987 to 14.3% in 2009, and an increase in part-time working arrangements from 12.7% in 1987 to 18.1% in 2009.

These average figures disguise vast differences between countries. The European labour market is a patchwork of different outcomes, institutions, policies and structures rather than a homogeneous area and this is also reflected in the incidence of temporary employment. Figure 1 shows the share of temporary workers in the total workforce for all of the countries in our sample. The lowest temporary employment rates are found in United Kingdom and Austria with figures ranging from only 4% to 6% of the workforce. In the Mediterranean countries and

Poland, temporary employees make up around a quarter of the workforce. Most countries, however, represent rates between 8% and 14%. One of the main aims of this paper is to look at gender differences, based on the expectation that the impact of flexible work will be different for men and women. But how do they relate to each other in the share of temporary work?

Figure 2 shows the share of males and females in the temporary workforce. Again we cannot distinguish clear patterns and *prima facie* no notable gender differences can be observed. On the one hand, in 12 of the countries in our sample more women than men are employed with temporary contracts. However, these differences are rather modest with the exception of Belgium, Sweden and Finland where around 60% of the temporary workforce is female. On the other hand, in the remaining 6 countries more men than women are temporary employed.

Labour market research shows that there is a strong correlation between the share of temporary employment and the *employment protection legislation* (EPL) on standard (fulltime permanent) contracts. (Chung, 2005) According to the OECD summary indicator on employment protection legislation, countries such as the UK, Ireland and most of the new member states display comparatively low overall EPL whereas Portugal and Spain have the highest overall EPL scores (OECD: 2004). We indeed observe in Figure 1 that Spain and Portugal are among the countries with the highest share of tempwork, while UK (and to a lesser extent) Ireland show the opposite pattern. One of the hypotheses for this phenomenon is that when employment legislation is strict, hiring and firing costs are high and firms turn to the less regulated temporary working contracts to “adjust their workforce to economic cycles.” (Chung, 2005: 8) *Vice versa*, if the regulations for ‘standard’ working contract are less strict, the need to hire temporary workers will be lower and thus result in lower shares of temporary work. In other words, the more rigid the labour market, the more employers make use of temporary contracts to avoid the

stringent rules. In this same line of reasoning, it could also be the case that, if regulations on temporary work are strict, this also results in lower shares of temporary work. The legislative and institutional diversity in member states' regulations is however not the only contributing factor to the incidence of temporary work. There is some evidence that temporary jobs emerge due to an increased employers' demand for flexible labour (as a response to protracted recession, see OECD, 2009). Another contributing factor is the high share of agricultural jobs or the demand for seasonal workers in some countries (notably Greece). The way temporary work is defined in a certain country can also play a decisive role. For instance, the relative high shares of France and Italy are due to the growth in temporary agency work, while in Spain the majority of temporary employment consists of fixed-term contracts. (OECD, 2009) Of course, the rise in temporary employment can also stem from the demand-side, driven by employees seeking better or more flexible ways to combine work and family duties although this only seems to be the case for high skilled and very specific occupations. (Burgoon & Dekker, 2010) In sum, the diversity in the share of temporary work in Europe is correlated with the legislative and institutional regulations of the member states, but other determinants are also at play.

[Figure 1 about here]

[Figure 2 about here]

In this descriptive account of the European world of temporary world, one final issue has to be assessed: who are the temporarily employed? Previous research showed that especially the young and the less skilled are prone to be temporarily employed, and we also observe this pattern in our data. Table 1 gives the share of temporary workers by gender, education and age category,

and the largest proportion of temporary workers is found in the youngest age category. More than a quarter of the employed under 25 have a temporary working contract. This decreases to a share of 6% in the oldest cohorts. Moreover, the low skilled are proportionally more at work with a temporary contract than their higher skilled counterparts, ranging from around 30% for the youngest cohorts to circa 10% for the oldest. Finally, looking again at the gender dimension we do not observe clear differences between men and women. Both follow roughly the same pattern, with a slightly higher share of men in the youngest and of women in the older cohorts.

[Table 1 about here]

Poverty and temporary employment

Poverty is a concept with various value-laden meanings and consequently, no general accepted definition of poverty exists (see Atkinson et al., 2002, for an overview). The problem lies in the definition of a ‘poverty line’ and in general two methods can be distinguished in the literature. First, poverty can be measured in an absolute way. Rowntree (1901), for instance, pioneered in defining an absolute poverty threshold based on basic necessities every person should have access to. Another example of an absolute poverty line is the one applied by the World Bank. Second, poverty can be viewed as being relative to the standard of living in the society to which people belong. (Townsend, 1979) In other words, individuals are poor relative to the level of living standard in their respective countries, and in comparative research this method has become the *de facto* standard way of measuring poverty risk. In this paper we do not make an exception to that rule.

To measure poverty, we make use of the at-risk-of-poverty indicator used in the European Union to assess the advancement of poverty and social exclusion. This indicator is one of the most prominent amongst the “Laeken indicators” as part of the Lisbon strategy and also one of the three main indicators to monitor the progress towards the poverty goals adopted by the recent “Europe 2020” strategy. (European Council, 2010) It should be stressed that, although poverty is a clear multidimensional phenomenon, we are looking at relative income-based poverty for reasons of comparability and data-availability. (OECD, 2009) People are considered to be poor if they have an equivalent household income below 60 per cent of the median equivalent household income in the country of residence. The variable is constructed by dividing the disposable household income by the modified OECD equivalence scale (assigning a value of 1 to the household head, of 0.5 to each additional adult member and of 0.3 to each child) to adjust for household composition. This way, we obtain an equivalized income which is then allocated to all household members. If an individual is depicted as living in poverty or facing a poverty risk, it thus means this person is living in a household with an equivalized income lower than the 60% threshold of the national median income.

In the introductory section, we stated that being at work was one of the best strategies to prevent living in poverty, and a look at the descriptive poverty rates for the countries in our sample confirms that statement (Table 2). First of all, the ‘total’ column shows that the incidence of poverty differs greatly among member states (ranging from 9% in Czech Republic to 20% in Greece and Spain). Second, in all of the countries in our sample, employees face a much lower poverty risk than the unemployed. We observe that the poverty risk for unemployed persons ranges from 28% in Ireland to 60% in Germany. However, while most countries show poverty figures for employees around 5-6% (making in-work poverty modest but not at all negligible), in

some countries the incidence of poverty among employees is quite significant (e.g. Poland and UK). Looking at the difference between employees with a permanent contract and those temporarily employed, we again notice great variety between countries, ranging from 4% in the Netherlands to over 20% in Norway. In all countries but the Netherlands, temporary workers face a higher poverty risk than their permanent working counterparts. The difference in poverty rates ranges from 3% in Austria to 16% in Norway. Especially the huge gap between permanent and temporary workers at risk of living in poverty in the Nordics, traditionally seen as the ‘best practices’ on the continent, is striking.

[Table 2 about here]

To assess the supposed relationship between temporary employment and the working poor, we plotted the share of temporary workers against the share of temporary workers living in poverty in European countries (Figure 3). This way, we obtain a better view of the cross-country differences in the association between poverty and the temporarily employed. *Prima facie*, there is no clear link between the number of temporary workers and the poverty risk associated with such contract ($r = -0.1$, $p > 0.05$).

[Figure 3 about here]

To facilitate the interpretation of the scatter plot, we roughly divide the countries in four groups using the average numbers as intersections. First, we notice a group of countries with a low share of temporary workers and a modest poverty risk: United Kingdom and Austria (with

Belgium and Slovak Republic as borderline cases. Second, a group of countries with a lower than average share of tempworkers who face a higher than average poverty risk can be distinguished: Germany and – perhaps more surprising – Norway with Ireland and Hungary as more ambiguous cases. Third, a group of countries combine a large number of temporarily employees with a higher than average poverty risk: the Mediterranean countries (with Portugal as borderline case), Poland, France and the Nordic countries Finland and Sweden. Finally, only two countries succeed in accommodating a larger than average temporary workforce with a low poverty risk: Czech Republic and notably the Netherlands. In sum, the European labour market is characterized by great diversity, not only in the incidence of temporary employment but also in the poverty risk associated with those arrangements. As a consequence, the link between the two is rather ambiguous.

The increased attention for the working poor has led to a proliferation of sociological and economical studies on this phenomenon, and these analyses showed that the profile of the working poor does not differ very much from the poor in general. Most vulnerable to poverty are individuals living in households with ‘higher needs’ (single earner household, single mother families, having children) or individuals possessing ‘less profitable resources’ (being low skilled, lower occupations, less labour market experience). (Bardone & Guio, 2005; Nolan & Marx, 2000; Lohmann, 2009; Brady et al., 2010) The question is whether these mechanisms are equally determining in the case of the temporarily employed.

The role of regulations

It can easily be assumed that labour market institutions and regulations influence the incidence and extent of poverty as well as the incidence of temporary employment arrangements

in a given country. However, which regulations do specifically work in reducing poverty among the temporarily employed? Policies addressing the working poor cannot be seen apart from more general policies combating poverty (social welfare transfers and benefits) nor from general labour market policies and regulations (wage policies, unemployment benefits, employment protection legislation et cetera).

In the previous section, the relationship between the employment protection legislation (EPL) and the incidence of temporary work was outlined already but it can also be assumed that EPL will exert an influence on the poverty risk associated with temporary work. Countries with the strictest regulations of permanent employment are also among the segmented labour markets (Debels, 2008b) with more precariousness for the outsiders as a consequence. As such, strict EPL can influence the extent of in-work poverty.

