Individual and household in-work poverty in Europe: understanding the role of labor market characteristics

Filandri, Marianna; Struffolino, Emanuela

Filandri, Marianna; Struffolino, Emanuela

Article — Published Version

Individual and household in-work poverty in Europe: understanding the role of labor market characteristics

European Societies

Provided in Cooperation with:
WZB Berlin Social Science Center

Suggested Citation: Filandri, Marianna; Struffolino, Emanuela (2019) : Individual and household in-work poverty in Europe: understanding the role of labor market characteristics, European Societies, ISSN 1469-8307, Taylor & Francis, London, Vol. 21, Iss. 1, pp. 130-157, http://dx.doi.org/10.1080/14616696.2018.1536800

This Version is available at:
http://hdl.handle.net/10419/183582

EUROPEAN SOCIETIES
2019, VOL. 21, NO. 1, 130–157
https://doi.org/10.1080/14616696.2018.1536800

Individual and household in-work poverty in Europe: understanding the role of labor market characteristics

Marianna Filandri[a] and Emanuela Struffolino[b,c]

[a]Department of Cultures, Politics and Society, University of Turin, Turin, Italy; [b]Berlin Social Science Center, Berlin, Germany; [c]Humboldt University of Berlin, Department of Microsociology, Berlin, Germany

ABSTRACT

The article presents an analysis of the association between labor market characteristics related to female employment and the prevalence of in-work poverty. We compare two relative measures of in-work poverty: The individual definition refers to workers whose salary is below 60% of the median, while the household-level definition refers to individuals whose household income is below 60% of the median. Microdata from the 2014 EU-SILC survey and macrodata on involuntary part-time employment and female labor market participation are used to perform a multilevel analysis on 31 European countries. The results show a positive relationship between involuntary part-time work and in-work poverty according to the household definition. Female labor market participation is positively associated with the individual definition and negatively with the household one. However, after controlling for the level of within-country income inequality, only the effect of the female employment rate remains positive and significant for the individual in-work. These results shed light on the multifaceted role of labor market characteristics related to female employment and their implications for policy. We argue that the promotion of female participation should be combined with explicit measures to reduce the disadvantageous position of women in the labor market.

ARTICLE HISTORY Received 1 June 2017; Accepted 27 September 2018

KEYWORDS Working poor; household poverty; female employment; involuntary part-time; low-wage

1. Introduction

In the last decades, several European countries have implemented measures against poverty. These measures have typically aimed to increase labor market participation while decreasing welfare dependency by

CONTACT Emanuela Struffolino emanuela.struffolino@wzb.eu WZB Berlin Social Science Center, Reichpietschufer 50 – 10785, Berlin, Germany

following a welfare-to-work approach.[1] Yet, their overall efficacy is a subject of debate (Greenberg and Robins, 2011). The reason is that exit from welfare via employment does not equal an exit from poverty (Fouarge and Layte, 2005) and that only increased earnings lead to better chances of overcoming poverty (Layte and Whelan, 2003). Therefore, the policy debate has focused not only on scarcity in terms of 'job quantity' but also 'job quality' (Filandri *et al.*, 2017). The latter characteristic refers to employment that offers a supply of adequate income, enabling individuals and their families to avoid poverty through labor market participation (e.g. Abrassart, 2015; Marx *et al.*, 2012). This aspect is especially relevant given that multiple actors (the European Commission among others) are promoting a decrease in the gender employment gap as one of the channels to fight poverty.

The literature contains two definitions of the working poor[2], which are analytically distinct but empirically strictly related (Andreß and Lohmann, 2008; Maitre *et al.*, 2012; Peña-Casas and Latta, 2004). The first definition refers to the individual dimension and identifies the working poor as low-paid workers, i.e. workers whose income is below a given threshold of the country median. This definition implies that income generation is the key mechanism behind in-work poverty, even though studies have found that the correlation between low wages and in-work poverty is not as strong as expected (Andreß and Lohmann, 2008; Larsson and Halleröd, 2011). Nevertheless, proponents of radical workfare approaches who adopt this definition have consequently devoted little attention to in-work poverty, as it is understood as a temporary outcome of specific transitory employment arrangements that would be better addressed by labor market policies rather than by preventive social policies. However, these approaches overlook the fact that discontinuous work or low working hours may play as important a role for in-work poverty as low wages.

The second definition of in-work poverty refers to household-related characteristics. The working poor are individuals who live in households with a total income below a given threshold of the country median (Ponthieux, 2010). A considerable body of research has acknowledged that individual risk factors are indeed mediated by both the family and the institutional context. This second definition of in-work poverty stresses the importance of household structure (i.e. the number of dependent children and the number of earners) as well as work-life balance.

[1]In the literature, welfare-to-work is also referred to as a workfare or work-first approach.
[2]Working poor and in-work poverty are used here interchangeably.

Previous empirical evidence on the microdeterminants of individual in-work poverty identifies characteristics that negatively affect the probability of accessing favorable labor market arrangements (e.g. young age and low level of education). In contrast, when the household definition is adopted, in-work poverty has been found to be associated with the characteristics and structure of the household (e.g. having a small number of earners and a high number of dependent children). A systematic comparison of the implications of the two definitions for the macrodeterminants of in-work poverty has not been conducted so far. The existing research mainly focuses on the household definition (Hallerod *et al.*, 2015) or adopts one definition and controls for the factors that the other definition suggests are relevant as confounders of the main effect (Crettaz and Bonoli, 2011; García Espejo and Ibáñez Pascual, 2007; Gardiner and Millar, 2006; Maitre, Nolan, and Whelan, 2012; Nolan and Marx, 2000).

This article fills this gap by considering whether and to what extent labor market characteristics explain cross-country differences in the prevalence of in-work poverty according to both the individual and household definitions. More specifically, we focus on two indicators of labor market development associated with women's employment: the female employment rate and the share of involuntary part-time work. These indicators refer to 'job quantity' and 'job quality' respectively. Increasing women's employment supply is one of the core objectives of the European 2020 strategy, especially in light of the increase in GDP it is expected to bring (Cuberes and Teignier, 2014; Daly, 2007): Higher levels of female employment protect families from poverty by adding a second earner to the household. However, widespread gender segregation in access to good economic opportunities might lead to (unexpected and ultimately undesirable) negative outcomes at the individual level. Therefore, we also consider the share of involuntary part-time employment as an indicator of the degree of labor market segmentation (Pavlopoulos *et al.*, 2014).

We advance the literature in two respects. First, we clarify the implications of using different conceptualizations of the working poor by providing a rigorous assessment of cross-country differences in the prevalence of the phenomenon according to both definitions. This is essential because depending on the definition policymakers adopt, hypothetical measures to combat in-work poverty might either rely on labor market policies or on fiscal policies and income redistribution plans. During the last few decades, the increasing labor deregulation and simultaneous shrinking of the welfare state have eroded protection against social exclusion (Airio, 2010; Andreß and Lohmann, 2008; Bardone and Guio, 2005;

Lohmann, 2008; Peña-Casas and Latta, 2004). As shown by seminal Anglo-American scholarship (cf. Bane and Ellwood, 1991; Danziger and Gottschalk, 1986; Klein and Rones, 1989), in-work poverty arises at the intersection between this loss in protection both in and out of the labor market.

Second, by focusing on both individual and household demographic determinants of in-work poverty and on variations in its prevalence across economic and institutional contexts, we better understand how poverty and employment co-exist. To the best of our knowledge, the few cross-national studies that have examined in-work poverty across Europe rely on only one understanding of in-work poverty and do not tackle its direct association with labor market characteristics related to female employment (Brady *et al.*, 2010; Hallerod, *et al.*, 2015; Lohmann, 2009). However, this association is crucial for social policy, because the workfare approach – which is prominent in several European countries – promotes employment under any condition as primary way to get out of poverty.

