Bárcena-Martín, Elena; Medina-Claros, Samuel; Pérez-Moreno, Salvador

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Gendered Effects of Employment Protection on Earnings Mobility

ELENA BÁRCENA-MARTÍN[a], SAMUEL MEDINA-CLAROS[b] & SALVADOR PÉREZ-MORENO[c]

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Abstract

This paper explores potential gendered effects of employment protection on earnings mobility, differentiating between upward and downward movements. We conduct a micro-macro mobility analysis for 23 European countries over the economic downturn period 2008–2014. The results confirm that, overall, the higher the protection for regular contracts, the lower the earnings mobility (either upwards or downwards) although the effect is stronger among women of high reproductive age. Nevertheless, protection for temporary employment seems to be only associated with reduced downward earnings mobility when considering transitions into and out of employment, with no gender differential effect.

Keywords: earnings mobility, employment protection, European countries, gender

JEL classification: D31 J08 J13 J31 J60 O15

[a] University of Malaga, Department of Applied Economics - Statistics and Econometrics. Email: barcenae@uma.es

[b] University of Malaga, Department of Applied Economics - Political Economy. Email: smedina@uma.es

[c] University of Malaga, Department of Applied Economics - Economic Policy. Email: sperezmoreno@uma.es. Corresponding author.

1. Introduction

Earnings mobility over time constitutes a fundamental aspect to understand the dynamics of income inequality (Owen & Weil, 1998; Buchinsky & Hunt, 1999; Bachmann, Bechara, & Schaffner, 2016). Even when remaining in the same job, workers may find that their earnings vary substantially from one pay period to the next, with significant implications in terms of individual wellbeing (Sologon & O'Donoghue, 2011).

Jenkins (2011) and Jäntti and Jenkins (2015) distinguish different notions of income mobility from the viewpoint of the welfare of a society. They highlight four concepts of mobility, namely positional changes in the income distribution, income growth (or movement), inequality reduction and risk/uncertainty. The second concept, *income movement*, refers to changes in individual incomes in relation to a reference income, usually the past income or a combination of past and present income, as essential for an individual's perceived well-being, regardless of what is happening to the rest of the population.

By adopting this perspective to examine earnings movement, it seems obvious that earnings mobility is influenced by the rules, practices and policies that shape how the labour market works, that is, the so-called 'labour institutions' (Berg & Kucera, 2008, p. 11). In this sense, employment protection legislation (EPL) is a labour institution that is particularly significant in practice in developed countries. EPL specifically refers to the rules governing the initiation and termination of employment, and reflects the level of labour market protection implied in the national legislation. Governments introduce employment protection rules mainly for two reasons: first, to provide workers security against the uncertainty of losing their jobs and, second, to ensure that employers meet some standard of social responsibility (OECD, 2004). Given that EPL provides workers security by reducing employers' ability to hire and fire, it is expected that a stricter regulation tends to reduce both layoffs and hiring, thus decreasing the

transition between firms; a major source of earnings mobility. Nevertheless, the effects of EPL on labour market performance are an ambiguous and controversial subject, both in theory and in practice.

In this context, it is remarkable that potential gender differences in the effects of EPL on earnings mobility have been frequently neglected despite the fact that EPL could be expected to influence men's and women's earnings mobility differently. In fact, a number of studies have pointed out gender differences around earnings mobility and how men are more likely to move up the earnings distribution than women (see, e.g., Massey 2007, Aretz 2013, Klinowski 2019). Nonetheless, these studies focus on specific labour market aspects other than employment protection, such as gender differences in skills and aspirations or different forms of gender discrimination, ignoring the role that EPL may play in determining potential differences between men´s and women´s earnings mobility.

This paper fills this gap in the literature and addresses potential gendered effects of EPL on short-term earnings mobility. In particular, we intend to examine the extent to which stricter EPL, both for temporary and permanent contracts, is gender neutral or not in terms of earnings movements between two consecutive years, differentiating between upward and downward movements. Particularly, we focus on women of high reproductive age to identify whether EPL has a specific effect on this vulnerable cohort. To that end, we propose a macro-micro analysis of 23 European countries over the 2008–2014 period of financial and economic crisis in order to draw lessons particularly for economically troubled times.

Our contribution to the existing literature is thus twofold. First, while other studies examine earnings movements as a whole, we deal with upward and downward mobility as two different phenomena, since they might entail very different implications in terms of individual well-being. We respond to recent calls for an adequate directional measure based on the idea of

'individual income gap' (individual income growth), which holds that the experience of an income loss by one individual cannot be compensated by the gain of another (Bárcena-Martín & Cantó, 2018). This conception is in line with Jenkins and Van Kerm (2016) regarding the large interest in the assessment of individual income growth so that we can clearly show who are the gainers and the losers of mobility. Second, this is a first attempt to explain gender differential effects of EPL on short-term earnings mobility beyond their general effects. To this end, we adopt a multilevel analytical approach that simultaneously considers individual sociodemographic characteristics and country-level variables influencing upward and downward earnings movements and focus on women in high reproductive age cohorts as a group that is particularly sensitive to suffering labour gender discrimination.

The paper is organized as follows. The next section reviews both the theoretical and the empirical literature. Section 3 describes the data and methodology used. Section 4 presents and discusses the empirical results and Section 5 offers some concluding remarks.

2. Review of the literature

Beyond the traditional discussion of the role of earnings mobility (see, e.g., Friedman, 1962 or Shorrocks, 1978), the actual *direction* of the movement, either upwards or downwards, is a crucial issue that provides important information on the social desirability of mobility. In principle, upward mobility for any given individual can be regarded as an improvement and downward mobility as an undesirable fact. In any event, it should be stressed that an upward movement cannot compensate for the experience of a downward movement, so both types of movements should be assessed separately, unlike the usual practice in the literature.

Focusing on potential effects of employment protection on earnings mobility from a theoretical perspective, it is widely assumed that the level of employment protection in a country is mostly expected to have a direct effect on the employment but not on the wages of employed

individuals (Betcherman, 2012; Ayllón & Ramos, 2019). Based on existing labour market theories, it is supported that the higher cost of worker turnover, as well as restrictions placed on hiring and firing and their associated costs, may reduce the flow of workers. Nevertheless, since workers from countries with stricter EPL are likely to have lower earnings mobility, a major source of such mobility is the turnover and the transition between firms.