One of the domains where labour market institutions are supposed to play an important role is the distribution of wages and the extent of income inequality. In most of the European countries, minimum wages are statutory set by the government, mostly in dialogue with the social partners. Because the temporarily employed earn on average significantly less per hour than their permanent counterparts (Amuedo-Dorantes & Serrano-Padial, 2010), an effect of minimum wages is to be expected. However, the impact of minimum wages on poverty reduction is not clear-cut. On the one hand, it is argued that minimum wages increase the unemployment risk (and thus the poverty risk) of low skilled workers, while on the other it is stated that they improve the living conditions of workers. (Eurofound, 2010) The effect seems to depend on the coverage and the level of minimum wages: if they are low enough the impact on unemployment will be modest, but in that case the same will hold for the poverty reducing effect. And indeed, the level of minimum wages (measured as a proportion of average monthly earnings in services

and industry) in European countries with statutory wage setting tends to be set below the poverty line. (Eurofound, 2010, p. 16) Furthermore, it has been showed in previous research that in-work poverty not necessarily overlaps with low wage earners. (Noland & Marx, 2000) This implies that statutory minimum wages are expected to only have a minimal impact on the reduction of poverty among the temporarily employed. However, other elements of the system of wage-setting are expected to play a more decisive role. For instance, it has been shown empirically that centralized bargaining encourages wage equality. (Golden & Londregan, 2006; Kahn, 2007) In other words, the more centralized and coordinated the wage bargaining system, the more compressed the wage distribution becomes. As a consequence, not minimum wages *per se*, but the system of wage-setting should influence the extent of in-work poverty.

More general anti-poverty institutions are the availability and level of social benefits and transfers. (Lohmann, 2009) These institutions can influence the level of in-work poverty in several ways. First, the level of unemployment benefits influence the wages employees are rationally willing to accept. Second, other members of the household can be eligible for benefits which will increase the household income and as a consequence reduce the risk of living in poverty. (Gardiner and Millar, 2006) Third, in some countries low-wage workers (think about the wage differences between permanent and temporary workers) are eligible for in-work benefits. All together, we can assume that the level of benefits in a given country will influence the odds for temporary workers to face a poverty risk.

Finally, an important aspect of labour market policies are policies designed to support dual earnership and to alleviate the 'cost' (e.g. reducing working time or temporarily leaving the labour market) of raising children, such as family services (e.g. childcare provisions) and family benefits (e.g. child benefits). The former is explicitly designed to allow (in most cases) women to

remain attached to the labour market and to add an extra income to the household income. As described above, the household structure is of uttermost importance in explaining the incidence of the working poor. The latter reduces the financial impact of having children by providing benefits topping up the household income. The larger the household, the larger the (financial) needs of household and the greater their poverty risk. Although they are not targeted at the working poor, it is to be expected that poor households will benefit greatly from both institutions (e.g. Marx et al., 2009).

To analyze the effect (or better: the association) of regulations and policies on poverty among the temporarily employed, one has to overcome two problems. First of all, policies may interact with each other and come as one ‘policy package’ which makes it difficult to disentangle the influence of one single policy measure. Second, policies and regulations are sometimes aimed at specific groups of employees. Family benefits, for instance, are aimed at reducing the cost of having children, while family services such as childcare should allow both partners to engage in paid labour by externalizing parental care. Next to this, wage-setting institutions such as bargaining centralization lower wage inequality and should in particular compress wage dispersion at the bottom of the pay distribution. In other words, wage-setting institutions should affect in particular the lower occupations – and thus the low skilled. Finally, the same reasoning holds for the level of benefits. In most welfare states only employees who have contributed long enough to the social security system are eligible for (full) unemployment benefits. As a consequence, it can easily be assumed that the poverty reducing effects of such benefits should be higher for older workers. (Lohmann, 2009)

By taking into account the differentiated impact of policies on different groups and by following a step-by-step approach to disentangle the effect of single policy measures from the

whole policy package, we aim to shed some light on the ‘title question’ of this paper: do regulations work in reducing the poverty risk among the temporarily employed?

Hypotheses

Our descriptive analysis shows that temporary workers face higher poverty risks than permanent workers. However, is this difference due to the type of contract or are other factors at play (e.g. selection bias)? It could for instance be the case that temporary workers are more lowly skilled or live more in detrimental household situations (e.g. more sole earner families). To assess the real impact of the type of contract on the risk of poverty, we engage in multivariate analyses in the next part of this paper. Based on the theoretical expectations derived from the previous sections, we expect to find the following:

- Controlling for individual characteristics and differentiating household structures and skill levels, we expect temporary employment arrangements to be associated with higher poverty risks than permanent employment arrangements.
- The poverty risk will be higher for certain vulnerable groups more at work in temporary working arrangements, such as the young and the low skilled.
- Although no clear gender differences can be observed in a descriptive way, we expect temporarily employed women to be more vulnerable to be at risk of poverty than men.
- We observed that some countries combine a high poverty risk for a large temporary workforce while others seem to succeed in reducing that risk. Therefore we expect to find cross-country differences, even after controlling for compositional effects.

- Given the expected cross-country differences, we expect that (the interplay of) several regulations and labour market institutions will influence the incidence of poverty among the temporarily employed.

Data, Method and Variables

Data

For our empirical analysis, we draw data from the Survey on Living and Income Conditions (EU-SILC 2008) which has 2007 as income reference year. The SILC was officially established in 2004 as a replacement of the EHCP (European Community Household Panel). The survey is conducted annually on a representative panel of households in each member state of the EU. We selected 18 European Union member states: Austria, Belgium, Czech Republic, Germany, Spain, Finland, France, Greece, Hungary, Ireland, Italy, The Netherlands, Norway, Poland, Portugal, Sweden, Slovak Republic and United Kingdom. It has to be noted that we draw data from the 2007 wave for United Kingdom and France.¹

The choice of the countries has been constrained by the availability of data on ‘type of contract’ and on the indicators concerning regulations and institutions. As a consequence, we had to exclude Denmark, the Baltics, Bulgaria and Slovenia. Due to lack of sufficient cases, we also excluded Iceland, Estonia, Cyprus and Luxemburg. Our sample consists of all employees at working age (16-65), which leaves us with 98.146 observations. The self-employed are excluded from the analysis due to unreliable income information. This is not without significance, as being self-employed often is seen as a specific form of flexibility. We have to bear this in mind when interpreting the results. Table 3 shows the unweighted observations per country.

[Table 3 about here]

Variables

The dependent variable in this dataset is a binary indicator whether an individual lives in poverty. Following common EU practice, people are considered to be poor if they have an equivalent household income below 60 per cent of the median equivalent household income in the country of residence. The descriptives are showed in Table 4.

The main explanatory variable of this analysis is the variable *type of contract* because we are in the first place interested in the poverty risk associated with temporary contracts in comparison with permanent employment. Another explanatory variable is a dummy for *gender* (1 = women). Furthermore, because we know from the descriptive section of this paper that specific groups in the workforce are more likely to work with temporary contracts such as the young and the low skilled, we also include 5 *age categories* (ten-year intervals: 16-25, 26-35, 36-45, 46-55, 56-65) and the *educational level* (low, medium and high education based on the ISCED-97 classification).

The composition of the household is of uttermost importance to control for, as previous research showed that it plays a crucial role in reinforcing or limiting the risk of in-work poverty (Nolan & Marx, 2000; *supra*) and single earner households are much more vulnerable to working poverty than dual earner households. (Bardone & Guio, 2005) Therefore we include the *number of children, having a partner* (1 = yes, 0 = no, not only married couples but also cohabiting is included) and living in a *single* (=0) or *dual earner household* (=1). As a final explanatory dimension, we include the individual gross monthly earnings. Although it was showed above that the overlap between low pay and in-work poverty is rather modest (Marx et

al., 2009), it is necessary to control for this because possible gender differences could be a reflection of the gender wage gap rather than real gendered effects of the working contract. Furthermore, temporary employment is associated with lower earnings (e.g. Kahn, 2007) and this difference could very well be the cause of differences in poverty incidence between permanent and temporary contracts. To make the wages comparable across countries, the variable is z-standardized.

[Table 4 about here]

The set of control variables includes individual, household and workplace characteristics. On the individual level, nationality is coded in two dummies reflecting whether the *country of origin* is inside or outside the European Union. It can be expected that migrants will have a greater poverty risk because of their more precarious position in the labour market. (Lohmann, 2009) Furthermore, we include a crude measure of *occupational class* (based on ISCO-88 classifications). We classify employees in four ‘classes’: professionals (reference category), non-manual workers, skilled manual workers and workers with an elementary occupation. Members of the lower occupational classes typically have less access to valued resources such as education, income and status. (Heyns, 2005) Therefore we can expect that the effect of temporary work differs for lower and higher occupational classes and we have to control for this effect.

We also control for workplace characteristics: the industry sector of the employer is measured in 8 aggregated categories according to the NACE classification. This is necessary for our purpose, because temporary work tends to be concentrated in certain sectors, such as the

distribution and hotel sector and the public administration. (Conley, 2003) Furthermore, although there are no clear gender differences in the overall rates of temporary work (*supra*), some occupations are clearly gendered: about 43% of temporary working women in our dataset are doing so in the public sector, against only 17% of the men.