2. Individual and household in-work poverty: a matter of definitions

Employment and poverty are understood as analytically distinct, but scholars have increasingly analyzed them simultaneously, as they both contribute to household poverty. For instance, Gardiner and Millar (2006) show that poverty rates for low-income workers are much higher than the average. Furthermore, household living conditions (e.g. having two earners and sharing housing costs and expenses) play a critical role in protecting low-wage workers against poverty. In fact, low wages are only one of the factors contributing to household poverty (Andreß and Lohmann, 2008; Crettaz and Bonoli, 2011; Peña-Casas and Latta, 2004). For example, Maitre and colleagues (2012) find that employees who are not earning low income rarely live in households below the relative poverty threshold, while young people and women are persistently most likely to be in low-paid jobs. Nolan and Marx (2000) provide support for this finding for several European countries. Espejo García and Ibáñez Pascual (2007) for Spain and Filandri and Struffolino (2013) for Italy consistently highlight that most low-wage workers are not poor, because their families are not poor in the first place, and that the members of most of the poor households do not actually have low wages.

There are two approaches to studying in-work poverty that rely on different definitions: The first considers individual salaries while the

second is based on the total income of households with at least one employed member.[3] In both cases, relative measures of poverty are used to identify working poor individuals. Studies of in-work poverty in Europe have drawn on the well-established literature on poverty, which relies on (more or less restrictive) thresholds of household income ranging from 50 to 66% of the median in a given context.[4]

According to the first approach, working poor individuals are defined as employees who receive an annual salary below the 60% of the median wage of the country.[5] The empirical research mainly focuses on low wages, because employment is (implicitly) conceived of as the most effective protection against poverty risks. However, it should be acknowledged that three components contribute to the definition of the individual annual salary and therefore to the exposure to in-work poverty: (a) the hourly wage; (b) the number of hours worked per week; and (c) the number of months worked in one year. This approach is typically used by Eurostat to investigate the structure of the labor market and wages (see e.g. Brandolini *et al.*, 2011), as well as by some economists – especially in empirical studies on the US (Cappellari and Jenkins, 2002; Crettaz, 2013; De Jong and Madamba, 2001; Gleicher and Stevans, 2005; Jensen and Slack, 2003; Lucifora, 1998; Meulders and O'Dorchai, 2013). In this case, the focus is on workers' employment-related characteristics (such as the qualification, seniority, sector and type of contract).

In the second approach, in-work poverty is framed in terms of household resources and burdens. The main factors are the family structure, the number of earners, the presence and the age of children, and the costs of (care) services. This approach mimics the studies on poverty and understands working poor individuals as those who hold a job but live in households with a total disposable income below 60% of the median income of the country (Fraser *et al.*, 2011; Peña-Casas and Latta, 2004). This definition has most frequently been adopted by sociologists and by those working within the European open method of coordination for

[3]It should be noted that when applying the poverty framework to study individuals in employment (and their families), identifying the population of workers is problematic because traditional definitions do not take into account unpaid work done within the family or periods of inactivity for training (Peña-Casas and Latta, 2004).

[4]We acknowledge that different approaches to the measurement of poverty relying on living conditions and consumption have been proposed (Atkinson *et al.*, 2002; Leisering and Leibfried, 2001; Saraceno, 2002). However, to the best of our knowledge, none of these approaches have been applied to the study of in-work poverty so far.

[5]The discussion focuses here on the threshold set at 60% of the median income in accordance with the commonly used poverty threshold (Jenkins, 2016). The use of different thresholds (especially in the case of household income) is discussed in detail below.

social inclusion (Ponthieux, 2010), and the US Bureau of Labor Statistics (2016); it has also been used by some economists (e.g. Sutherland, 2001). It is important to highlight what this definition of in-work poverty shares with common measurements of poverty at the household level, namely the debatable assumption that incomes are pooled and equally shared among household members. Contrary to this, decisions on the allocation of resources have been shown to be influenced by differentials in bargaining power, so that wealthy households might hide the relative deprivation of 'weaker' members (see Cantillon *et al.*, 2016 for a review).

Both the individual and the household definitions assess in-work poverty in relative terms. A worker is poor or not depending on the condition of the other workers in a given context. The two definitions capture different populations and the estimates of the magnitude of the phenomena consequently vary. As a result, policies should take into account the consequences for in-work poverty of either intervening at the level of the wage structure and job characteristics or of supporting families by alleviating their careload.

2.1. Determinants of in-work poverty

Comparative empirical research on the working poor emphasizes the associated individual and household characteristics (Crettaz, 2013). We do not just consider microindividual and household determinants of in-work poverty here, but also the contextual characteristics (macrodeterminants) directly connected to both individuals and household resources and burdens. We focus on how the causes (and the consequences) of being working poor at any of these three levels of analysis depend on the definition of in-work poverty adopted.

2.1.1. Microdeterminants of individual and household in-work poverty

While workers' characteristics are associated with the probability of being working poor according to the individual definition, household characteristics are related to workers' probability of living in a poor household (Kalugina, 2013).

As far as individual in-work poverty is concerned, being young represents a disadvantageous condition, mostly because young people at the beginning of their careers are overrepresented in unstable jobs (Lucifora *et al.*, 2005). Education is negatively associated with the likelihood of being working poor (Gutiérrez *et al.*, 2009). Moreover, women are more likely than men to experience in-work poverty because they are more frequently segregated

in low-paid occupations and because there is a remarkably high gender pay gap in most European countries (Crettaz, 2013).

Additional determinants mostly refer to the household's characteristics and are therefore associated with the household definition. The existing empirical evidence suggests that workers living in large households with dependent children and only one earner are more likely to live in poor households (Brady, *et al.*, 2010; Gardiner and Millar, 2006). In general, households headed by a working single parent are more exposed to in-work poverty (Crettaz, 2013). It should be noted that individual and household determinants are not independent of each other, given that, for example, low-educated individuals tend to live in bigger households (Booth and Kee, 2009).

2.1.2. Macrodeterminants of individual and household in-work poverty.

Only a few studies consider the individual definition of working poor and analyze its macro-determinants in a European comparative framework (Grimshaw 2011; Lucifora *et al.*, 2005). The empirical findings show that higher rates of low-wage employment and in-work poverty are found in countries where income inequality itself is relatively high. This is consistent with previous single-country studies (Blau and Kahn, 1996; Keese *et al.*, 1998; Lucifora, 1998). Research has shown that the incidence of low wages (and therefore, indirectly, of in-work poverty at the individual level) is affected by the strength of the employment protection legislation and the share of temporary contracts (e.g. Barbieri and Cutuli, 2016; Gebel and Giesecke, 2016). Moreover, no research exists on the association between the aforementioned dimensions and the household definition of working poverty.

The prevalence of in-work poverty according to the household definition is associated with welfare generosity and labor market institutions. These findings are consistent across comparative works (Brady, *et al.*, 2010; Crettaz and Bonoli, 2011; Lohmann, 2009) and single-country studies (Allègre, 2008; Lohmann, 2008; Lohmann and Marx, 2008). Long-lasting experiences of in-work poverty are often attributed to trade-offs between labor market flexibility and income security (Fraser, *et al.*, 2011).

3. Research questions and working hypotheses

The literature lacks a systematic assessment of changes in the share of working poor according to the individuals and the household definition as they relate to gender differences in access to economic opportunities in the labor market. By taking into consideration persistently gendered

earner models within households (Gardiner & Millar, 2006) and weak labor market attachment (Crettaz, 2013; Crettaz and Bonoli, 2011), we will shed light on the implications of the feminization of poverty for workers.

We analyze differences in the prevalence of individual and household in-work poverty as a function of labor market participation characteristics associated with female employment. More specifically, we ask whether and to what extent (i) the female employment rate and (ii) the share of involuntary part-time employment of total employment are associated with an increase in in-work poverty defined at the individual and the household levels.

The female employment rate is a proxy for the 'quantity' of women's participation. Women's labor market integration is a key indicator of labor market development: Many industrialized countries aim at increasing the percentage of employed women, as they assume that several positive consequences will arise at the micro- and macrolevel (e.g. improving individual economic independence and increasing GDP, see Cuberes and Teignier [2014] and Daly [2007]).