It is usually argued that employment protection rules safeguard primarily the employment and wages of individuals already in the labour market —the 'insiders'— at the cost of the unemployed and the inactive. Under Nash bargaining, firing costs affect firms' outside option in bilateral wage negotiations with workers because, in the absence of a wage agreement, companies have to pay severance with an associated drop in profits (Leonardi & Pica, 2013). Likewise, regarding the business cycle, it should be expected that when employment protection is weak, wages are allowed to adjust downwards during recessions and unemployment should not rise, while when job security rules are stricter, wages tend to remain more rigid and unemployment may increase (Pavlopoulos et al., 2010).

In terms of expected gendered effects, it is known that women are more likely to find barriers to labour market entry and may be disproportionately affected by firms' hiring decisions (OECD, 2004). In this line, strict systems of employment protection may hinder women's labour market access and preserve the permanent jobs of prime-age males at the expense of individuals who spend significant time out of work or shifting between temporary jobs (Esping-Andersen, 1999; Rueda, 2005; Kahn, 2007). Moreover, more employment protection is often associated with restrictions on work hours and women are more likely than men to have part-time jobs (Giavazzi et al., 2013), with potential implications for earnings mobility.

Focusing on women in high reproductive age cohorts as a group that is particularly sensitive to gender discrimination in labour markets, some specific additional aspects should be taken into

consideration. First, the arrival of children tends to create a long-run gender gap in earnings driven by hours worked, participation and wage rates (Kleven et al., 2019). In this sense, the distribution of roles within the home and the division of household time and resources is the result of a complex sharing process determined by a variety of factors (e.g., relative earnings ability, relative proficiency in raising children and home production), in which women tend to embrace the position of caregiver (Heathcote et al., 2017). Childbearing and childrearing induce career interruptions (Tyrowicz et al., 2018) and discourage further investment in human capital by primary caregivers (Polachek et al., 2015). Therefore, on the labour supply side, women of high reproductive age might be benefited by taking up employment with a high level of protection that entail a lower penalty for interruptions, greater predictability (Goldin & Katz, 2008) or higher compensation in the case of firing.

On the labour demand side, rational employers (expecting women to give birth and subsequently carry a larger share of household chores) may account for lower wages for women due to productivity shortfalls (Tyrowicz et al., 2018), thus contributing to prevailing downward mobility in this cohort. This perception, also shared by employees, may influence wage bargaining and the formulation of reservation wages (Arrow, 1973; Spence, 1973). In this context, it may be expected that stricter EPL might protect women from downward mobility once they overcome the labour market barrier.

From an empirical perspective, some authors have explicitly addressed the link between EPL and earnings mobility, underlining that the most suggestive evidence comes from the indirect evidence through tenure. In an influential paper, Bertola (1990) suggested that wage determination is more strongly influenced by job market characteristics other than employment security provisions. As he revealed, an expected impact of employment protection in order to reduce earnings mobility can be modified by other labour market institutions and, therefore, a combination of institutions would be necessary (EPL, union representation or wage restrictions)

to reduce mobility. Later, considering 'wage mobility' as the fact that individual earnings may change over time, Cardoso (2006) used transition matrices analysis with data from the Portuguese Ministry of Employment to empirically test the assertion that severe labour market regulation led to low wage mobility in Portugal for the period 1986–1999. She concluded that strict EPL and widespread collective bargaining did not seem to generate lower wage mobility in Portugal during that period. With somewhat similar conclusions, Pavlopoulos et al. (2010) examined cross-country differences in labour market regulations (including EPL) regarding wage mobility for paid employment in two consecutive years using data from OECD and the European Community Household Panel over the period 1995–2001 for 12 European countries. Contrary to their expectations, they found a high level of wage mobility in countries with strong EPL (especially in Southern European countries, except for Portugal). In order to find a possible explanation, they hypothesized that low levels of wage mobility in the external labour market could be counterbalanced by a high level of in-firm or in-job wage mobility, as well as an imaginable existence of a large informal sector in the Southern European labour markets. Taking as a cornerstone that EPL increases labour market rigidity by reducing labour turnover and increasing the cost of hiring and of layoffs, Sologon and O'Donoghue (2011) argued that the strictness of EPL is positively associated with earnings immobility. They stressed that the negative impact of a strict EPL mainly affects vulnerable groups with temporary work contracts that have weaker protection in the labour market, showing also that the adverse effect of a strict EPL is augmented in periods of economic downturns when temporary jobs tend to increase at the expense of permanent jobs. Finally, using micro data from the EU-SILC data for the period 2004–2013, Ayllón and Ramos (2019) investigated youth earnings volatility (understood as how stable, or unstable, the earnings of young individuals are). They found that stricter employment protection is related to limited earnings volatility, as it increases the quality of job matches.

It is striking that the distinction between the effect of employment protection on the earnings mobility of permanent workers versus temporary workers has often been neglected in the literature. In this vein, recent studies have highlighted how changes in employment protection for permanent and temporary workers affect the gender wage gap (Perugini, 2020) or the dynamics of salaried employment differently (Högberg, Strandh, & Baranowska-Rataj, 2019; Arestis, Ferreiro, & Gómez, 2020;), given the distinct nature of both types of contractual relationships. Therefore, we expect to find differences between the effects of employment protection for permanent workers and for temporary workers in terms of their earnings mobility.

Unlike the previous empirical literature, which treats earnings increases in the same way as earnings decreases and ignores potential gender differential effects of EPL on earnings mobility, in this paper we examine the effects of EPL on upward and downward earnings mobility separately for both permanent and temporary contracts, and provide evidence on significant gendered effects.