Finally, we control for working part-time by the inclusion of a dummy variable *working time* (1 = working part-time) and we account for *work experience* by including four dummies (< 5 years; 5-10 years; 10-20 years; more than 20 years).

Macro variables

To test the effect of institutions and regulations, we include several variables on the country level, composed from different sources. First, we include the OECD *EPL indicator*. The OECD provides a summary index of the strictness of employment regulations and is composed of three components (protection for regular worker, requirements for collective dismissal and regulation of temporary and fixed-term employment). The higher the index, the more strict the EPL. Second, as a representation of the wage-setting system, we use an index of *wage bargaining centralization*. This index is constructed by using the ‘summary measure of centralization and coordination of union wage bargaining’ from the ICTWWS (Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts) database. The higher the index, the more centralized and coordinated the wage bargaining system.

Third, concerning the level of benefits and transfers, we use the average net *unemployment benefit replacement rate* (calculated as a % of the average wage of a production worker over a 5-year period following unemployment) derived from the OECD indicators on benefits and wages. Fourth, as for the dual earner and family policies, we include the level of

public expenditure (as a percentage of GDP) for *family services* (in kind, such as childcare provisions) and *family benefits* (cash transfers, such as child benefits) respectively.

To exclude the influence of exogenous factors such as economic fluctuations we control for the state of the labour market and the affluence of countries by including the *unemployment rate* and the *GDP per capita* for the year 2007, derived from the EUROSTAT database.

Descriptives of the macro variables are found in table 5.

[Table 5 about here]

Method and strategy

Because we are dealing with hierarchical data (individuals are nested in countries) and our dependent variable is a binary indicator of whether a person is living in poverty or not, we apply a multilevel logistic regression models with country as the higher level variable (*xtmelogit* command in STATA version 11). A multilevel design takes the hierarchical structure of our data explicitly into account and yields less biased standard errors than a regular logistic regression model. (Hox, 2002) An additional advantage of multilevel models is that cross-country variation in the odds of living in poverty can be modeled while simultaneously controlling for individual-level characteristics. (Rabe-Hesketh & Skrondal, 2008) We use the Maximum Likelihood procedure as our estimation fit, and the deviance ($-2 * \text{LogLikelihood}$) to estimate the fit of the models. Methodological note: we bootstrapped all of our statistical models with 250 repetitions to further correct the standard errors. The reason for this is that poverty is measured at the household level while we are interested in the poverty risk of individuals. If we ignore this fact,

our models will yield biased standard errors due to clustering within households despite of the multilevel design.

Our analytical strategy is as follows. First, we estimate several logistic multilevel models on the full sample to analyze the poverty risk associated with individuals' type of contract (permanent or temporary) while controlling for compositional effects. Second, we use a subsample of only temporary workers in order to look into the gender dimension of the associated poverty risk. Third, we engage in an analysis of cross-country differences and finally we test the effect of the macro-level regulations. To make the model as straightforward as possible, we use interactions to model the poverty risk for different groups.

Results

We start our analysis with an empty model (null model or baseline model, not shown) to analyze the between-country variance without considering any control or explanatory variable on the individual level. We calculate the intra class correlation coefficient (ICC) as 0.05, indicating that only 5% of the residual variation in poverty risk can be explained by country-level differences. This is an interesting observation, because it means that almost all variation in the odds of living in poverty in our sample is attributable to differences between individuals. This does not mean, however, that the country-level is negligible, only that we cannot explain much by looking at pure country-differences. To explore whether a multilevel approach is appropriate given the small ICC, we compared the empty model with a standard logistic regression model using a likelihood-ratio test. This showed that we can reject the null hypothesis that the variance at the country-level is equal to zero ($p < 0.001$), pointing to the relevance of using a multilevel approach.

Table 6 presents the four models of our first analysis. In the first model, all explanatory variables on the individual and the household level are included. In the second model, wage information is added whereby the third model contains all control variables.

The main explanatory variable of interest ('type of contract) yields highly significant results. Compared with a permanent, the odds to live in poverty are increased with a factor 2.3 for temporary workers. This confirms our assumption that temporary work is, *ceteris paribus*, associated with a higher poverty risk than permanent employment relationships. Contrary to our expectations, we observe that female employees have a lower risk of living in poverty than their male counterparts. However, we are especially interested in the possible gender differentiation within the group of workers with a temporary contract. In the second part of the analysis (*infra*), we elaborate on this more in-depth. As for the other explanatory variables, we find highly significant effects of household characteristics on the odds of living in poverty, confirming previous research that the composition of the household is of uttermost importance to reinforce or weaken the poverty risk. (Nolan & Marx, 2000; Debels, 2008a) Having children increases the risk of living in poverty and the more children present in the household, the stronger this effect (if there are three or more children present, the odds are 6 times as high compared with a childless household). Living in a dual earner household decreases the odds of living in poverty compared to single earner households (OR: 0.14; 95% CI: 0.13-0.15).

[Table 6 about here]

Having a partner increases the risk of living in poverty, which is not unexpected because it merely reflects the effect of having a non-working spouse (as we control for dual earnership).

The relevant element is the activity status of a possible partner (because an extra income provides in most cases sufficient protection against poverty), not having a partner as such. We also find effects of age and education. As expected, being low skilled (OR: 1.97; 95% CI: 1.82-2.14) increases the odds of living in poverty while the opposite holds for the high skilled (OR: 0.37; 95% CI: 0.34-0.41). Next to this, we find that young employees have a higher risk of living in poverty, while this effect decreases towards the older cohorts. Individuals who were born in another country have higher odds of living in poverty (OR: 1.53; 95% CI: 1.25-1.87), with a stronger effect for people coming from outside the European Union (OR: 2.33; 95% CI: 2.08-2.62).

In the second model, we added wage information to assess the effect of lower wages associated with temporary employment on the differences with permanent employment *qua* poverty risk. We find a strong and very significant effect of wages on the risk of living in poverty: the higher one's earnings, the lower the odds to live in poverty which is quite straightforward. More interestingly, however, is the effect of the inclusion of the wage variable on the differences in poverty risk between permanent and temporary working arrangements. Temporary employment is still associated with a higher poverty risk, but to a much lesser extent (OR: 1.16; 95% CI: 1.07-1.27). Moreover, the differences in poverty risk between men and women are becoming much larger, showing that they at least partly stem from the gender wage gap. In the third model, we included all the workplace and occupational controls, but the estimates and significance levels remain roughly the same.

To analyze the differences in poverty risk between permanent and temporary working contracts and the effect of wages in a more profound way, we calculated predicted probabilities

for single and dual earners and different skill levels, before and after the inclusion of the wage variable. The results are given in Figure 4 and Figure 5.

[Figure 4 about here]

[Figure 5 about here]

The probabilities to live in poverty are intertwined with the household situation, individual skill level and activity status and some interesting observations can be made. Firstly, differences in earnings between permanent and temporary employees explains a great part of the poverty gap between the two arrangements. Figure 4 shows that, without taking wage differences into account, temporary employment is consistently associated with higher poverty risks while those differences are almost completely vanished in Figure 5. Second, the importance of the contract type also whittles down when living in a dual earner household. The differences in poverty probabilities are small, even for low educated workers, while higher probabilities of in-work poverty are concentrated within the single earner household, and within this group temporary workers systematically have higher probabilities to end up in poverty than permanent workers. Thirdly, the low skilled are always worse off than their higher skilled counterparts and this is especially problematic in the combination with a single earner household.

In search of a gender dimension

As a second step in our analysis, we use a subsample of the temporarily employed of our dataset to analyze the possible gender dimension in the association between poverty and temporary work. First, we again estimate an empty model to test whether a multilevel approach

is appropriate and to determine the variation on the country level. Second, we estimate a fixed effects, random intercept model including the same variables to control for compositional effects (model 4). Third, we add variables to control for earnings, experience and workplace characteristics (model 5). Finally, we construct a random intercept, random slope model to assess whether the effect of gender differs across different European countries (model 6). This is a necessary endeavour, because it could very well be the case that a gender dimension is found in one country but not in another. By applying this model, it will be possible to identify whether this is the case. The models are found in Table 7.

First of all, the ICC is calculated as 0.05 which means that only 5% of the individual variation in poverty risk for this subsample of temporary workers can be explained at the country level. In other words, compositional characteristics at the individual level are just as important as in the whole sample. Looking at model 4, we observe that almost the same mechanisms as in the previous models are at play in determining the poverty risk for temporary workers. Being low skilled increases the odds (OR: 1.72; 95% CI: 1.46-2.02) while the opposite can be observed for the high skilled (OR: 0.39; 95% CI: 0.32-0.49). Furthermore, living in a dual earner household protects a tempworker against poverty (OR: 0.17; 95% CI: 0.15-0.20) *vis-à-vis* a single earner household. The same holds for the number of children: the more children in the household, the higher the poverty risk. Notable is the observation that, unlike for the full sample of workers and the unemployed, the poverty risk for temporary workers being born in an EU country is not significantly different from domestic worker. Being born outside of the EU is, however, detrimental (OR: 1.84; 95% CI: 1.48-2.30). We also find a significant effect of age: the youngest cohort has a higher poverty risk than the reference group (36-45) while the other age groups do not have a significantly different risk. The temporarily employed with reduced working time face

a greater poverty risk. Finally, gender turns out to be significant: we observe that temporary working women have lower odds to live in poverty than their male counterparts, controlling for individual and household characteristics.