Involuntary part-time employment can be regarded as a meaningful proxy for labor market failure because it is associated with labor market segmentation (Pavlopoulos *et al.*, 2014). Involuntary part-time employment reflects job quality in at least two ways. First, it is closely connected to low-paid and low-productivity jobs; second, it indicates the lack of suitable alternative employment opportunities (Bazen, Lucifora, and Salverda, 2005; Kauhanen and Natti, 2014). Compared to other indicators – such as the unemployment rate – involuntary part-time employment offers an additional advantage: It highlights the gendered dimension of underemployment. The reason for this is that part-time employment is usually promoted as a work-family reconciliation measure and mostly affects women's participation in the labor market. By contrast, the part-time employment rate alone would be a biased estimator, because there are differentials in part-time-job availability across countries and because the rate does not tell us whether this arrangement is voluntary; In other words, the part-time employment rate would not account for differences between individuals' desire to work part-time as a strategy to reconcile care-giving and income-earning needs (Blossfeld and Drobnic, 2001; Gebel and Giesecke, 2016) and structural constraints, i.e. labor market failures.

Our hypotheses are as follows. First, we expect a positive association between the individual definitions of in-work poverty and both the

share of involuntary part-time employment of total employment (*Hypothesis 1a*) and the female employment rate (*Hypothesis 1b*). Many studies indicate significant cross-country variation in female labor-market disadvantages in various respects. Women's participation rates are lower than men's and a wide gender pay gap exists in most European countries (Mandel, 2012; Mandel and Shalev, 2009). These facts are connected to each other: Where female participation is high, the gender pay gap increases (Polachek and Xiang, 2014) because women are segregated into lower-paid occupations and into part-time jobs that are less remunerative (Mandel, 2012) and because active women are more sociodemographically differentiated.

Second, we expect a positive effect of the prevalence of involuntary part-time employment (*Hypothesis 2a*) and a negative effect of the female employment rate on in-work poverty at the household level (*Hypothesis 2b*). The increase in employment participation (more women in the labor market or less involuntary part-time employment) is expected to decrease the worker's chances of living in a poor household. Indeed single-earner households are more likely to be affected by poverty than dual-earner ones (Andreß and Lohmann, 2008; Lohmann, 2008; Marx and Verbist, 1998). Thus, regardless of wages and working-hour arrangements, a higher female employment rate would increase the prevalence of dual- and multi-earner households (Marx and Verbist, 1998) and lead to a reduction in poverty (Büchel *et al.*, 2003; Lohmann, 2008; Maitre *et al.*, 2003).

	Working poor	
	Individual definition	Household definition
Involuntary part-time employment as a proportion of total employment	+ (hyp.1a)	+ (hyp.2a)
Female employment rate	+ (hyp.1b)	− (hyp.2b)

To sum up, involuntary part-time employment can always be understood as a negative labor market characteristic, meaning that we can expect it to be positively associated with both definitions of the working poor. Female employment participation, by contrast may be positively or negatively associated with in-work poverty depending on the definition used. We expect high shares of employed women to be positively correlated with increasing in-work poverty according to the individual definition due to the overall weaker position of women in the labor market. However, women with worse labor market prospects and lower wages often live together with a full-time working husband (Crettaz and Bonoli, 2011; Hallerod, *et al.*, 2015; Maitre, *et al.*, 2012), meaning that

they are less likely to be identified as working poor according to the household definition. If female employment had the opposite effect, then we would have to explain a paradox: on one hand, female employment would increase in-work poverty at the individual level; on the other hand, it would decrease it on the household level. In fact, in the absence of any policy intervention to protect women from negative outcomes related to their working status, an increase in female participation in the labor market would also increase the chances of experiencing in-work poverty at the individual level.

Finally, as both definitions of the working poor are relative to the reference population, they can be considered intrinsic measures of relative inequality. We will further test whether the expected associations hold when controlling for an absolute measure of inequality, that is, the Gini index. In other words, we expect the specific effect of labor market characteristics considered here to persist over and above the absolute level of income inequality in a given context.

4. Data

4.1 Sample and variables

The analyses are based on the European Survey on Income and Living Conditions (EU-SILC) data. EU-SILC provides microdata on income, education, labor, health, housing conditions, material deprivation, social exclusion, and living conditions that are comparable across countries. We used data from the 2014 wave (the most recent available one) on 31 countries (see Table 2).[6] We selected individuals aged between 18 and 64 who were employed at the time of the interview. We restricted our sample to dependent employees because data on self-employed workers' earnings tends not to be very reliable (Lohmann, 2011). Salary and household income are calculated on an annual basis for the year previous to the interview. We defined as workers those individuals who were employed for at least 6 months in the previous year. The final samples consisted of 171,104 and 169,323 individuals for the analyses on the individual and household definitions of working poverty respectively.[7]

[6]We perform the same analysis on waves 2011, 2012, and 2013 as robustness check: The results are highly consistent.

[7]Households and individuals in the first and the last percentile of the income distribution were excluded from the sample.

4.1.1. Dependent variables

The dependent variable of the first set of models is the in-work poverty rate according to the individual definition. Thus, we categorize working poor individuals as those whose annual income was below 60% of the median for each country. Income is defined as total remuneration (in cash or in kind) payable by an employer to an employee in return for work done. The variable was computed with reference to all payments received by the employee in one year.[8] The dependent variable for the second set of analyses is the in-work poverty rate according to the household definition. In this case, we defined working poor employees as those living in households with a total disposable income below 60% of the median equivalized income (modified OECD scale household-income) of all households for each country.[9]

4.1.2. Macrolevel independent variables

In line with our research questions and hypotheses, labor market characteristics related to female employment were operationalized as: i) the share of involuntary part-time employment as a percentage of total part-time employment of individuals between 20 and 64 years old, and ii) the total female employment rate. The two indicators – made available by Eurostat – refer to 2013 to ensure consistency with the EU-SILC income data, which refer the year before the survey (i.e. 2013). The values of the macrolevel independent variables for each country are shown in Table 2.

4.1.3. Micro- and macrolevel control variables

At the individual level, the models control for gender, education (at most lower secondary, upper secondary, or tertiary education), age (18–25, 26–45, and 46–64 years old), living arrangement (living in a couple or not), number of children (none, one, or two or more), number of earners in the household (one, two, or three or more), being a migrant (yes or no), and the employment sector based on NACE Rev.2 (a–f 'agriculture, industry, construction', o–q 'public administration, education, health', and g–n and r–u 'trade, services, others'). The Gini index of the equivalized disposable income is included as a control at the macrolevel as an indicator of absolute inequality within countries.

[8]Income is calculated on an annual basis referring to a fixed twelve-month period (the previous calendar year) for all countries except the United Kingdom, for which the income reference period is the current year, and Ireland, for which the survey is continuous and income is collected for the last twelve months.

[9]As a robustness check, we estimated the same models by settingthe threshold for both variables at 66% of the median annual income: the results remain highly consistent with those presented here.

The descriptive statistics for the individual-level variables in Table 1 show how the two measures of in-work poverty have different implications, even when we take into account population characteristics. For example, the working poor are more prevalent among nonmigrants according to the individual definition (25.6 versus 15.7), while the opposite is true for the household definition (5.9 versus 14.9). However, as the focus of the paper is on the effects of labor market characteristics at the macrolevel, we do not comment on the variables at the microlevel, which have to be regarded as controls for the compositional effect.