3. Data

The main data source used in this paper is the European Statistics on Income and Living Conditions (EU-SILC). This is the reference source for comparative statistics on living conditions in Europe and has been carried out since 2004. Based on harmonized criteria, one of its fundamental objectives is to collect comparable cross-sectional and longitudinal microdata on income distribution in Europe. We employ the longitudinal files that are based on a rotating panel sample design with four repetitions, which implies that repeated and longitudinal observations on individuals are available for a maximum of four years (three changes). Our dataset takes the information from the last file in which a given rotational group appears (Iacovou & Lynn, 2013). This is important to guarantee that changes in the way that information

is collected across waves do not affect our results: the same longitudinal methodology is applied to all individual observations that appear in a file (Ayllón & Ramos, 2019).

Our analysis is based on changes in individual-level earnings between two consecutive years $t-1$ and t for t=2009, …, 2014. That is, we address a six-year financial and economic crisis period in Europe that started in 2008 and ended in 2014, where 2013–2014 is the last change analysed. We restrict our analysis to this period because specific homogeneous information on country-level employment protection is unavailable after 2014 and, more importantly, because we are interested in examining the potential gendered effects of employment protection on earnings mobility specifically in a time of economic downturn when labour vulnerability tends to be more accentuated.

We focus on active, non-self-employed individuals aged 25–59 who are in employment or unemployed. The bottom age limit of 25 years is intended to drop individuals in education and the top age limit is set at 59 years to avoid men and women leaving the labour market before the state retirement age. We exclude non-respondent individuals at $t-1$ or t and self-employed individuals, because their earnings data are less accurate than employment earnings data due to a combination of higher rates of response error and item non-response (Cappellari & Jenkins, 2014).

Micro-macro sources allow us to work with an unbalanced panel that contains 612,276 observations[1] for 23 European countries (Table 1). Sample attrition should not be an issue because we consider two consecutive year changes for the analysis and therefore the effect is smaller than in longer panels. We account for divergences in data collection methods (register, survey and proxy) across countries that could affect the cross-country comparative (Krell et al., 2017) by using dummies (defined below) that control for the EU-SILC design.

Table 1. Observations by country

	Country	Observations		Country	Observations
1	Austria	18,031	13	Latvia	5,952
2	Belgium	17,643	14	Luxembourg	18,243
3	Czech Republic	27,584	15	Netherlands	35,279
4	Denmark	20,101	16	Poland	43,239
5	Estonia	18,861	17	Portugal	41,847
6	Finland	33,231	18	Slovakia	26,021
7	France	43,89	19	Slovenia	40,144
8	Greece	16,672	20	Spain	56,031
9	Hungary	32,474	21	Sweden	17,903
10	Iceland	9,411	22	Switzerland	9,714
11	Ireland	9,225	23	United Kingdom	22,288
12	Italy	48,492		Total	612,276

Source: EU-SILC (2019)

To measure earnings mobility, we focus on gross employee cash or near cash income, that is, the total remuneration payable by an employer to an employee in return for work done by the latter during the income reference period (the previous calendar year.) Earnings have been deflated to 2015 prices using the harmonized index of consumer prices (HICP, available from Eurostat). Given that earnings refer to the previous calendar year, the HICP and other context variables have been used accordingly. There are only six observations with negative earnings: five in Netherland and one in Ireland. We dropped them.

Following Cappellari and Jenkins (2014), among others, we decided not to trim the data as we are interested in earnings mobility not only for employed workers in both years, but also for the entire active population, which includes members with zero earnings in any year. In this sense, observations moving from employment to non-employment or vice versa are attributed earnings change values that could be dropped if trimming were to be employed, even though they are genuine.

We measure individual earnings mobility at the individual level and, in line with Cappellari and Jenkins (2014) and Ayllón and Ramos (2019), we employ two alternative measures. On the one hand, we consider individual earnings mobility referred to employees (hereafter EM-E) with positive earnings in both years, t and $t-1$. EM-E captures changes in earnings while working. We also employ a measure of individual earnings mobility for all active population (hereafter EM-A), including those with zero earnings. EM-A captures changes in wages and transitions into and out of employment.[2]

Our measure of individual earnings mobility is

$$c_i = \frac{x_{it} - x_{it-1}}{(\frac{x_{it} + x_{it-1}}{2})} 100$$

where x_{it} is earnings of individual i at time t. c_i measures individual earnings mobility if both, x_{it} and x_{it-1}, are positive. This permits us to measure earnings mobility if we allow x_{it} and x_{it-1} to be zero and set the value of c_i to zero if an individual is not working at t and $t-1$. c_i is symmetric regarding increases and decreases and is bounded above by 200 per cent and below by -200 per cent. It takes the value -200 for those who move out of work while it is +200 for those who move into work. The greater the value, the greater the upward mobility; while the lower the value, the greater the downward mobility. This measure has the valuable feature of being able to measure directional changes in earnings. We take advantage of this and analyse upward and downward mobility separately.