In model 5, we also include wage information and workplace and occupational characteristics. We have already noticed the strong effect of including wages on the differences between permanent and temporary contracts above, but it could also be the case that the poverty risk of workers with a temporary contract is associated with their occupational status or the kind of work they do. The results are as follows: First of all, we cannot find a significant effect of the industrial sector of employees. Apparently, the sector does not matter for the risk of living in poverty. Second, we also cannot find an effect of occupational class. This is rather surprising as it was expected that the lower classes would face a higher poverty risk. However, it can be hypothesized that this effect is disguised by the educational variable: because less educated workers are in majority working in lower occupations there is a strong correlation between the two. This interpretation is supported by the behaviour of the educational variable: low education loses some of its significance. Third, the age-effect changes: only the youngest cohort has a significant greater risk of living in poverty. This shows that the groups overrepresented in temporary employment (the lowly educated and the youngest cohort) are also the groups facing the greatest poverty risk. Finally, we find as expected a significant effect of wages: the higher the monthly pay, the lower the poverty risk (OR: 0.09; 95% CI: 0.08-0.11). As a result, the variable reflecting working time becomes insignificant. This means that our wage variable captures the differences in pay that arise from working only part-time. The inclusion of the wage variable also yields a significant change in the estimates of the gender variable: we find that women with a temporary contract, controlling for individual, household and occupational variables, have an

even lower chance of living in poverty than men with a temporary contract (OR: 0.60; %95 CI: 0.50-0.72).

The next question is if this phenomenon differs between countries. It could be that the circumstances shaped by country policies shape different gender outcomes. Therefore we extend the model to allow both the intercept and the slope to test whether the effect of gender varies not only *within* but also *between* countries. Model 6 gives the results, and we observe that the variance of the gender variable at the country level is 0.002. The covariance estimate of -0.016 means that in countries with a higher than average intercept (meaning that temporary workers living in those countries have higher odds to live in poverty, taking all variables into account), the effect of gender seems to be less marked. However, to test whether this result is significant we have to perform a likelihood ratio test (comparing this model with the previous model with only a fixed gender effect). The result is 0.19 on 2 degrees of freedom [$-2 \cdot (-2483.147 - -2483.0522) = 0.19$]. The 5% of a chi-squared distribution on 2 degrees of freedom is 5.99. *Ergo*, we have to conclude that the effect of gender does not differ across countries.

[Table 7 about here]

‘Good practices’ and ‘worst cases’

In the third part of our analysis, we look into cross-country differences in the poverty risk associated with temporary employment. An advantage of using a multilevel model is that it is possible to look at the residual country variation while controlling for individual variables. In other words, the residual country variation in the individual poverty risk among tempworkers is strictly due to elements (for instance, regulations, labour market institutions or the social security

system) at the country-level. Figure 6 shows the cross-country variation. We observe that, *ceteris paribus* (controlling for individual, household and structural effects and thus assuming that all individuals living in the countries included in our sample have the same characteristics), The Netherlands and Czech Republic succeed in protecting their flexible workforce against poverty better than on average. On the other hand, in the upper right area of the graph (which represents the bottom of the “league table”) we notice significant negative effects for Spain, Portugal and Poland: in these countries tempworkers face a higher poverty risk than on average, all else being equal. The log odds for individual temporary workers to end up in poverty in the other countries are not significantly different from the overall average. Compared with the matrix where we plotted the share of temporary workers against the share of temporary workers living in poverty in European countries some interesting observations can be made.

[Figure 6 about here]

First, The Netherlands and Czech Republic clearly are ‘good practices’: they succeed in reducing the poverty risk of their fairly large temporary workforce, even if we control for other possible explanations. Second, Sweden moves up to the fourth place (they do not perform worse than average) in our ranking whilst they combine a poverty risk of 18% with a larger than average temporary workforce. Their ‘good’ performance shows that the reason for the high poverty rate lies in the composition of the temporary workforce, and is not necessarily country-related. Third, Spain, Portugal and Poland clearly are laggards: they do not succeed in protecting their temporary workers against poverty.

Does regulation work?

In the final part of our analysis, we assess whether regulations do work in reducing the poverty risk among the temporarily employed. If so, we also want to know specifically which ones prove to be effective. Given the low country-level variance and the difficulty to disentangle the effect of a single institution out of a country's policy package, we start by examining each single macro variable (Model 7a-f) and we expand these models step by step (Model 8-10, see Lohmann, 2009, for a similar strategy). The correlation table of the macro variables is to be found in table 8, the results are shown in table 9.

[Table 8 about here]

[Table 9 about here]

In a bivariate perspective (model 7), we only observe an effect of the unemployment benefit replacement rate. The higher the replacement rate, the greater the effect on poverty reduction. The effect remains significant when taking the whole policy package into account (model 8), even when controlling for exogenous factors, but when including all individual-level variables, the effect disappears (model 10). However, we expected that this institution should be more effective among older employees. Cross-level interactions (Model 14 in Table 10) indeed show that this is the case. The level of the unemployment benefits is significantly reducing the poverty risk among older temporary employees, while for the youngest cohort the effect is even adverse.

We also find a significant effect of family services in the full model (model 10). Apparently, policies supporting dual earnership are effectively associated with lower poverty

rates, while no such effect can be observed for family benefits. However, we formulated the expectation that both policy measures would be specifically effective for families with children. Cross-level interactions reveal that this true for both measures (Model 11 & Model 12). The larger the households, the more significant estimates we observe.

The bargaining centralization index does not yield the expected results. We only find a significant estimate in Model 9, but if we include micro-level influences the effect disappears. If we test the hypothesis that bargaining centralization would especially influence individuals at the bottom of the wage distribution (Model 13), we come to the same conclusion: no significant influence can be distinguished.

Finally, we find that the degree of poverty reduction is lower in countries with more strict EPL (model 8), but this effect whittles down to insignificance controlling for compositional effects and taking the whole policy package into account. Hence, we cannot but conclude that strict EPL does not have a profound effect on the poverty incidence among temporary employees.

Discussion

Departing from the proliferation of non-standard work and the growing concerns about increasing in-work poverty, we analyzed the poverty risk associated with temporary work in the highly diverse labour markets of Europe with special attention for possible gender dimensions, and tested the effectiveness of several labour market institutions and regulations in reducing that poverty risk.

Our findings can be summarized as follows. First of all, we find that, controlling for compositional differences, temporary workers face a higher poverty risk than their permanent

counterparts. These differences stem, however, from the differences in earnings. Assuming that temporary employees receive the same pay as permanent employees, the poverty gap attenuates almost completely.

In a second model, we specifically look at the group of temporary workers. We find that the determinants of their poverty risk are the same as identified by previous research about the working poor in general: age (younger workers are more at risk), educational level (being low skilled increases while being higher educated reduces the poverty risk) and household composition (having children and living in a single earner household increase the poverty risk). It thus seems that temporary employees do not differ very much from their permanent counterparts with regard to the causes and mechanisms of becoming working poor. The type of industry nor the type of occupation are statistically relevant in this respect. It is interesting to note that the groups that are overrepresented in the temporary workforce (the lowly educated and the youngest cohort) are also most at risk, in particular if they live in a single household. It is thus not necessarily true that those who cannot make the transition to permanent work are among the hardest hit, because we cannot find a significant effect for older workers.

Third, we observe a gender dimension but in the rather unexpected direction: we find, controlling for individual and household characteristics and taking wage differences into account, that females working with a temporary contract have less chance to end up in poverty compared with their male counterparts. The reason for this unexpected result could stem from the household structures in European labour markets: When women are working on temporary basis, they are more often secondary earners with a working spouse. Additional analyses (not shown) indeed reveal that women are more often than men living in dual earner households.

Furthermore, we find no cross-country differences for this gender dimension: the finding is valid for all countries in our sample.

Fourth, we identify The Netherlands and Czech Republic as countries where temporary workers are better off: they face a less than average poverty risk. In Poland, Portugal and Spain the opposite is the case: these countries perform worse than average and do not succeed in protecting their temporary workforce.

Finally, we analyzed the effect of regulations and institutions and *they do work*, although not all to the same extent and often only for specific targeted groups. This paper demonstrated that policies to reduce the cost of raising children influence the poverty risk among families with two or more children and that the level of unemployment benefits influences the poverty risk for the oldest cohort of temporary employees. The strictness of employment protection legislation and wage-setting institutions do not significantly reduce the poverty risk of tempworkers. Most importantly, however, is the robust finding that policies supporting dual earnership, such as childcare provisions, effectively reduce the poverty risk of the temporarily employed.

We showed that the main reason for observed differences in poverty risk between permanent and temporary employment arrangements do not stem from the type of contract *per se*, but from differences in earnings, and that regulations do influence the incidence of working poverty among the temporarily employed. However, these findings should not distract us from the fact that the most important determinants of becoming working poor lie at the individual level. Policies should therefore not be focused at the phenomenon of the working poor *per se* but aimed at raising the employability of those individuals having a vulnerable position on the labour market, encompassed in a broad system of benefits and dual earnership support.

Notes

- 1 There is no data available on the type of contract in the 2008 wave of EU-SILC for United Kingdom while France is missing altogether.