5. Methods

Our data are hierarchically structured, because individuals are clustered within countries. Moreover, due to the inclusion of country-level variables in the model, a standard logistic regression would violate the error independence assumption. For both dependent variables, we therefore estimated multilevel logistic regression models to predict the likelihood of being working poor as a function of a set of individual and country-level variables (Gelman and Hill, 2007). Models include a random intercept and treat the individual-level coefficients as fixed effects. The random intercept can be expressed by two equations. The first equation states the log odds of the probability of being working poor as $\log\left(\frac{p_{ij}}{1-p_{ij}}\right)$ with i denoting individual level, and j denoting the contextual level as a function of the country intercept $\beta 0_j$ and of the fixed individual-level characteristics βX_{ij}

$$(i) \quad \log\left(\frac{p_{ij}}{1-p_{ij}}\right) = \beta 0_j + \beta X_{ij}.$$

The second equation implies that the estimation of every country intercept $\beta 0_j$is a function of an intercept ($\gamma 0 C_j$), a set of country-specific variables (γC_j), and an error term ($u0_j$), which captures the second level group specific random effect:

$$(ii) \quad \beta 0_j = \gamma 0 C_j + \gamma C_j + u0_j.$$

This is a standard approach to studying poverty when examining binary dependent variables with hierarchical models (Brady and Burroway, 2012; Brady *et al.*, 2009). The results will be displayed as odds ratios.

Table 1. Descriptive statistics for individual- and country-level variables.

Individual-level variables	Overall	Working poor: individual definition	Working poor: household definition	Source
Working poor (individual definition)	16.63			Eu-Silc 2014
Working poor (household definition)	6.73			Eu-Silc 2014
Gender				Eu-Silc 2014
Men	50.98	10.3	7.1	
Women	49.02	23.2	6.3	
Education				Eu-Silc 2014
Lower secondary	15.18	28.3	15.0	
Upper secondary	49.21	18.2	7.2	
Tertiary	35.61	8.8	2.5	
Age				Eu-Silc 2014
Up to 29	13.14	31.0	7.5	
30–44	37.78	14.8	7.7	
45–64	49.08	14.2	5.7	
Migrant				Eu-Silc 2014
No	90.50	25.6	5.9	
Yes	9.50	15.7	14.9	
Living arrangement				Eu-Silc 2014
Single	29.56	21.7	6.9	
Living with a partner	70.44	14.5	6.7	
Number of children in the household				Eu-Silc 2014
None	65.27	16.5	4.7	
One child	18.68	16.7	8.9	
Two or more children	16.05	17.0	12.4	
Single earner in the household				Eu-Silc 2014
No	75.33	16.8	4.1	
Yes	24.67	16.1	14.7	
Sector (NACE Rev.2)				Eu-Silc 2014
a-f (agriculture, industry, construction)	26.84	12.8	8.1	
o-q (public administration, education, health)	29.36	14.1	4.6	
g-n, r-u (trade, services, others)	43.80	20.7	7.3	
Country-Level Variables				
Involuntary part-time over the total employment	30.00			Eurostat 2013
Female employment rate	80.58			Eurostat 2013
Gini coefficient of equivalized disposable income (scale from 0 to 100)	29.12			Eurostat 2013

Table 2. Distribution of the dependent variables and the macro-level independent variables by country.

Country	Working poor: individual definition*	Working poor: household definition*	Poor workers in poor household*	Involuntary part-time over total employment **	Female employment rate**	Gini coeff. of equiv. disp. Income (0-100)**	N
Austria	22.74	6.92	4.74	11.80	84.50	27.00	4,573
Belgium	12.88	4.26	2.00	9.50	79.70	25.90	4,457
Bulgaria	11.07	8.59	3.91	61.80	80.30	35.40	3,713
Croatia	8.93	4.62	1.73	24.80	76.80	30.90	3,404
Cyprus	21.67	6.97	4.72	55.80	82.00	32.40	3,604
Czech Republic	12.97	2.59	1.21	16.90	81.90	24.60	6,168
Denmark	8.37	2.46	0.89	18.30	84.80	26.80	2,496
Estonia	21.61	5.49	4.20	18.50	82.90	32.90	5,007
Finland	14.96	4.41	2.71	26.10	83.30	25.40	4,172
France	15.09	8.22	3.74	39.40	83.50	30.10	8,663
Germany	24.94	6.08	4.18	15.60	82.40	29.70	9,646
Greece	16.35	10.33	5.31	68.20	74.30	34.40	3,499
Hungary	11.22	9.17	4.07	43.20	77.10	28.30	7,566
Iceland	18.80	3.13	1.65	17.60	85.50	24.00	3,192
Ireland	24.28	3.13	2.18	43.10	72.50	30.00	3,707
Italy	19.47	10.03	5.48	62.80	66.10	32.80	12,126
Latvia	19.02	4.67	2.94	40.70	84.80	35.20	4,375
Lithuania	19.00	6.63	4.16	32.70	88.40	34.60	3,858
Luxembourg	20.69	14.84	8.56	10.60	80.50	30.40	3,774
Malta	16.05	4.47	1.63	16.00	61.10	27.90	3,781
Netherlands	18.73	4.29	1.81	9.80	82.60	25.10	4,725
Norway	16.14	3.87	1.91	18.80	84.00	22.70	7,418

(*Continued*)

Table 2. Continued.

Country	Working poor: individual definition*	Working poor: household definition*	Poor workers in poor household*	Involuntary part-time over total employment **	Female employment rate**	Gini coeff. of equiv. disp. Income (0-100)**	N
Poland	11.87	9.49	3.36	30.90	79.10	30.70	9,382
Portugal	9.52	8.72	2.85	48.80	85.50	34.20	4,916
Romania	8.37	6.80	1.80	55.90	72.70	34.00	4,729
Slovakia	9.66	4.98	1.70	32.40	80.50	24.20	5,633
Slovenia	9.35	3.65	1.20	10.60	88.70	24.40	8,899
Spain	22.01	10.41	6.82	63.30	81.80	33.70	7,764
Sweden	16.70	6.19	3.60	29.70	88.10	24.90	2,575
Switzerland	23.88	7.36	3.93	7.50	84.50	28.50	5,733
United Kingdom	23.02	6.61	4.37	20.30	79.50	30.20	7,549
Cross-national mean ($N = 31$)	16.4	6.4	3.3	14.32	80.62	29.39	
Cross-national correlation (individual def.)				–0.11	0.03	0.13	
Cross-national correlation (household def.)				0.44	–0.41	0.55	

*Source: Eu-Silc 2014, authors' calculations.
**Source: Eurostat 2013.

6. Results

6.1. Descriptive results

The first two columns in Table 2 show the prevalence of in-work poverty according to both definitions for each country. The average working poor rate according to the individual definition is 16.4%. The rate decreases to 6.4% for the household definition.

Substantial crossnational variation exists among the 31 countries considered. The highest working poor rate according to the individual definition is found in Germany, followed by Ireland, Switzerland, and the UK (all <23%). Romania, Denmark, Slovenia, Slovakia, and Portugal display the lowest rates, all below 10%. When we consider the household definition, the countries that score over 10% are Luxembourg, Spain, Greece, and Italy. Conversely, Denmark, the Czech Republic, Iceland, Ireland, Slovenia, and Norway show values below 4%.

In all countries, in-work poverty is significantly higher when defined at the individual rather than the household level. The gap between the two measures is highest in Ireland and Germany (>18 percentage points), while it is the lowest in Portugal and most of Eastern European (<5 percentage points). These descriptive results suggest that the two definitions indeed capture two different subpopulations and therefore different phenomena. Column 3 in Table 2 reports on a population that is not specifically the focus of this paper: the share of the population of poor workers living in poor household, which is a small but highly disadvantaged subgroup. This is especially sizeable in Luxemburg, Spain, and Italy.

The bottom of Table 2 reports the correlation between the two dependent variables and the two macrolevel independent variables. The two labor market characteristics are almost uncorrelated with the individual definition of in-work poverty (−0.11 and 0.03). In contrast, a positive correlation exists between the household definition of in-work poverty and the share of involuntary part-time employment (0.44). Conversely, female labor-market participation is negatively correlated with the household definition of in-work poverty (−0.41). Finally, the Gini index is correlated with the individual and household definitions of in-work poverty at 0.13 and 0.55 respectively.[10]

Another way of comparing in-work poverty across countries relies on the odds ratios between the likelihood of being working poor according

[10]The bivariate association between in-work poverty according to the individual and household definitions and the three macrolevel variables by country are displayed in Figure A1 and A2 in the Appendix.