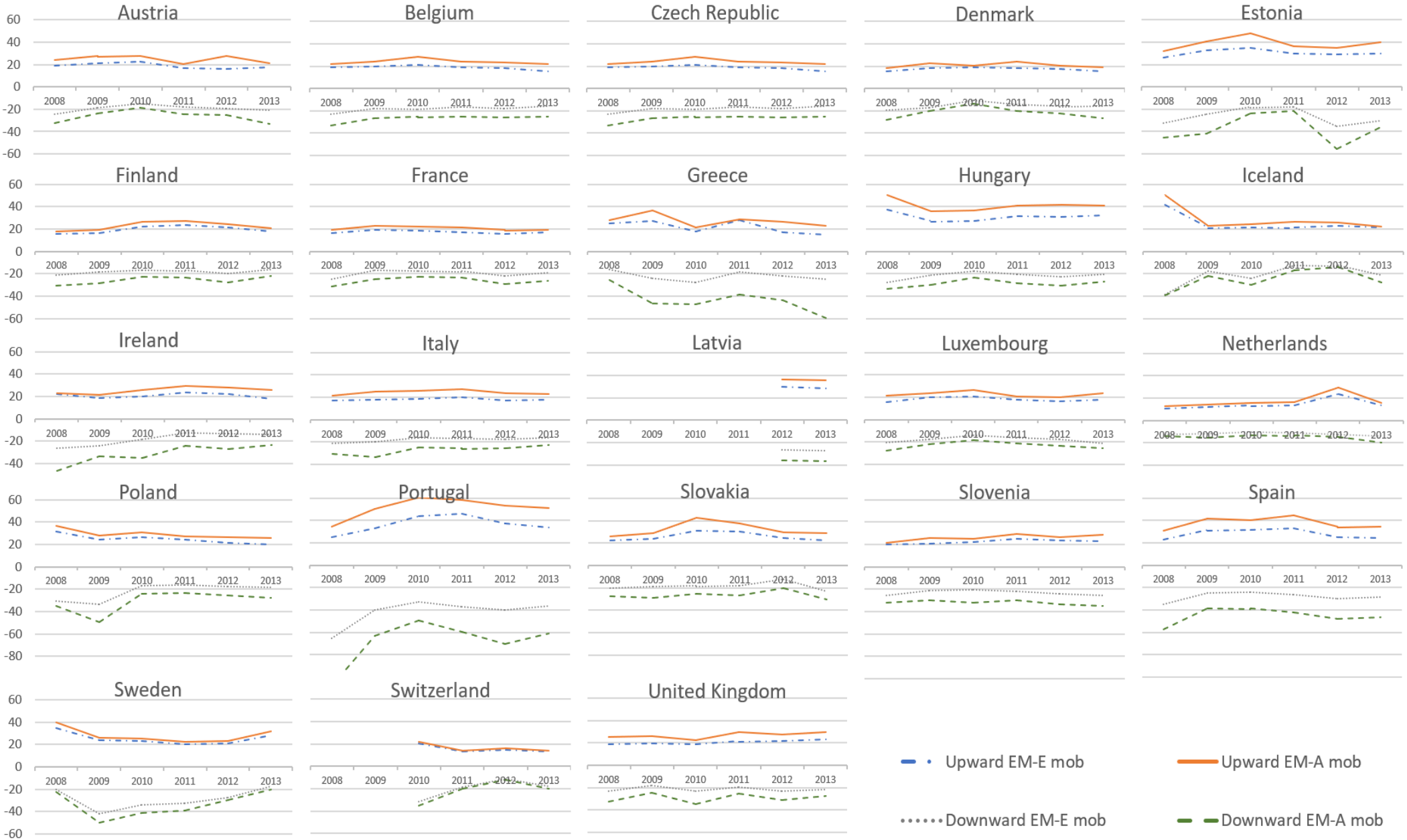
With a purely descriptive intention, we calculate the average of the arc percentage (from now on overall mobility) of upward and downward changes in individual earnings by country and year for both measures. In Figure 1 we show the overall trends for the years 2008–2014 (the last movement observed is for 2013–2014), while the trends for women and men are shown in Figure 2. [3]

Each chart in Figure 1 shows the overall upward and downward EM-E (positive earnings in both years) and EM-A (also including individuals with zero earnings) for each year and country. The changes observed between the first and the last sample years are not large enough for us to speak of a significant increase in upward EM-E or EM-A. Nevertheless, some heterogeneities are noteworthy in the trends. A notably sharp decrease of more than 20 per cent in upward mobility occurred in Iceland during this period. Specifically, wages were cut to protect jobs during the deep economic crisis caused by the collapse of all three of the country's major banks in late September to early October 2008 (Aevar Oddsson, 2010). Portugal stands out as the country with the largest downward trends for both EM-E and EM-A (28 and 47 per cent, respectively). The adjustment programs and the wide coverage of the unemployment benefit system, especially with respect to the potential duration of the benefit, favoured the emergence of reservation wages less sensitive to the rise in unemployment rates, thus reducing downward mobility (Marques et al., 2010). Focusing on downward EM-A, Ireland shows a significant moderation, while this trend is much more intense in Greece. A simple visual examination of Figure 1 shows that year-on-year changes in earnings mobility are not significant for some countries and years, even though earnings mobility increases over the recession period in many countries. Hungary, Portugal, Estonia and Spain show greater upward mobility. These last three countries are also in the group that show larger downward mobility together with Greece. On the other hand, Netherlands, Denmark and Luxembourg are the countries where upward and downward mobility declined the most. In general, downward movements (EM-E or EM-A) are greater than upward movements, that is, their downward mobility curves dominate upward mobility curves (in absolute values). Overall, the upward EM-E and EM-A trends are similar, as are the downward EM-E and EM-A trends. There are some exceptions, however. The similarities between EM-E and EM-A trends indicate that much of the EM-A can be accounted for by EM-E, rather than by entries into and exits from the labour market. Obviously, there are

countries where the EM-E and EM-A move away from each other, suggesting that work turnover plays a significant role. Likewise, special attention should be given to Portugal, Greece, Spain and Ireland, in which a higher gap between EM-E and EM-A can be observed.

Focusing on differences by gender, Figure 2 shows the trends in upward and downward EM-A for men and women (see Figure A1 in the appendix for a similar figure for EM-E by gender). We spot only some evident differences between men and women, but in most countries the curves for men and women overlap, suggesting that the levels of upward (downward) mobility are similar for both genders. Sweden, followed by Luxembourg, shows the greatest differences between men and women, while Spain is the country with the smallest gap. Nonetheless, the differences become more apparent when we plot the trends in upward and downward EM-A by isolating women of high reproductive age from the rest of the individuals in Figure 3.[4] Netherlands and the United Kingdom are the countries with the smallest gap in mobility, while Sweden and Slovenia show larger differences between the mobility of women of high reproductive age and the rest of the population. In some countries, women of high reproductive age show more stability, that is, lower upward and downward EM-A, even though this result does not apply in all countries. This leads us to think that individual, household, job and contextual variables may intensify or mitigate these differences. The joint analysis of the effects of these variables is the aim of this paper.

Figure 1. Trends in overall upward and downward EM-E and EM-A, 2008–2014



Note: the period under analysis starts in 2008 and ends in 2014, being 2013-2014 last change analysed.