1 References

- AMUEDO-DORANTES, C. & SERRANO-PADIAL, R. (2010) "Labour market flexibility and poverty dynamics." *Labour Economics*, 17, pp. 632-642.
- ATKINSON, A.B., CANTILLON, B., MARLIER, E. & NOLAN, B. (2002), *Social Indicators. The EU and Social Inclusion*. Oxford: Oxford University Press.
- ATKINSON, A.B., CANTILLON, B., MARLIER, E. & NOLAN, B. (2005), *Taking Forward the EU Social Inclusion Process*. Luxembourg: Le Gouvernement du Grand-Duché de Luxembourg. [http://www.ceps.lu/eu2005_lu/inclusion/report/final_report.pdf]
- ATKINSON, J., RICK, J., MORRIS, S., & WILLIAMS, M. (1996). *Temporary work and the labour market*. Brighton: The Institute of Employment Studies
- AUER, P. & CAZES, S. (eds.) (2003), *Employment Stability in an Age of Flexibility. Evidence from Industrialized Countries*. Geneva: ILO.
- BARDASI, E. & GORNICK, J. (2007), "Women's Part-Time Wage Penalties Across Countries," Luxembourg Income Study Working Paper #467.
- BARDONE, L. & GUIO, A.-C. (2005). "In-work Poverty." In *Statistics in Focus – population and social conditions*. Luxemburg: Eurostat.
- BURGOON, B. & DEKKER, F. (2010), "Flexible employment, economic insecurity and social policy preferences in Europe", *Journal of European Social Policy*, 20, 2, 126-141.
- CAMPBELL, I. & BURGESS, J. (2001) "Casual Employment in Australia and Temporary Employment in Europe: Developing a Cross-National Comparison." *Work, Employment & Society*, 15(1), pp. 171-184.
- CANTILLON, B., MARX, I. & VAN DEN BOSCH, K. (2003), The Puzzle of Egalitarianism. About the relationships between employment, wage inequality, social expenditures and poverty. *European Journal of Social Security*, 5, 2, 108-127.
- CHUNG, H. (2005), Different Strategies for Flexibility. Employment protection and temporary employment: a study of cross-national variance on temporary employment in 19 OECD countries. Paper presented at the TLM.NET Conference on Managing Social Risks through Transitional Labour Markets, 19-21 May 2005, Academy of Social Sciences Centre, Budapest.
- CONLEY, H. (2008) "The nightmare of temporary work: a comment on Fevre." *Work, Employment & Society*, 22(4), pp. 731-736.
- CONLEY, H. (2003) "Temporary Work in the Public Services: Implications for Equal Opportunities." *Gender, Work and Occupations*, 10(4), pp. 455-477.

DEBELS, A. (2008a), Transitions out of temporary jobs: consequences for Employment and Poverty across Europe. In: Muffels, R.J. (ed.), *Flexibility and employment security in Europe: labour markets in transition*. Cheltenham: Edward Elgar, pp. 51-77.

DEBELS, A. (2008b), *Flexibility and Insecurity. The Impact of European Variants of Labour Market Flexibility on Employment, Income and Poverty Dynamics*. Doctoral dissertation. Leuven: Katholieke Universiteit Leuven.

EMCO (2009), Monitoring and analysis of Flexicurity policies, Report endorsed by EMCO on 24 June 2009.

EUROFOUND (2010) *Working poor in Europe*. Dublin.

EUROFOUND (2007) *Part-time work in Europe*. Dublin.

EUROPEAN COMMISSION (2002), *Joint Employment Report, Employment and Social Affairs*. Luxembourg: Office for Official Publications of the European Communities.

EUROPEAN COUNCIL (2010), Conclusions 17 June 2010, EUCO 13/10. Brussels: Council of the European Union.

JEPSEN, M. (2005), "Work flexibility and the reconciliation of family and working life: What is the role of flexicurity?", Paper for the Forum on Reconciling Labour Flexibility with Social Cohesion, Brussels, Council of Europe, 17-18 November.

GARDINER, K. & MILLAR, J. (2006) "How Low-Paid Employees Avoid Poverty: An Analysis by Family Type and Household Structure." *Journal of Social Policy*, 35(3), pp. 351-369.

GOLDEN, M.A. & LONDREGAN, J.B. (2006) "Centralization of bargaining and wage inequality: A correction of Wallerstein." *American Journal of Political Science*, 50(1), pp. 208-213.

HANSEN, L. L. (2007), "From Flexicurity to FlexicArity? Gendered perspectives on the Danish model", *Journal of Social Sciences*, 3, 2, 88-93.

HEYNS, B. (2005) "Emerging inequalities in Central and Eastern Europe", *Annual Review of Sociology*, 31, 163-97.

HOX, J. (2002), *Multilevel Analysis. Techniques and Applications*. London: Lawrence Erlbaum Associates.

KAHN, L.M. (2007). "The impact of wage-setting institutions on the incidence of public employment in the OECD: 1960-1998." *Industrial relations*, 47(3), pp. 329-354.

- KALLEBERG, A. (2000), "Nonstandard Employment Relations: Part-Time, Temporary and Contract Work", *Annual Review of Sociology*, 26, 341-365.
- LESCHKE, J. & WATT, A. (2008), Job Quality in Europe, WP 2008.07, ETUI-REHS, Brussels.
- LEWIS, J. & PLOMIEN, A. (2009) "'Flexicurity' as a policy strategy: the implications for gender equality", *Economy and Society*, 38, 3, 433-459.
- LOHMANN, H. (2008), The working poor in European welfare states: empirical evidence from a multilevel perspective. In: Andress, H-J & Lohmann, H. (eds.), *The working poor in Europe: employment, poverty and globalisation*. Cheltenham: Edward Elgar.
- LOHMANN, H. (2009) "Welfare States, Labour Market Institutions and the Working Poor: A Comparative Analysis of 20 European Countries." *European Sociological Review*, 25(4), pp. 489-504.
- MARX, I., VERBIST, G., VANDENBROUCKE, P., BOGAERTS, K. & VANHILLE, J. (2009), *De werkende armen in Vlaanderen, een vergeten groep?*. Antwerp: Centre for Social Policy.
- NOLAN, B. & MARX, I. (2000), Low pay and household poverty. In: Gregory, M. (ed.), *Labour market inequalities: problems and policies of low-wage employment in international perspective*. Oxford: Oxford University Press, pp. 100-119.
- OECD (2002). *Employment Outlook 2002 - Surveying the jobs horizon*. Paris: OECD Publishing.
- OECD (2004). *Employment Outlook 2004*. Paris: OECD Publishing.
- OECD (2009). *Employment Outlook 2009*. Paris: OECD Publishing.
- PLANTENGA J, C. REMERY & J. RUBERY (2007), "Gender mainstreaming of employment policies. A comparative review of thirty European countries", The co-ordinators' synthesis report prepared for the Equality Unit, European Commission, Utrecht, USE.
- RABE-HESKETH, S. AND SKRONDAL, A. (2008), *Multilevel and Longitudinal Modeling Using Stata*. College Station: StataCorp LP.
- ROWNTREE, B.S. (1901), *Poverty: A Study of Town Life*. London: MacMillan.
- TAM, B. (1997), *Part-time employment: a bridge or a trap?*. Aldershot: Ashgate.
- TOWNSEND, P. (1979), *Poverty in the United Kingdom*. London: Allen Lane and Penguin.

Table 1

Composition of the temporary workforce by gender, education and age, %

		Age categories				
		16-25	26-35	36-45	46-55	56-65
Men	Low	34,9	23,1	15,8	10,9	8,7
	Medium	21,8	13,9	6,8	5,6	5,8
	High	22,4	15,3	5,1	3,8	4,4
	<i>Total</i>	<i>24,5</i>	<i>16,0</i>	<i>8,1</i>	<i>6,3</i>	<i>6,1</i>
Women	Low	37,2	18,8	18,0	12,2	7,3
	Medium	21,9	14,7	8,5	6,5	6,7
	High	27,8	20,2	9,2	5,1	4,9
	<i>Total</i>	<i>25,0</i>	<i>17,6</i>	<i>9,8</i>	<i>6,9</i>	<i>6,2</i>

Source: EU-SILC 2007/2008. Weighted figures.

Table 2

Poverty rates for different groups on the labour market in 18 European countries, 16-65yrs, %

	total	unemployed	employees	permanent	temporary	difference
HU	12	49	5	5	12	7
SK	11	43	6	4	11	7
CZ	9	48	4	2	6	4
SK	11	43	6	4	11	7
PL	17	39	12	5	13	8
AT	12	41	6	5	8	3
BE	15	35	5	3	11	8
DE	15	60	7	5	14	9
NL	11	36	5	10	4	-6
FR	13	33	7	4	13	9
UK	19	56	8	5	10	5
IE	16	28	6	4	12	8
NO	12	39	5	4	20	16
SE	12	39	7	5	18	13
FI	14	42	5	5	13	8
IT	19	42	9	6	16	10
PT	18	35	12	5	11	6
GR	20	37	14	3	16	13
ES	20	38	11	6	14	8

Source: EU-SILC 2007/2008. Weighted figures. Countries are clustered by geographical location

(ordered by the share of temporary employment) only for displaying purposes.

Table 3

Overview of the dataset (n = 98.146)

Code	Country	N	Code	Country	N	Code	Country	N
AT	Austria	3.524	FR	France	6.638	NO	Norway	2.188
BE	Belgium	4.314	GR	Greece	3.245	PL	Poland	8.608
CZ	Czech Republic	6.486	HU	Hungary	5.432	PT	Portugal	2.787
DE	Germany	8.705	IE	Ireland	2.809	SE	Sweden	3.241
ES	Spain	9.004	IT	Italy	11.411	SK	Slovak Republic	5.431
FI	Finland	3.707	NL	the Netherlands	4.436	UK	United Kingdom	6.180

Source: EU-SILC 2007/2008.