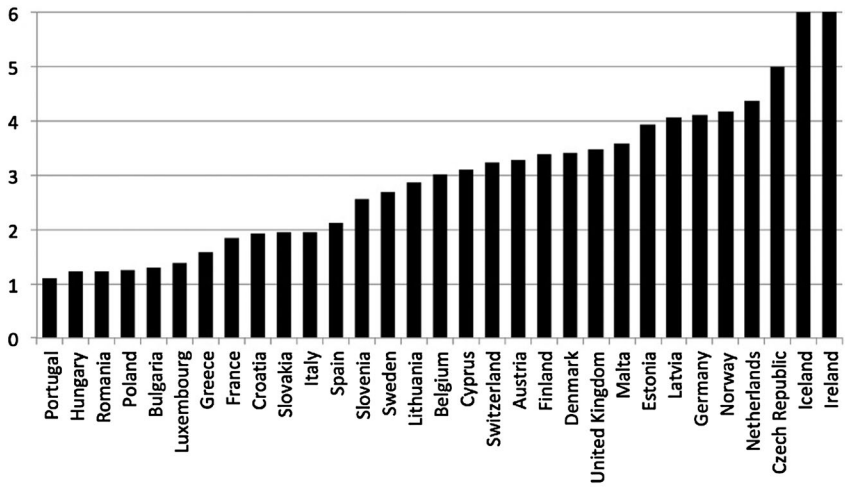

Figure 1. Odds ratio for the probability of being working poor individual according to the individual definition versus the probability of being working poor according the household definition. Source: Eu-Silc 2014. Authors' calculations.

to (i) the individual and (ii) the household definitions (Figure 1). The individual in-work poverty rate is at least five times greater than the household one in Ireland and Iceland. In contrast, Portugal, Hungary, Romania, Poland, Bulgaria, and Luxemburg show a much smaller odds ratio between the two probabilities (below 1.5). These numbers point out highly differentiated potential implications of being working poor, not just according to one definition as opposed to the other, but also by country of residence.

6.2. Results from the multilevel models

Tables 3 and 4 show the results from multilevel mixed-effects logistic regression models that estimate the probability of being a working poor individual according to the two definitions. In both tables, Model 1 is the empty model as it includes only variables at the first (individual) level; Models 2 and 3 consider the independent variables at the second (macro) level one at a time, while Models 4 and 5 report the estimates for models that include the Gini index as an additional control variable at the macrolevel.

The individual-level predictors are always significant and the odds ratios are in the expected direction (see Table 3 and 4, upper panels). Being a woman, being a young adult, having a low educational level, having two or more children in the household, and being a migrant

Table 3. Coefficients (odds ratios) of random intercept logit models on probability of experiencing in-work poverty according to the individual definition (standard errors in parentheses).

	M1	M2	M3	M4	M5
Micro-level					
Constant	0.556	0.599	0.220	0.264	0.043
	(0.045)***	(0.091)***	(0.107)***	(0.178)**	(0.042)***
Female	3.207	3.209	3.221	3.214	3.229
	(0.050)***	(0.050)***	(0.050)***	(0.050)***	(0.050)***
Having a partner	0.702	0.702	0.701	0.701	0.700
	(0.013)***	(0.013)***	(0.013)***	(0.013)***	(0.013)***
Single earner	0.796	0.796	0.796	0.796	0.795
	(0.015)***	(0.015)***	(0.015)***	(0.015)***	(0.015)***
Upper secondary	0.464	0.464	0.463	0.464	0.463
	(0.009)***	(0.009)***	(0.009)***	(0.009)***	(0.009)***
Tertiary	0.163	0.163	0.163	0.163	0.162
	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***
30–44 y.o.	0.392	0.392	0.390	0.391	0.389
	(0.008)***	(0.008)***	(0.008)***	(0.008)***	(0.008)***
45–64 y.o.	0.354	0.353	0.352	0.352	0.351
	(0.007)***	(0.007)***	(0.007)***	(0.007)***	(0.007)***
One child	1.157	1.158	1.159	1.158	1.159
	(0.023)***	(0.023)***	(0.023)***	(0.023)***	(0.023)***
Two or more children	1.460	1.460	1.463	1.461	1.464
	(0.033)***	(0.033)***	(0.033)***	(0.033)***	(0.033)***
Migrant	1.673	1.672	1.674	1.672	1.675
	(0.038)***	(0.038)***	(0.038)***	(0.038)***	(0.038)***
Sector o-q	1.026	1.026	1.026	1.026	1.027
(public administration, education, health)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Sector g-n. r-u	1.438	1.438	1.439	1.439	1.441
(trade, services, others)	(0.026)***	(0.026)***	(0.027)***	(0.026)***	(0.027)***
Macro-level					
Involuntary part-time over total employment		0.998		0.993	
		(0.004)		(0.005)	
Female employment rate			1.015		1.024
			(0.008)*		(0.009)***
Gini coefficient				1.033	1.040
				(0.027)	(0.021)*
Random-part					
var(cost)	1.198	1.196	1.179	1.183	1.154
	(0.055)***	(0.055)***	(0.050)***	(0.050)***	(0.042)***
N	171,104	171,104	171,104	171,104	171,104

P-value: * = 0.10, ** = 0.05, *** = 0.001.
Source: Eu-Silc 2014 and Eurostat 2013, Authors' calculations.

increase the odds of being a working poor individual according to both definitions. This is not the case for the two microlevel variables for 'having a partner' and 'being a single earner': Both the presence of a partner and the absence of an additional earner in the household diminish the odds of in-work poverty according to the individual definition. In contrast, the same two conditions increase the odds of being working poor according to the household definition. Interestingly, differences in the

Table 4. Coefficients (odds ratios) of random intercept logit models on probability of experiencing in-work poverty according to the household definition (standard errors in parentheses).

	M1	M2	M3	M4	M5
Micro-level					
Constant	0.062	0.042	0.205	0.014	0.023
	(0.005)***	(0.006)***	(0.094)***	(0.008)***	(0.020)***
Female	1.235	1.235	1.236	1.236	1.236
	(0.028)***	(0.028)***	(0.028)***	(0.028)***	(0.028)***
Having a partner	1.337	1.339	1.339	1.339	1.339
	(0.037)***	(0.037)***	(0.036)***	(0.037)***	(0.037)***
Single earner	4.729	4.757	4.752	4.762	4.765
	(0.109)***	(0.109)***	(0.109)***	(0.110)***	(0.110)***
Upper secondary	0.467	0.466	0.466	0.465	0.465
	(0.012)***	(0.012)***	(0.012)***	(0.012)***	(0.012)***
Tertiary	0.148	0.148	0.148	0.147	0.147
	(0.005)***	(0.005)***	(0.005)***	(0.005)***	(0.005)***
30-44 y.o.	0.565	0.563	0.563	0.563	0.562
	(0.019)***	(0.019)***	(0.019)***	(0.019)***	(0.019)***
45-64 y.o.	0.578	0.576	0.575	0.575	0.575
	(0.020)***	(0.020)***	(0.020)***	(0.020)***	(0.020)***
One child	2.140	2.145	2.143	2.145	2.146
	(0.061)***	(0.061)***	(0.061)***	(0.061)***	(0.061)***
Two or more children	3.654	3.671	3.669	3.676	3.678
	(0.110)***	(0.111)***	(0.111)***	(0.111)***	(0.111)***
Migrant	2.459	2.467	2.467	2.468	2.468
	(0.073)***	(0.073)***	(0.073)***	(0.072)***	(0.073)***
Sector o-q	0.840	0.840	0.840	0.840	0.840
(public administration, education, health)	(0.027)***	(0.027)***	(0.027)***	(0.027)***	(0.027)***
Sector g-n. r-u	1.077	1.076	1.077	1.077	1.077
(trade, services, others)	(0.028)***	(0.028)***	(0.028)***	(0.028)***	(0.028)***
Macro-level					
Involuntary part-time over total employment		1.012		1.006	
		(0.004)***		(0.005)	
Female employment rate			0.980		0.991
			(0.007)***		(0.008)
Gini coefficient				1.045	1.053
				(0.024)*	(0.020)***
Random-part					
var(cost)	1.197	1.144	1.153	1.127	1.125
	(0.056)***	(0.040)***	(0.043)***	(0.035)***	(0.035)***
N	169,323	169,323	169,323	169,323	169,323

P-value: * = 0.10, ** = 0.05, *** = 0.001.
Source: Eu-Silc 2014 and Eurostat 2013, Authors' calculations.

predictors of the two definitions of working poverty already emerge when considering microlevel variables.