Figure 2. Trends in overall upward and downward EM-A by gender, 2008–2014

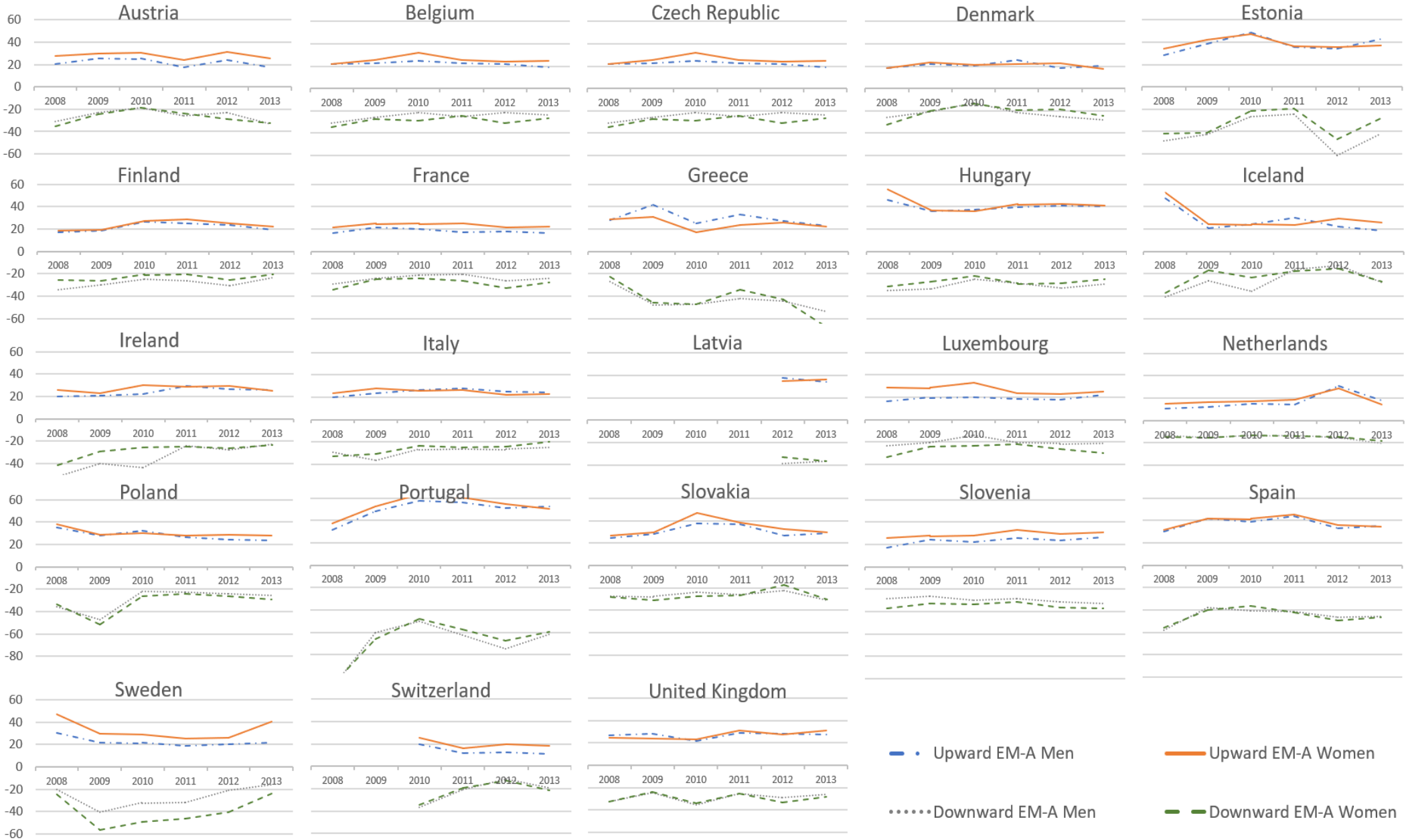
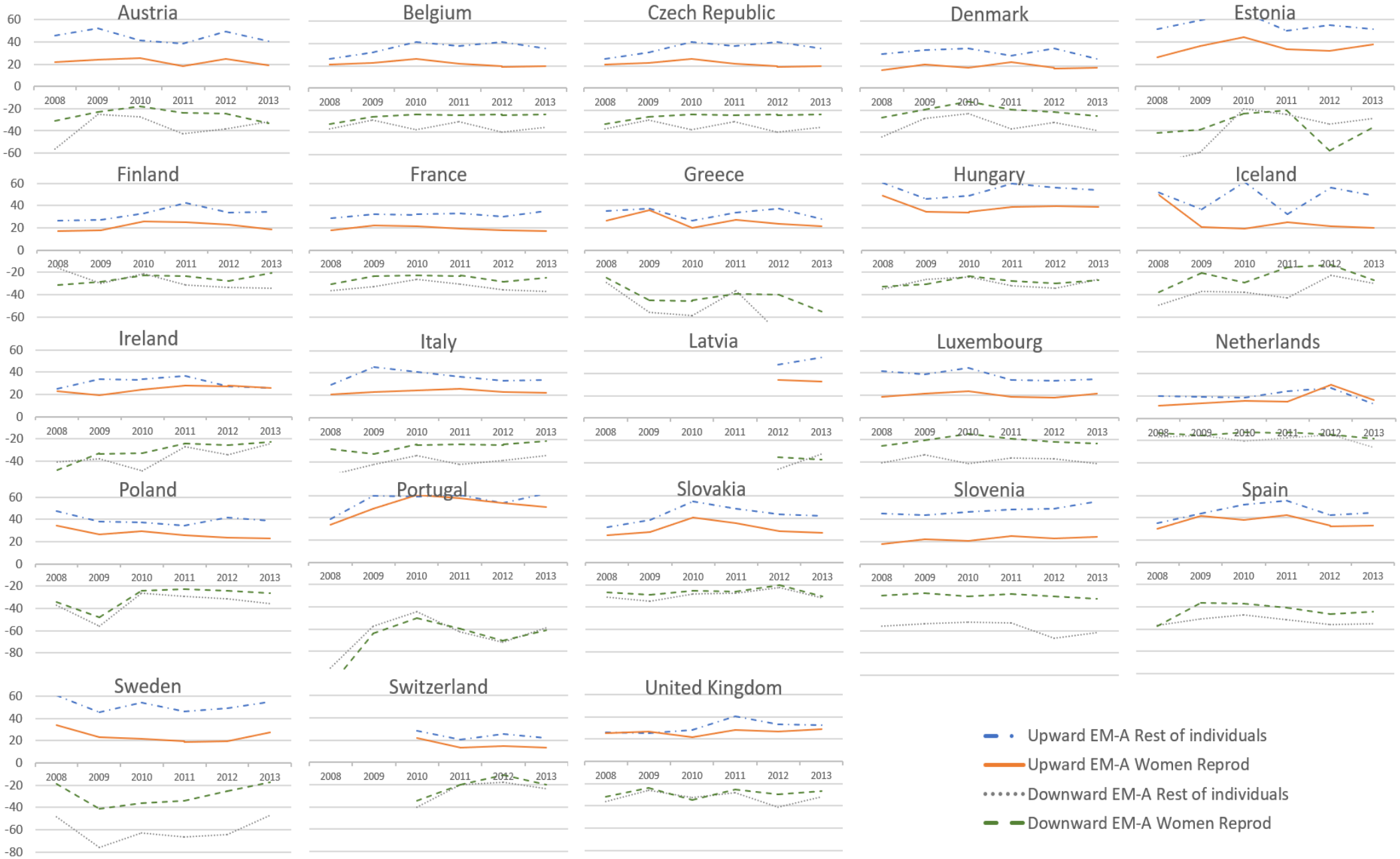