Table 4

Descriptives of the individual-level variables (n = 98.146)

variable	mean	sd	min	max
<i>Dependent variable</i>				
Risk-at-poverty	0.0471	0.212	0	1
<i>Independent variables</i>				
Gender (1 = female)	0.478	0.500	0	1
Type of contract (1 = temporary)	0.109	0.311	0	1
Working time (1 = part-time)	0.136	0.343	0	1
Age categories				
Cohort1 [< 25]	0.0341	0.181	0	1
Cohort 2 [26-35]	0.247	0.431	0	1
Cohort 3 [36-45]	0.310	0.462	0	1
Cohort 4 [46-55]	0.287	0.453	0	1
Cohort 5 [56-65]	0.122	0.327	0	1
Number of children				
No children	0.436	0.496	0	1
1 child	0.245	0.430	0	1
2 children	0.241	0.427	0	1
3 or more children	0.0782	0.268	0	1
Educational level				
Low	0.166	0.372	0	1
Medium	0.517	0.500	0	1
High	0.317	0.465	0	1
Household characteristics				
Having a partner (1 = yes)	0.728	0.445	0	1
Dual Earner (1 = yes)	0.674	0.469	0	1
Country of origin				
EU	0.0214	0.145	0	1
Non-EU	0.0407	0.198	0	1
Industry				
Agricultural	0.0149	0.121	0	1
Manufacturing	0.223	0.416	0	1
Construction	0.0757	0.265	0	1
Distributive activities	0.158	0.365	0	1
Transport and communication	0.0667	0.249	0	1

Business services	0.103	0.304	0	1
Public administration, health and education	0.317	0.465	0	1
Other	0.0403	0.197	0	1
Occupational class				
Professionals	0.244	0.430	0	1
Non-manual workers	0.454	0.498	0	1
Skilled manual workers	0.262	0.440	0	1
Elementary workers	0.0396	0.195	0	1
Work experience				
< 5 years	0.302	0.459	0	1
5-10 years	0.0987	0.298	0	1
10-20 years	0.215	0.411	0	1
> 20 years	0.384	0.486	0	1
Wages (z-standardized)	0.0595	0.991	-2.086	3.575

Source: EU-SILC 2007/2008.

Table 5

Descriptives of the macro-level variables (n = 18)

	Mean	Std. Dev.	Min	Max
EPL version 2 ^A	2.26	0.53	1.1	3.01
Replacement rate ^B	51.78	19.35	7.5	78.6
Family benefits ^C	1.25	0.60	0.4	2.4
Family services ^C	0.82	0.39	0.3	1.7
Bargaining centralization ^D	0.42	0.12	0.24	0.77
Unemployment rate ^E	7.12	2.02	2.5	11.1
GDP per capita ^E	101.47	26.9	54	179

Sources:

^A OECD Indicators of Employment Protection (<http://www.oecd.org/employment/protection>).

^B OECD Indicators on Benefits and Wages (www.oecd.org/els/social/workincentives).

^C OECD Social Expenditures database (SOCX) (www.oecd.org/els/social/expenditure).

^D ICWTSS Database, version 2 – January 2009 (<http://www.uva-aias.net/207>).

^E EUROSTAT online database (<http://epp.eurostat.ec.europa.eu/>).

Table 6

Coefficients (odds ratios) of random intercept models on the probability of living in poverty for all employees

	MODEL 1	MODEL 2	MODEL 3
<i>Fixed part</i>			
Type of contract			
Permanent	Ref.	Ref.	Ref.
Temporary	2.27 ***	1.16 **	1.15 **
Gender			
Male	Ref.	Ref.	Ref.
Female	0.98 **	0.47 ***	0.53 **
Education			
Low	1.97 ***	1.33 ***	1.26 ***
Medium	Ref.	Ref.	Ref.
High	0.37 ***	0.73 ***	0.80 ***
Age category			
Cohort1 [< 25]	2.60 ***	1.68 ***	1.61 ***
Cohort 2 [26-35]	1.11 *	0.84 ***	0.89 *
Cohort 3 [36-45]	Ref.	Ref.	Ref.
Cohort 4 [46-55]	1.11 *	1.33 ***	1.24 ***
Cohort 5 [56-65]	0.89	0.92	0.86 *
Partnership			
Single	Ref.	Ref.	Ref.
Partner	1.14 **	1.30 ***	1.29 ***
Earnership			
Single earner	Ref.	Ref.	Ref.
Dual earner	0.14 ***	0.09 ***	0.09 ***
Children			
No children	Ref.	Ref.	Ref.
1 child	1.98 ***	2.41 ***	2.40 ***
2 children	3.22 ***	4.48 ***	4.49 ***
+3 children	6.32 ***	9.17 ***	9.16 ***
Origin			

Domestic	Ref.	Ref.	Ref.
EU	1.53 ***	1.40 **	1.39 **
Outside EU	2.33 ***	1.90 ***	1.87 ***
Working time	2.71 ***	0.76 ***	0.78 ***
Gross wages		0.09 ***	0.09 ***
Industry			
Agricultural			1.19
Manufacturing			0.94
Construction			1.23 **
Distributive activities			1.16 **
Transport and communication			0.94
Business services			1.08
Public administration, health and education			Ref.
Other			1.09
Occupation			
Professionals			Ref.
Non-manual workers			1.08
Skilled manual workers			1.34 **
Elementary workers			1.29 *
Job experience			
< 5 years			Ref.
5-10 years			0.79 **
10-20 years			0.76 **
> 20 years			0.99
<i>Random part</i>			
$\sigma^2_{\text{COUNTRY}}$	0.214	0.221	0.214
<i>Deviance</i>	29584	23754	23673
<i>N</i>	98146	98146	98146

Results are presented as Odds Ratios. Significance levels: $p < 0.05$ *, $p < 0.01$ **, $p < 0.001$ ***.

Source: EU-SILC 2007/2008.

Table 7

Coefficients (odds ratios) of random intercept and random slope models on the probability of living in poverty for temporary employees

	MODEL 4	MODEL 5	MODEL 6
<i>Fixed part</i>			
Gender			
Male	Ref.	Ref.	Ref.
Female	0.83 *	0.60 ***	0.61 ***
Education			
Low	1.72 ***	1.22 *	1.23 *
Medium	Ref.	Ref.	Ref.
High	0.40 ***	0.64 ***	0.64 ***
Age category			
Cohort1 [< 25]	1.77 ***	1.37 *	1.37 *
Cohort 2 [26-35]	0.97	0.88	0.88 *
Cohort 3 [36-45]	Ref.	Ref.	Ref.
Cohort 4 [46-55]	1.19	1.08	1.08
Cohort 5 [56-65]	0.91	0.76	0.76
Partnership			
Single	Ref.	Ref.	Ref.
Partner	0.98	1.16	1.16
Earnership			
Single earner	Ref.	Ref.	Ref.
Dual earner	0.17 ***	0.12 ***	0.12 ***
Children			
No children	Ref.	Ref.	Ref.
1 child	1.66 ***	2.01 ***	2.00 ***
2 children	3.07 ***	4.09 ***	4.08 ***
+3 children	6.30 ***	8.21 ***	8.18 ***
Origin			
Domestic	Ref.	Ref.	Ref.
EU	1.38	1.25	1.24

Outside EU	1.84 ***	1.73 ***	1.73 ***
Working time	2.26 ***	0.94	0.94
Gross wages		0.09 ***	0.09 ***
Industry			
Agricultural		1.28	1.28
Manufacturing		0.84	0.84
Construction		1.29	1.29
Distributive activities		1.08	1.09
Transport and communication		0.84	0.84
Business services		1.17	1.17
Public administration, health and education		Ref.	Ref.
Other		1.18	1.18
Occupation			
Professionals		Ref.	Ref.
Non-manual workers		1.04	1.04
Skilled manual workers		1.45	1.45
Elementary workers		1.51	1.50
Job experience			
< 5 years		Ref.	Ref.
5-10 years		0.84	0.84
10-20 years		0.74 *	0.74 *
> 20 years		0.93	0.93
<i>Random part</i>			
$\sigma^2_{\text{COUNTRY}}$	0.135	0.128	0.147
σ^2_{GENDER}			0.002
Cov (gender, country)			-0.016
<i>Deviance</i>	5994	4966	4966
<i>N</i>	10655	10655	10655

Results are presented as Odds Ratios. Significance levels: $p < 0.05$ *, $p < 0.01$ **, $p < 0.001$ ***.

Source: EU-SILC 2007/2008.

Table 8

Correlations table of the macro level variables

	1	2	3	4	5	6	7
1 EPL	1						
2 Replacement rate	-0.09	1					
3 Family benefits	-0.62	0.44	1				
4 Family services	0.14	0.33	0.37	1			
5 Bargaining centralization	0.20	0.16	0.03	0.05	1		
6 Unemployment rate	0.20	-0.10	-0.14	-0.33	-0.38	1	
7 GDP per capita	0.21	0.21	0.15	0.54	0.61	-0.65	1

Source: EU-SILC 2007/2008.

Table 9

Coefficients (odds ratios) of random intercept models on the probability of living in poverty for temporary employees.