6.2.1. Individual definition of in-work poverty

We now consider the probability of being working poor according to the individual definition as a function of the macrolevel variables according to our research questions. As displayed by Model 2 in Table 3, the share of involuntary part-time employment shows no association with the

dependent variable (the odds ratio is equal to 0.998 but is not statistically significant). Also, the female employment rate is positively and significantly associated with the probability of experiencing in-work poverty (Model 3 in Table 3): the odds ratio for being working poor increases by a factor of 1.015 for a one unit increase in the female employment rate at the country level. Evidence provided by Models 4 and 5 corroborates this claim; The results do not change when including the Gini index as a control.

Our results are only partly consistent with Hypotheses 1a and 1b: 'job quantity' seems to matter to a greater extent for individual in-work poverty compared to 'job quality' (which we examined using involuntary part-time employment as a proxy). Cross-country differences in the prevalence of working poverty according to the individual definition are therefore mostly driven by different shares of female participation in the labor market: a higher rate of female labor market activity results in a higher rate of in-work poverty. If female labor-market participation hypothetically increased to the same level as exists in Sweden (which has one of the highest female employment rate in Europe), then, holding constant all other variables at their means, we would expect in-work poverty to increase substantially in all countries. This reflects the persistent disadvantage experienced by women in the labor market in terms of both employment continuity and wages (Mandel, 2012), and suggests – paradoxically – that an increase in female employment rates should be accompanied by an increase in-work poverty at the country level.

6.2.2. Household definition of in-work poverty

Table 4 shows results from the mixed-effects logit models on the probability of in-work poverty at the household level. In Table 4, Models 2 and 3 include one macrovariable at a time. Unlike the analyses for the individual definition of working poor, the effect of an increase in the share of involuntary part-time employment of total employment is significant and positively associated with the increase in household in-work poverty (odds ratio equal to 1.012). The effect of an increase in female participation in the labor market is significant but negative (odds ratio equal to 0.980): in other words, an increase in women's employment would lead to a decrease in the share of workers living in poor families. These results are consistent with our Hypotheses 2a and 2b. As expected, women's 'job quantity' seems to decrease in-work poverty at the household level, while the 'job quality' (signified here by the share of involuntary part-time employment as a proportion of total employment) increases it.

However, both effects are no longer significant when the models control for the Gini index, which accounts for the level of inequality within countries: In Models 4 and 5, the odds ratios for female employment rate and involuntary part-time employment lose significance. These findings highlight the relative importance of labor market policy interventions against in-work poverty at the household level, while they support more traditional measures that aim at reducing the overall level of inequality.

7. Concluding remarks

In this paper we focused on the role of labor market characteristics related to female employment in defining different rates of working poverty in Europe. We contribute to the literature, first, by assessing empirically the implications of defining in-work poverty as an individual or household outcome. Cross-country differences in the estimation of the phenomenon according to the two definitions are not negligible. In-work poverty is more widespread when adopting the individual rather than the household definition in all 31 countries considered. Hence, the two definitions do indeed identify different populations.

Second, we estimated how two indicators of the quantity and the quality of women's inclusion in the labor market are associated with in-work poverty according to both definitions. Our results show that involuntary part-time work only has an effect on the share of in-work poverty according to the household definition. In contrast, female labor market participation is positively associated with the individual definition and negatively associated with the household one.

However, after controlling for the level of within-country income inequality (Gini index), the effect remained positive and significant for individual in-work poverty and for the female employment rate only. We argue that increasing women's participation does not in itself offer a way out of poverty: In fact, it might increase the risk of being in working poverty at the individual level. In other words, the promotion of female participation should be coupled with explicit measures to reduce gender inequality in the labor market. This would prevent in-work poverty driven by poor employment quality and quantity for women.

Some limitations of the present study have to be acknowledged. The cross-sectional data does not allow us to draw conclusions on the dynamic of in-work poverty over the individual life course. Such

analyses were beyond the objectives of this paper, but future research needs to focus on a longitudinal analysis to better understand how both individual and macrolevel factors affect transitions in and out of in-work poverty. Second, regarding the study of poverty in general, it is arguably important to consider how welfare provisions are associated with in-work poverty at the aggregate level. However, the available measures (such as the average investment in welfare as a percentage of GPD) are problematic in comparative research on this specific topic because they are discounted by the average economic well-being at the country level.

Notwithstanding these limitations, our results can fruitfully direct future research. The critical discussion on the differences in the estimation of in-work poverty depending on the definition adopted shown the relative importance of women's labor market participation. The effect of this participation is positive for the individual definition and not significant for the household definition. These results shed light on the multifaceted role of labor market characteristics related to female employment and their implications for policies. For governments that seek to promote female participation to protect families from poverty, the findings presented here show that this would not decrease the probability of household in-work poverty, but would rather increase the relative disadvantage of women regarding their probability of being working poor according to the individual definition. Obviously, we do not argue that women's employment should be limited, as it might represent the only source of income in several households. However, it is necessary to put in place interventions that affect the characteristics of labor market participation that are systematically associated with a relative disadvantage experienced by working women as opposed to men.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Marianna Filandri is research fellow in Sociology at the University of Turin (Italy). She obtained her PhD in Sociology at the University of Milano-Bicocca. Her main research interests are in social inequality, housing inequality, transition to adulthood, youth labor market early career, and working poor. Methodologically she is interested in multilevel and longitudinal data analysis.

Emanuela Struffolino is research fellow at the "Demography and Inequality" research group at the WZB Berlin Social Science Center and at the chair of Microsociology at Humboldt University of Berlin. She obtained her PhD in Sociology at the University of Milano-Bicocca and worked as senior researcher at the Swiss NCCR program "LIVES overcoming vulnerability: life course perspectives". Her research interests include life-course sociology, gender inequalities in the labor market, social stratification, and methods for longitudinal data.

References

Abrassart, A. (2015) 'Low-skill jobs or jobs for low-skilled workers? An analysis of the institutional determinants of the employment rates of low-educated workers in 19 OECD countries, 1997–2010', *Journal of European Social Policy* 25: 2, 225–41.

Airio, I. (2010) *In-Work Poverty and Unemployment in Finland: Dual Labour Market or Reserve Workers?* Luxembourg: ISSA.

Allègre, G. (2008) *Working Poor in the EU: an Exploratory Comparative Analysis*: Document de Travail – OFCE.

Andreß, H. J. and Lohmann, H. (2008) 'Introduction: the working poor in Europe', in H. J. Andreß, and H. Lohmann (eds), *Introduction: the Working Poor in Europe*, Cheltenham: Edward Elgar Publishing, pp. 1–16.

Atkinson, A., Cantillon, B., Marlier, E. and Nolan, B. (2002) *Social Indicators: the EU and Social Inclusion*, Oxford: Oxford University Press.

Bane, M. J. and Ellwood, D. T. (1991) 'Is American business working for the poor?' *Harvard Business Review* 69: 5, 58–66.

Barbieri, P. and Cutuli, G. (2016) 'Employment protection legislation, labour market dualism, and inequality in Europe', *European Sociological Review* 32: 4, 501–16.

Bardone, L. and Guio, A. C. (2005) *In-Work Poverty. New Commonly Agreed Indicators at the EU Level*: Eurostat – Statistics in focus, Population and Social Conditions Statistics in focus, Population and Social Conditions.