Figure 3. Trends in overall upward and downward EM-A. Women of high-reproductive age vs. rest of individuals, 2008–2014



We analyse individual characteristics (age, gender, educational level, marital status, health), household characteristics (number of household members, if there are children in the household), as well as some individual, key job-related characteristics (whether the individual works part time or has a temporary contract) closely connected with individual EM-E and EM-A. Table 1 presents the summary statistics for these variables.

Table 2. Summary statistics

Variable	Description	Mean	S.D.
woman	1 if woman 0 otherwise	0.489	0.500
age	years old	41.613	9.190
tertiary	1 if tertiary education 0 otherwise	0.282	0.450
secondary	1 if secondary education 0 otherwise	0.490	0.500
cons_union	1 if individual lives in consensual union 0 otherwise	0.735	0.442
chronic	1 if individual suffers from chronic illness or condition	0.215	0.411
nmember	# of household members	3.152	1.326
children	1 if individual has children 0 otherwise	0.492	0.500
parttime	1 if individual works part time 0 otherwise	0.108	0.310
temporary	1 if individual has temporary job/work contract of limited duration 0 otherwise	0.127	0.333

Additionally, we introduce dummies variables indicating if the individual has 0 income in the initial period (*Q0*) or the quintile the individual belongs to the initial period (*Q1* to *Q5*). Similarly, we introduce dummies indicating the data collection methods (*Survey* takes the value of 1 for survey method, *Proxy* takes the value of 1 for proxy method and the reference is the register method). We are also interested in contextual variables, particularly the unemployment rate and if there is a GDP decrease in a given country and year. Nevertheless, our primary interest is the country-level variables on EPL in order to study the effect of the level of employment protection on both measures of earnings mobility. To this end, we use the OECD's EPL index, which is designed to show the costs to employers and the protection offered to employees by EPL. Following the OECD's

Employment Outlook of 1999 (OECD, 1999) and 2013 (OECD, 2013, on the two major updates in 2008 and 2016), the overall summary indicator of EPL strictness comprises 21 items. In particular, two institutional labour variables are analysed in this study: employment protection for regular workers against individual and collective dismissals (EPRC) and the indicator for EPL concerning temporary contracts (EPT). It should be noted that these indexes for permanent and temporary employees differ radically in their construction. While the EPRC quantifies the procedures and costs involved in dismissing individuals or groups of workers, the EPT measures the procedures involved in hiring workers on fixed-term or temporary work agency contracts (OECD, 2013). However, and despite their limitations, the EU Directorate-General for Employment, Social Affairs and Inclusion acknowledges that "it is somewhat more justifiable to compare the two indexes as a measure of the strictness of the employment protection legislation relating to temporary and permanent contracts" (European Commission, 2015, p. 78).

4. Statistical model

We are interested in examining the potential gendered effects of EPRC and EPT on upward and downward individual earnings mobility. In previous sections we have outlined how relevant employment protection is thought to influence mobility, and its possible differential effects on women, specifically women of the most common reproductive ages, between 25 and 35 years old.[v] These women are referred to as "women of high reproductive age." In this section, we present our model based on data of individuals' EM-E or EM-A collected in multiple countries at several time points. We estimate a multilevel model in which individuals are in the lowest level and countries in the highest. We focus our interest on the cross-level interaction between the lower level dummy variable indicating if woman is of high-reproductive age and the upper level variables EPRC or EPT.

The model proposed is:

$$y_{ijt} = \beta_0 + \beta_1 x_{ijt} + \beta_2 z_{jt} + \beta_3 w_{ijt} l_{jt} + \beta_4 \overline{w_j} + \beta_5 \overline{l_j} + \beta_6 \overline{l_j} w_{ijt} + \beta_7 \overline{w_j} l_{jt} +$$
$$+ \vartheta_{0j} + \vartheta_{1j} w_{ijt} + u_{ijt} \quad (1)$$