	Model 7 a-f1	Model 8	Model 9	Model 10 ²
EPL	1.26	1.63 *	1.17	0.88
Replacement rate	0.99 *	0.99 *	0.99 **	1.00
Bargaining centralization	0.38	0.33	0.30 *	0.81
Family benefits	0.87	1.37	1.08	0.80
Family services	0.87	0.79	0.79	0.63 **
Unemployment rate			1.15 **	1.19 ***
GDP per capita			1.01 **	1.01 *
<i>Country var</i>	/	0.057	0.023	0.000
<i>Deviance</i>	/	7323	7313	4943
<i>N</i>	10655	10655	10655	10655

Source: EU-SILC 2007/2008.

¹ Coefficients of bivariate models.

² Including all micro variables used in model 7.

Table 10

Coefficients (odds ratios) of cross-level interactions of macro-level variables on the probability of living in poverty for temporary employees

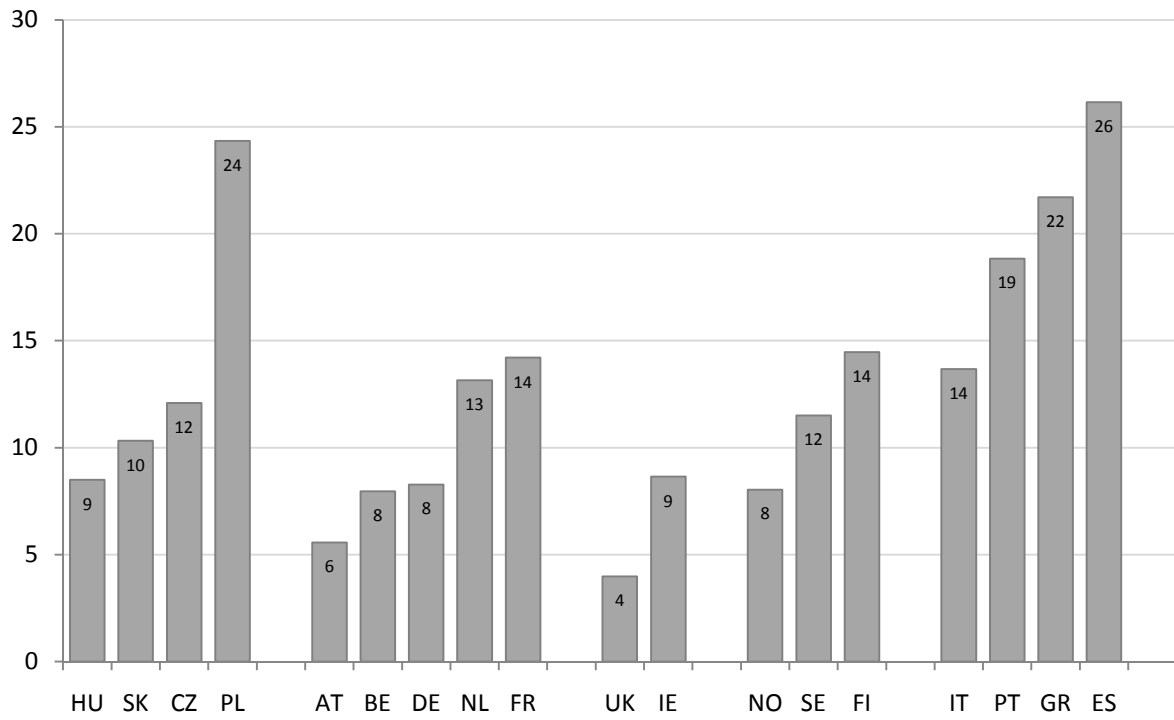
	Model 11	Model 12	Model 13	Model 14
Macro				
A Family benefits	1.45			
B Family services		0.86		
C Bargaining			0.42	
D Replacement				0.99
Cross-level				
A x 1 child	0.89			
A x 2 children	0.65 *			
A x 3 children	0.48 **			
B x 1 child		0.68		
B x 2 children		0.56 *		
B x 3 children		0.27 ***		
C x low educ.			0.41	
C x high educ.			5.99	
D x cohort 1				1.02 *
D x cohort 2				1.00
D x cohort 4				1.00
D x cohort 5				0.98 **

The models include all micro and macro variables.

Source: EU-SILC 2007/2008.

Figure 1

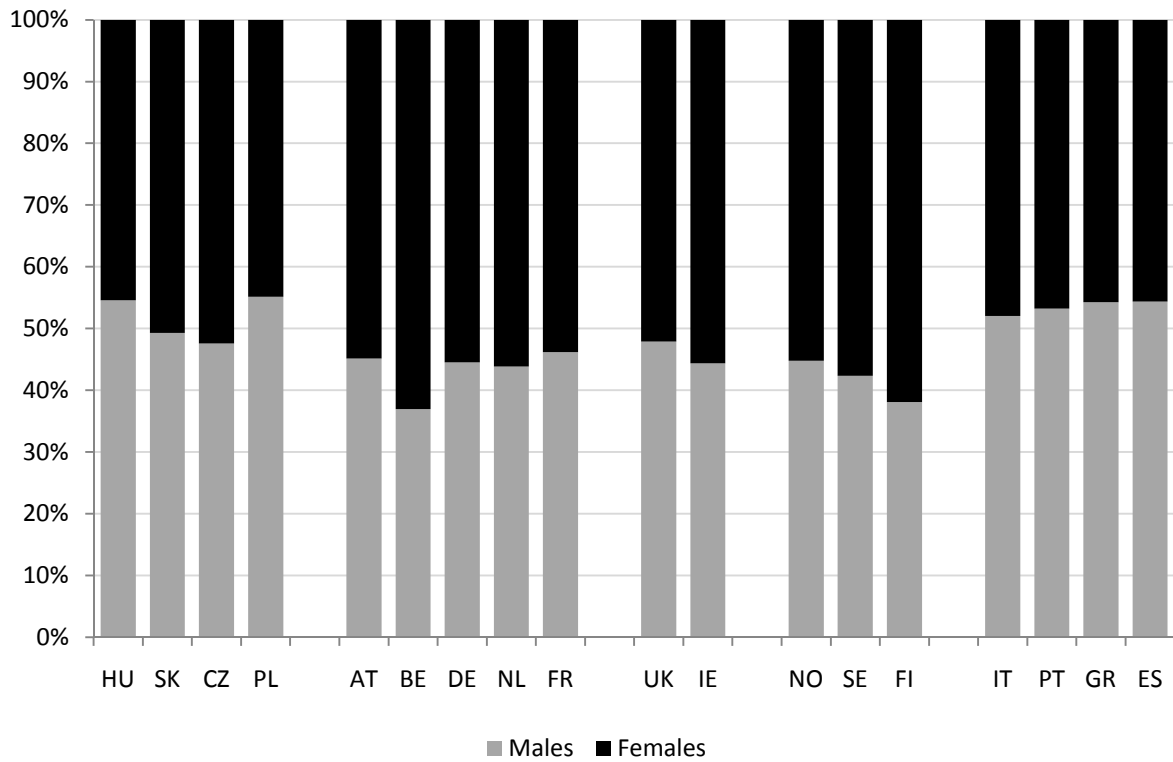
Share of temporary employment in the workforce of 18 European countries, 16-65yrs, %



Source: EU-SILC 2007/2008.

Figure 2

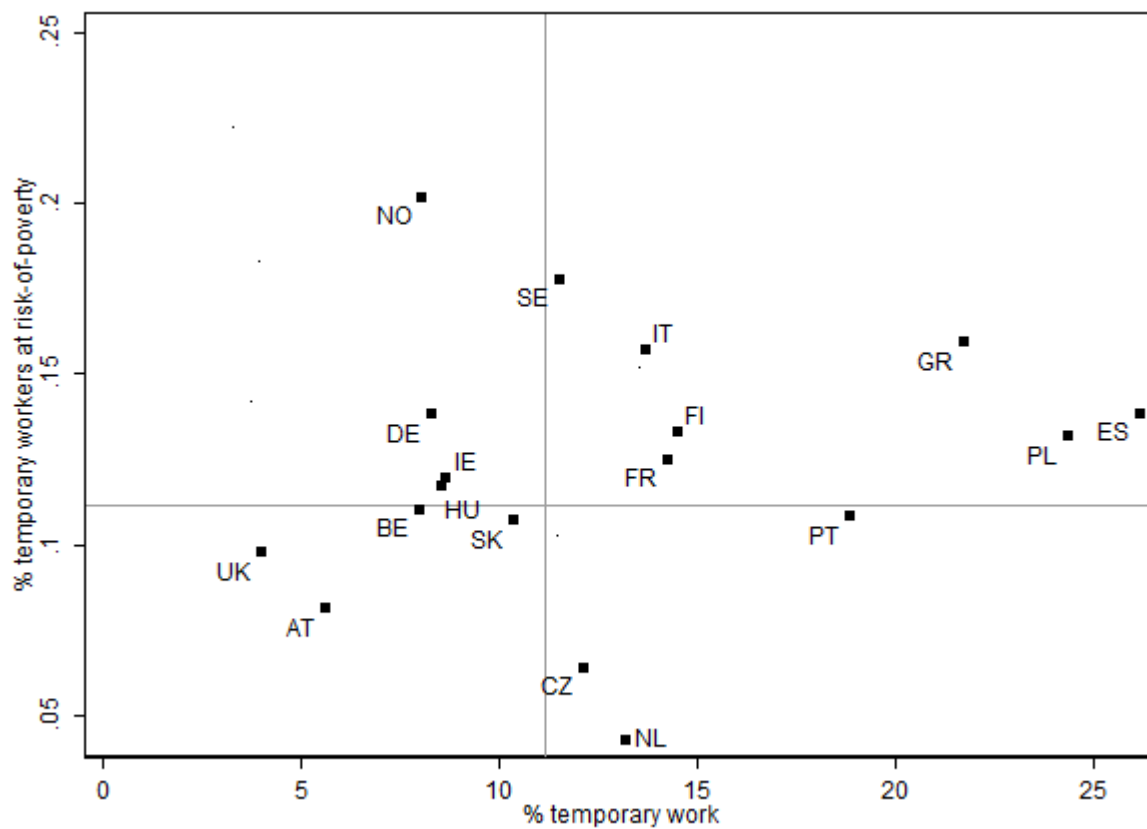
Share of males and females in the temporary workforce in 18 European countries, 16-65yrs



Source: EU-SILC 2007/2008.