Blau, F. and Kahn, L. (1996) 'International differences in male wage inequality: institutions versus market forces', *Journal of Political Economy* 104, 791–837.

Blossfeld, H.-P. and Drobnic, S. (Eds) (2001) *Careers of Couples in Contemporary Society: From Male Breadwinner to Dual-Earner Families*, Oxford: Oxford University Press.

Booth, A. L. and Kee, H. J. (2009) 'Birth order matters: the effect of family size and birth order on educational attainment', *Journal of Population Economics* 22: 2, 367–97.

Brady, D. and Burroway, R. (2012) 'Targeting, universalism, and single-mother poverty: A multilevel analysis across 18 affluent Democracies', *Demography* 49, 719–46.

Brady, D., Fullerton, A. S. and Cross, J. M. (2009) 'Putting poverty in political context: A multi-level analysis of adult poverty across 18 affluent Democracies', *Social Forces* 88: 1, 271–300.

Brady, D., Fullerton, A. S. and Cross, J. M. (2010) 'More than just nickels and dimes: A cross-national analysis of working poverty in affluent Democracies', *Social Problems* 57: 4, 559–85.

Brandolini, A., Rosolia, A. and Torrini, R. (2011) 'The distribution of employees' labour earnings in the European union: data, concepts and first results', *ECINEQ* 198.

Büchel, F., Mertens, A. and Orsini, K. (2003) Is Mothers' Employment an Effective Means to Fight Family Poverty? Empirical Evidence from Seven European Countries', Luxembourg Income Study Working Paper Series.

Cantillon, S., Maître, B. and Watson, D. (2016) 'Family financial management and individual Deprivation', *Journal of Family and Economic Issues* 37(3), 461–73.

Cappellari, L. and Jenkins, S. P. (2002) 'Who stays poor? Who becomes poor? evidence from the British household panel Survey', *The Economic Journal* 112: 478, 60–7.

Crettaz, E. (2013) 'A state-of-the-art review of working poverty in advanced economies: theoretical models, measurement issues and risk groups', *Journal of European Social Policy* 23: 4, 347–62.

Crettaz, E. and Bonoli, G. (2011) 'Worlds of working poverty: national variations in mechanisms'. In Fraser, N., Gutiérrez, R. and Peña-Casas, R. (Eds), *Worlds of Working Poverty: National Variations in Mechanisms*, New York: Palgrave Macmillan.

Cuberes, D. and Teignier, M. (2014) 'Aggregate Costs of Gender Gaps in the Labor Market: A Quantitative Estimate', UB Economics Working Papers E14/308.

Daly, K. (2007) 'Gender Inequality, Growth and Global Ageing', *Goldman Sachs Global Economics Paper* 154.

Danziger, S. and Gottschalk, P. (1986) 'Work, poverty, and the working poor: a multifaceted Problem', *Monthly Labour Review* 109, 17–21.

De Jong, G. F. and Madamba, A. B. (2001) 'A double disadvantage? minority group, immigrant status, and underemployment in the United States', *Social Science Quarterly* 82: 1, 117–30.

García Espejo, M. I. and Ibáñez Pascual, M. (2007). 'Los trabajadores pobres y los bajos salarios en España: un análisis de los factores familiares y laborales asociados a las distintas situaciones de pobreza', *Empiria: Revista de metodología de ciencias sociales* 14: 41–67.

Filandri, M., Nazio, T. and O'Reilly, J. (2017) 'Is any job better than no job?', in O'Reilly, J., Moyart, C., Nazio, T. and Smith, M. (eds), *Is any job Better Than no job?* Brighton: CROME. http://style-handbook.eu.

Filandri, M. and Struffolino, E. (2013) 'Working poor. lavoratori con basso salario o occupati che vivono in famiglie povere? un'analisi del fenomeno in italia prima e dopo la crisi', *Sociologia del Lavoro* 31, 190–205.

Fouarge, D. and Layte, R. (2005) 'Welfare regimes and poverty dynamics: the duration and recurrence of poverty spells in Europe', *Journal of Social Policy* 34: 03, 407–26.

Fraser, N., Gutiérrez, R. and Peña-Casas, R. (Eds) (2011) *Working Poverty in Europe. A Comparative Approach*, New York: Palgrave Macmillan.

Gardiner, K. and Millar, J. (2006) 'How Low-paid employees avoid poverty: an analysis by family type and household Structure', *Journal of Social Policy* 35: 3, 351–69.

Gebel, M. and Giesecke, J. (2016) 'Does deregulation help? The impact of employment protection reforms on youths' unemployment and temporary employment risks in Europe', *European Sociological Review* 32(4), 486–500.

Gelman, A. and Hill, J. (2007) *Data Analysis Using Regression and Multilevel/Hierarchical Models*, Cambridge: Cambridge University Press.

Gleicher, D. and Stevans, L. K. (2005) 'A comprehensive profile of the working Poor', *Labour (committee. on Canadian Labour History)* 19(3), 517–29.

Greenberg, D. H. and Robins, P. K. (2011) 'Have welfare-To-work programs improved over time In putting welfare recipients To work?' *Industrial and Labor Relations Review* 64(5), 910–20.

Grimshaw, D. (2011). *What do we Know About Low-wage Work and Low-wage workers? Analysing the Definitions, Patterns, Causes and Consequences in International Perspective*, Geneva: ILO.

Gutiérrez, R., Guillén Rodríguez, A. M. and Peña Casas, R. (2009) 'Earnings inequality and in-work poverty', *REC-WP Working Papers on the Reconciliation of Work and Welfare in Europe* 7.

Hallerod, B. r., Ekbrand, H. and Bengtsson, M. (2015) 'In-work poverty and labour market trajectories: poverty risks among the working population in 22 european countries', *Journal of European Social Policy* 25: 5, 473–88.

Jenkins, S. P. (2016) 'The distribution of income in the UK: a picture of advantage and disadvantage'. In H.Dean, and L. Platt, (eds), *The Distribution of Income in the UK: a Picture of Advantage and Disadvantage*, Oxford: Oxford University Press.

Jensen, L. and Slack, T. (2003) 'Underemployment in america: measurement and Evidence', *American Journal of Community Psychology* 32: 1, 21–31.

Kalugina, E. (2013). 'The Working Poor', In J. Hellier and N. Chusseau (A c. Di) (eds), *Growing Income Inequalities: Economic Analyses*, London: Palgrave Macmillan UK, pp. 76–103.

Keese, M., Puymoyen, A. and Swaim, P. (1998) 'The incidence and dynamics of low-paid employment in OECD countries'. in R. Asplund, P. J. Sloane and I. Theodossiou (eds), *The Incidence and Dynamics of Low-Paid Employment in OECD Countries*, Cheltenham: Edward Elgar.

Klein, B. W. and Rones, P. L. (1989) 'A profile of the working Poor', *Monthly Labour Review* 112, 3–13.

Larsson, D. and Halleröd, B. (2011) 'Sweden: the impact of policy and labour market transformation', in N. Fraser, R. Gutiérrez, and R. Peña-Casas. (eds), *Sweden: The Impact of Policy and Labour Market Transformation*, New York: Palgrave Macmillan, pp. 112–32.

Layte, R. and Whelan, C. (2003) 'Moving in and out of poverty', *European Societies* 5: 2, 167–11.

Leisering, L. and Leibfried, S. (2001) *Time and Poverty in Western Welfare. United Germany in Perspective*, Cambridge: Cambridge University Press

Lohmann, H. (2008) 'The working poor in european welfare states: empirical evidence from a multilevel Perspective'. In, *The Working Poor in European Welfare States: Empirical Evidence From a Multilevel Perspective*, Cheltenham: Edward Elgar Publishing, pp. 47–76.

Lohmann, H. (2009) 'Welfare states, labour market institutions and the working poor: a comparative analysis of 20 european countries', *European Sociological Review* 25: 4, 489–504.

Lohmann, H. (2011) 'Comparability of EU-SILC survey and register data: the relationship among employment, earnings and poverty', *Journal of European Social Policy* 21: 1, 37–54.