where y_{ijt} denotes the individual's i EM-E or EM-A in country j at time t; x_{ijt} are the individual, household, and job variables; z_{jt} are time varying country-level variables, including, among others, EPRC or EPT; and $w_{jti} l_{jt}$ is a cross-level interaction between the dummy variable indicating if the individual is a woman of high reproductive age, w_{jti} (Wom_repr), and the variable EPRC or EPT, l_{jt}. The coefficients β_2 and β_3 are, therefore, of major interest to us. In order to obtain a genuine estimator for β_3 that does not exhibit country effect heterogeneity, this heterogeneity must be systemically specified in the fixed part of the model. With this purpose, we follow Giesselmann and Schmidt-Catran (2019) and introduce the term $\beta_6 \overline{z_j} x_{jti}$, which controls for the effect of heterogeneity in x_{jti}, and the term $\beta_7 \overline{x_j} z_{jt}$, which controls for the effect of heterogeneity in z_{jt}. $\overline{l_j}$ captures the effect on y_{ijt} of enduring cross-national differences in the contextual variables (Fairbrother, 2014) and $\overline{w_j}$ avoids the violation of the orthogonality condition in random effects models. ϑ_{0j} is an unobserved effect at country level, which captures the differences between countries in individual mobility. We include a random slope, ϑ_{1j}, on the lower level component of the cross-level interaction as recommended by Heisig & Schaeffer (2019) to obtain a conservative statistical inference about the coefficient of the cross-level interaction and about the main effect of the lower level prediction involved in the interaction. This random slope represents the difference of the effect of gender on individual mobility across countries and captures cluster-driven heteroscedasticity and cluster correlated errors. u_{jti} denotes random variation at the individual level. All residuals are assumed to be independent and to follow normal

distributions with zero mean. We estimate two different specifications for upward and downward EM-E and EM-A.

5. Results

The estimation results are presented in Tables 3a and 3b. Table 3a shows the results for the individual-level variables, while Table 3b shows the results for the country-level ones. In relation to individual characteristics, women present more earning stability (i.e. more moderate downward mobility and less upward mobility) than men both for EM-E and EM-A, once we control for the rest of the characteristics. In the same vein, the higher the age, the lower the mobility (both downwards and upwards), that is, more stability in earnings mobility, even though this moderating effect is decreasing with age. Moreover, individuals who suffer from some type of chronic illness experience greater downward EM-E and EM-A than those who do not, while this circumstance does not significantly affect upward earnings mobility for either measure. Finally, as regards educational level, tertiary educated individuals present greater upward mobility and lower downward mobility (EM-E and EM-A) than primary educated individuals. However, when comparing secondary and primary educated individuals, the benefits of a higher educational level in terms of earnings mobility are not so clear: the first group benefits from lower downward mobility even though they experience more moderate upward mobility.

Regarding family status, those who live in a consensual union present a more desirable situation than those who do not, because downward movements are of less magnitude while upwards movements (EM-E and EM-A) are greater. Having children seems to be associated with higher upward mobility and with sharper downward mobility, that is, greater instability overall. Nevertheless, the more members in the household, the lower the mobility (EM-E and EM-A). This is in line with Aristei and Perugini (2015), who

highlighted that it is more difficult for large households to improve their economic position. A large share of female and male adults probably have better prospects for positive earnings mobility, while an increase in number of children significantly reduces these prospects (Woolard & Klasen, 2005).

In relation to job-related characteristics, the results for part-time workers are the same as full-time workers in relation to earnings mobility, even though they experience greater upward EM-A and a more moderate downward EM-A than full-time workers. These results might be in line with Buddelmeyer, Mourre, and Ward-Warmedinger (2005), who conclude that part-time jobs are found to be more frequently taken up as a means to enter the labour market than to leave it. Moreover, during economic downturns, employers tend to reduce the number of hours worked by current staff and/or hire part-time workers (Buddelmeyer et al., 2008). Aside from these findings, perhaps the most remarkable effects occur in the case of temporality, since workers who rely on temporary contracts display greater mobility (EM-E and EM-A), both upwards and downwards.

Data on country-level variables are reported in Table 3b. The way data are collected (survey or mixed in relation to administrative register) does not seem to be conclusive. We can only claim that, when analysing EM-E, individuals whose data are obtained from surveys seem to be more stable (i.e. they have lower upward and more moderate downward mobility) than individuals whose data are obtained from administrative records.

Likewise, unemployment rate does not seem to be significant in terms of earnings mobility, while in recession years (dummy indicating years with a decrease in GDP) there clearly exists a significant increase in the magnitude of downward mobility.

We now provide insight into the impact of national EPL (EPRC and EPT) on upward and downward individual earnings mobility (EM-E and EM-A), and their potential differential effects for women of high reproductive age. First, it can be observed that employment protection for regular and temporary workers do not yield homogeneous results. Higher EPRC seems to provide stability in both earnings movements measures (lower declines and more moderate increases) for all people, with a differential effect for women of high reproductive age. In particular, on the one hand, stricter employment protection for regular contracts mitigates downward mobility to a greater extent for women of high fertility age that have been working for two consecutive periods. On the other hand, stricter employment regulation for regular contracts may also wield a slow-down effect in upward EM-A for women at ages of high fertility.

Our general results are in line with Cardoso (2006), Sologon and O'Donoghue (2011) and Ayllón and Ramos (2019), among others, and confirm theories about how stricter employment protection tends to encourage earnings stability. Furthermore, our findings provide new evidence on how women of high reproductive age seem to benefit particularly from a stricter employment regulation for regular contracts in terms of lower downward earnings movements (EM-E). However, when we consider transitions into and out of employment along with changes in the wages of individuals working two consecutive periods, that is, EM-A, our results indicate that a stricter employment regulation may hinder upward earnings movements in general and for women of high reproductive age in particular.

Regarding protection for temporary employment, a stricter EPT seems to exert significant effects only on downward earnings mobility, thus reducing downward EM-A for the whole population, but not necessarily women of high reproductive age. Let us recall that, according to the OECD (2014), employees with temporary contracts are less protected in

the event of employment termination. Additionally, their jobs tend to be of lower quality, lower pay and with limited prospects of upward mobility, particularly when the perspectives of transition towards a regular job are restricted. Since this moderating general effect is not observed in the case of EM-E, this result could be attributed to individuals that enter the labour market under temporary contracts.