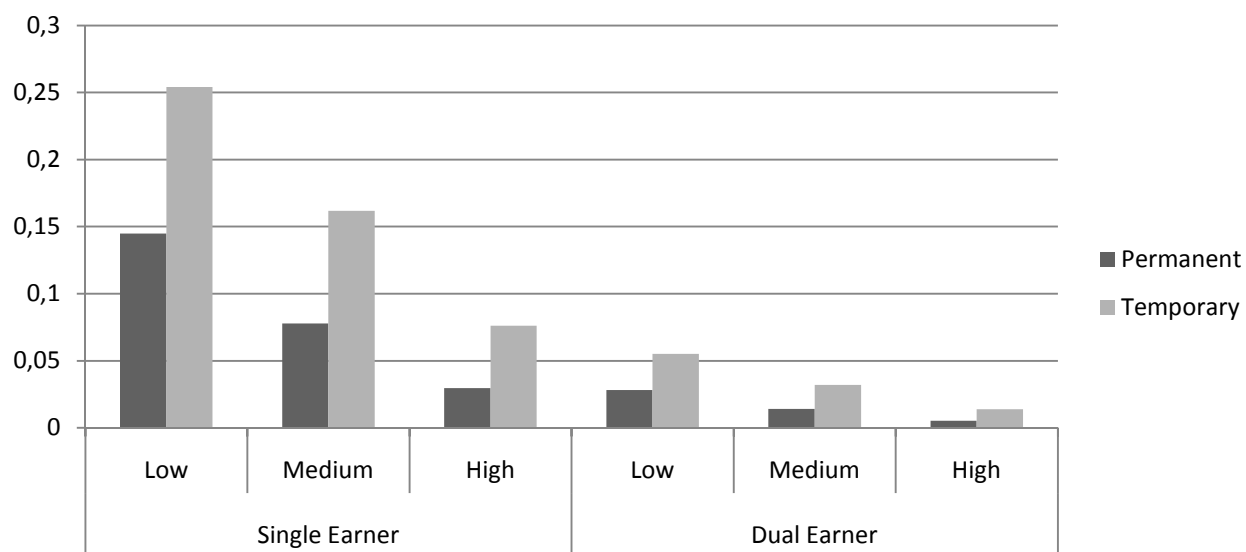
Figure 3

Share of temporary work and incidence of poverty risk among temporary workers, 16-65yrs.



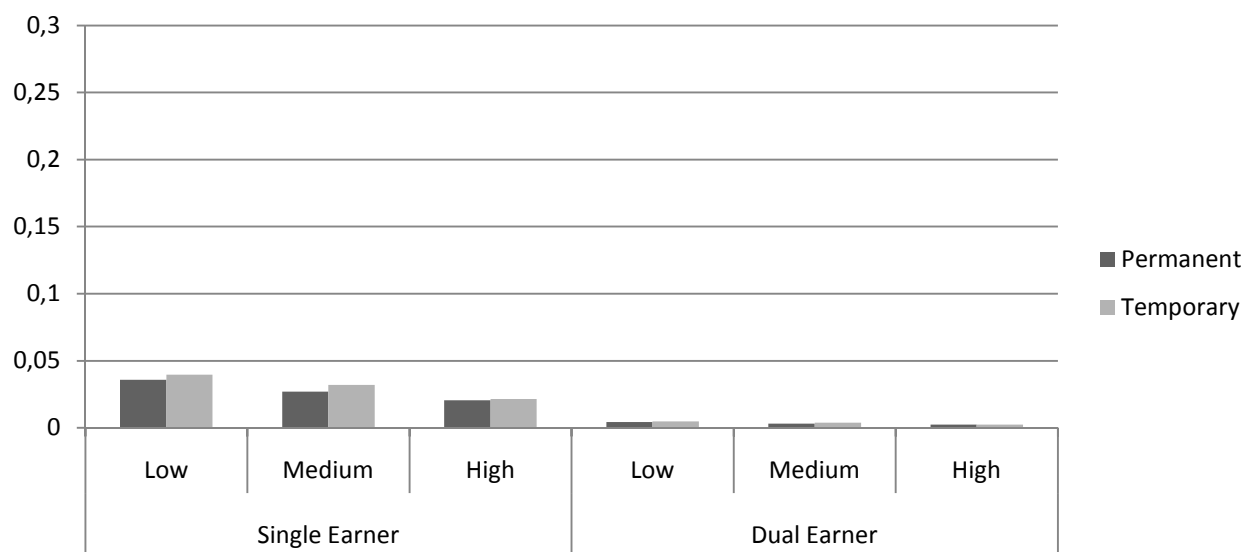
Source: EU-SILC 2007/2008.

Figure 4

Predicted probabilities to live in poverty by education, activity status and household situation(without controlling for wage differences).

Source: EU-SILC 2007/2008.

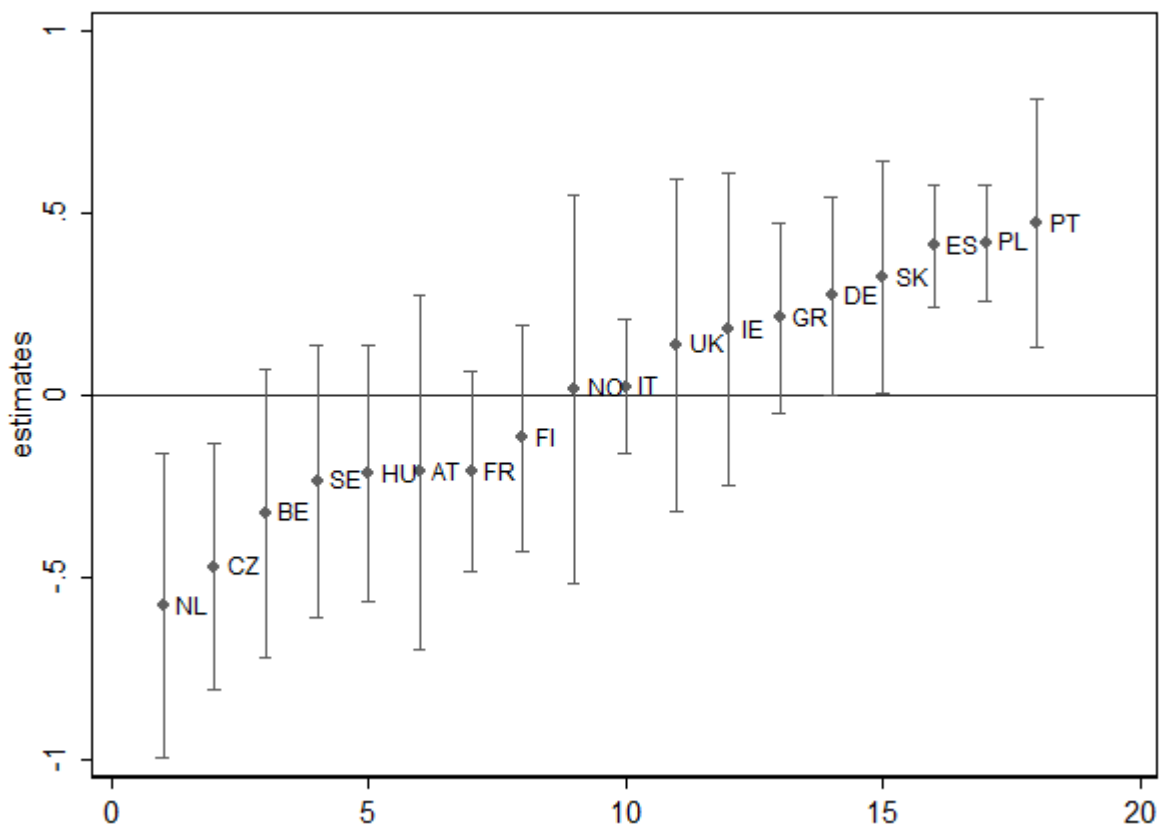
Figure 5

Predicted probabilities to live in poverty by education, activity status and household situation(controlled for wage differences).

Source: EU-SILC 2007/2008.

Figure 6

Empirical Bayes estimates of country-level random effects (model 5).



Note: the graph displays country-level residuals of intercepts with their 95% confidence intervals, estimated from model 5. In countries that show no overlap with the zero line, temporary workers are significantly more/less likely to live in poverty than on overall average ($p < 0.05$).

Source: EU-SILC 2007/2008.