Lohmann, H. and Marx, I. (2008) 'The different faces of in-work poverty across welfare state regimes'. in H. J. Andreß, and H. Lohmann (eds), *The Different Faces of In-Work Poverty Across Welfare State Regimes*, Cheltenham: Edward Elgar Publishing, pp. 17–46.

Lucifora, C. (1998) 'Working poor? An analysis of low-wage employment in Italy'. in R. Asplund, P. J. Sloane and I. Theodossiou (eds), *Working Poor? An Analysis of Low-Wage Employment in Italy*, Cheltenham: Edward Elgar, pp. 185–208.

Lucifora, C., McKnight, A. and W., S. (2005) 'Low-wage employment in Europe: a review of the Evidence', *Socio-economic Review* 3(2), 259–92.

Maitre, B., Nolan, B. and Whelan, C. T. (2012) 'Low-Pay, In-work poverty and economic vulnerability: a comparative analysis using Eu-Silc', *The Manchester School* 80: 1, 99–116.

Maitre, B., Whelan, C. T. and Nolan, B. (2003) 'Female Partner's Income Contribution to the Household Income in the European Union', *European Panel Analysis Group Working Paper* 43.

Mandel, H. (2012) 'Winners and losers: The consequences of welfare state policies for gender wage Inequality', *European Sociological Review* 28: 2, 241–62.

Mandel, H. and Shalev, M. (2009) 'How welfare states shape the gender pay gap: a theoretical and comparative analysis', *Social Forces* 87, 1873–1912.

Marx, I., Vandenbroucke, P. and Verbist, G. (2012) 'Can higher employment levels bring down relative income poverty in the EU? regression-based simulations of the Europe 2020 target', *Journal of European Social Policy* 22: 5, 472–86.

Marx, I. and Verbist, G. (1998) 'Low-Paid work and poverty: A cross-country Perspective', in S. Bazen, M. Gregory and W. Salverda (eds), *Low-Paid Work and Poverty: A Cross-Country Perspective*, Cheltenham, Northampton: Edward Elgar Publishing.

Meulders, D. and O'Dorchai, S. (2013) 'Divided We stand, united We fall: A good society needs an individual poverty Measure'. In J. Marangos and N. Karagiannis (eds), *Divided We Stand, United We Fall: A Good Society Needs an Individual Poverty Measure*, New York: Palgrave Macmillan, pp. 49–73.

Nolan, B. and Marx, I. (2000) 'Low Pay and household Poverty', in M.Gregory, W. Salverda and S. Bazen (eds), *Low Pay and Household Poverty*, Oxford: Oxford University Press.

Pavlopoulos, D., Fouarge, D., Muffels, R. and Vermunt, J. K. (2014). 'Who benefits from a job change: The dwarfs or the giants?', *European Societies* 16: 2, 299–319.

Peña-Casas, R. and Latta, M. (2004) *Working Poor in the European Union*, Denmark: Eurofound.

Polachek, S. W. and Xiang, J. (2014) 'The Gender Pay Gap Across Countries: A Human Capital Approach', *IZA Discussion Paper* 8603.

Ponthieux, S. (2010) *In-work Poverty in the EU*, Luxembourg: European Commission.

Saraceno, C. (Ed) (2002) *Social Assistance Dynamics in Europe: National and Local Poverty Regimes*, Bristol: Policy Press.

Sutherland, H. (2001) 'The National Minimum Wage and In-work Poverty', Microsimulation Unit Discussion Paper MU0102.
U.S. Bureau of Labor Statistics (2016) 'A Profile of the Working Poor, 2014', BLS Report 1060.

Appendix

Table A1 Correlation matrix for the dependent variables and the macro-level independent variables used in the multilevel models (Table 3 and 4).

	Working poor (individual definition)	Working poor (household definition)	Involuntary part-time over total employment	Female employment rate	Gini coefficient of equiv. disp. income
Working poor (individual definition)	1				
Working poor (household definition)	0.16	1			
Involuntary part-time over total employment	−0.07	0.55	1		
Female employment rate	0.32	−0.48	−0.68	1	
Gini coefficient of equiv. disp. income	0.21	0.61	0.69	−0.47	1

Note: all correlations are significant (*P*-value <.001).

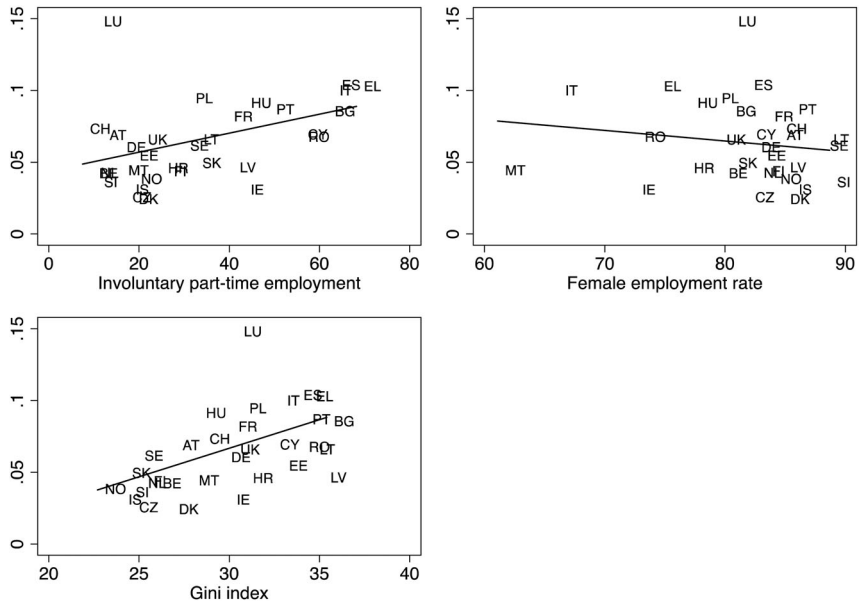

Figure A1. Bivariate association between in-work poverty according to the individual definition and involuntary part-time employment, female employment rate, and the Gini coefficient by country. Source: Eu-Silc 2014 and Eurostat 2013. Authors' calculations.

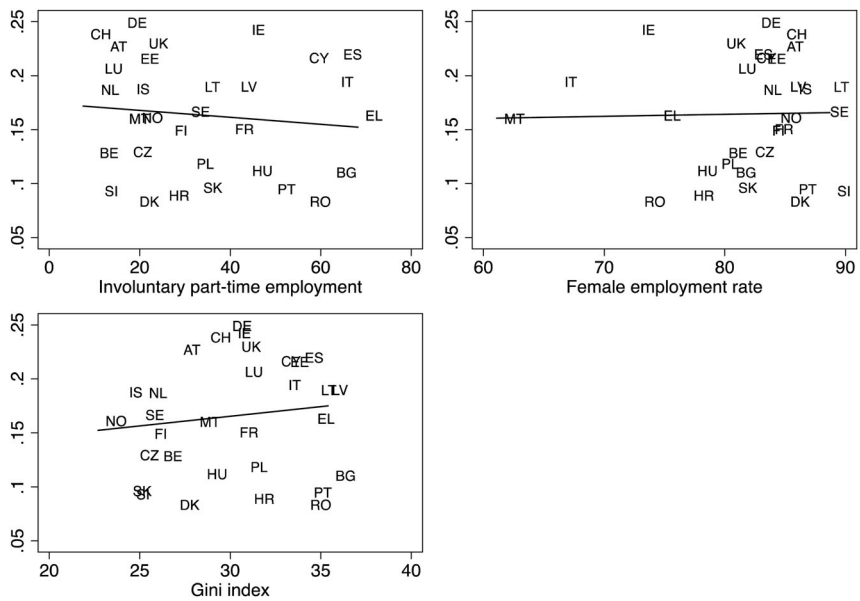

Figure A2. Bivariate association between in-work poverty according to the household definition and involuntary part-time employment, female employment rate, and the Gini coefficient by country. Source: Eu-Silc 2014 and Eurostat 2013. Authors' calculations.