Table 3a. Downward and upward EM-E and EM-A (individual, household and job characteristics)

	Downward EM-E		Upward EM-E		Downward EM-A		Upward EM-A	
Variables	EPRC	EPT	EPRC	EPT	EPRC	EPT	EPRC	EPT
Woman	2.335***	1.831**	-5.019***	-4.645***	5.362***	5.049***	-4.083***	-3.471***
	[0.610]	[0.735]	[0.648]	[0.639]	[0.840]	[0.951]	[1.097]	[1.054]
Age	0.685***	0.842***	-0.423***	-0.573***	0.928***	1.049***	-0.965***	-1.153***
	[0.187]	[0.233]	[0.147]	[0.139]	[0.298]	[0.304]	[0.189]	[0.179]
Age^2	-0.007***	-0.009***	0.003*	0.005***	-0.010***	-0.012***	0.008***	0.010***
	[0.002]	[0.003]	[0.002]	[0.002]	[0.004]	[0.004]	[0.002]	[0.002]
Chronic	-2.824***	-2.972***	0.417	0.514	-4.776***	-4.762***	-0.990	-0.864
	[0.550]	[0.531]	[0.412]	[0.408]	[0.895]	[0.818]	[0.709]	[0.695]
Tertiary	1.607	2.025**	4.962***	5.030***	2.158	2.543*	4.691***	4.657***
	[1.083]	[0.795]	[0.645]	[0.650]	[1.758]	[1.515]	[0.808]	[0.794]
Secondary	1.786**	2.238***	-1.965***	-2.066***	3.136**	3.889***	-2.234***	-2.332**
	[0.859]	[0.710]	[0.652]	[0.613]	[1.298]	[1.071]	[0.774]	[0.913]
Cons_union	1.069**	0.993**	0.638*	0.726**	3.781***	3.570***	2.371***	2.522***
	[0.479]	[0.471]	[0.380]	[0.370]	[0.617]	[0.582]	[0.663]	[0.637]
Children	-1.794***	-1.858***	2.924***	2.954***	-2.659***	-2.521***	5.100***	5.164***
	[0.506]	[0.506]	[0.351]	[0.360]	[0.591]	[0.626]	[0.650]	[0.639]
Nmember	0.337	0.401*	-0.714***	-0.736***	0.573**	0.574*	-1.374***	-1.445***
	[0.206]	[0.210]	[0.170]	[0.168]	[0.283]	[0.296]	[0.288]	[0.276]
Parttime	0.067	0.555	-2.321	-2.693	6.616***	8.091***	6.224***	5.534**
	[1.023]	[1.233]	[2.137]	[2.190]	[2.073]	[2.207]	[2.343]	[2.488]
Temporary	-10.241***	-10.378***	10.511***	10.549***	-14.361***	-14.229***	16.546***	16.981***
	[1.189]	[1.187]	[1.538]	[1.592]	[2.102]	[2.160]	[1.367]	[1.436]

*** Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Note: We additionally control for the quintile the individual belongs to in the initial period and country-level variables. We follow Giesselmann and Schmidt-Catran (2019) to control for unobserved heterogeneity. The estimation results for controls are available from the authors upon request.

Table 3b. Upward and downward EM-E and EM-cont. (country-level variables)

	Downward EM-E		Upward EM-E		Downward EM-A		Upward EM-A	
Variables	EPRC	EPT	EPRC	EPT	EPRC	EPT	EPRC	EPT
C1 (register, survey)	2.098	1.047	-9.195	-8.646	7.380	6.338	-2.528	-0.462
	[2.430]	[4.096]	[5.767]	[8.069]	[5.386]	[9.735]	[3.803]	[6.081]
C2 (survey)	3.699*	1.813	-13.188**	-9.872	11.615**	8.741	-5.688*	-2.811
	[2.059]	[1.824]	[5.823]	[6.229]	[5.851]	[5.757]	[3.404]	[2.896]
Unemployment	-0.160	-0.047	-0.357	-0.267	-0.223	0.205	-0.406	-0.463
	[0.209]	[0.168]	[0.255]	[0.252]	[0.379]	[0.309]	[0.335]	[0.301]
GDP decrease	-3.665**	-4.089***	-0.527	-0.696	-4.872***	-4.251**	-1.036	-0.831
	[1.528]	[1.481]	[0.685]	[0.712]	[1.851]	[1.899]	[1.337]	[1.576]
EPRC	31.809*		-93.460***		86.552**		-74.095***	
	[17.038]		[26.612]		[34.123]		[21.612]	
EPRC*Wom_repr	3.948*		-3.955		-0.939		-5.557***	
	[2.159]		[2.697]		[10.107]		[2.004]	
EPT		14.027		-13.105		23.917*		-1.473
		[9.263]		[11.962]		[13.420]		[9.739]
EPT*Wom_repr		3.210		2.672		12.645		-7.729
		[2.306]		[4.259]		[9.868]		[5.085]
Constant	-123.837***	-50.777***	215.671***	70.100**	-236.001***	-61.527**	205.580***	76.762***
	[37.616]	[15.986]	[58.691]	[31.946]	[71.097]	[28.787]	[43.786]	[21.089]
Observations	262,391	262,391	291,667	291,667	277,248	277,248	335,028	335,028
Number of groups	23	23	23	23	23	23	23	23

*** Significant at 1% level; ** Significant at 5% level; * Significant at 10% level. Wom_repr: woman of high reproductive age
Note: We additionally control for the quintile the individual belongs to in the initial period and the individual-level variables. We follow Giesselmann and Schmidt-Catran (2019)to control for unobserved heterogeneity. The estimation results for controls are available from the authors upon request.

6. Conclusions

The analysis of earnings mobility and the observation of how the institutional environment might influence this mobility may be essential to understand the dynamics of income and income stability, a determinant issue in individuals' well-being. In this paper, we assess the possible linkage between EPL and earnings mobility. We differentiate between employment protection for regular workers against individual and collective dismissals (EPRC) and protection concerning temporary contracts (EPT), and examine mobility in two consecutive years for 23 European countries over the economic downturn period 2008–2014. Unlike other studies, we evaluate earnings mobility differentiating between upward and downward mobility, since its social implications may vary depending on the actual *direction* of the movement. We pay special attention to possible differential effects of EPRC and EPT on the earnings mobility among women of high reproductive age (25–35 years old). We do not restrict the analysis to employed individuals in two consecutive years (EM-E) and additionally analyse earnings mobility considering those employed in two consecutive periods and those unemployed in either period (EM-A).

Our results confirm that the effects of EPRC and EPT on earnings mobility are not homogeneous. The higher the protection for regular contracts (i.e., notification periods, severance pay, complexity of the layoff process, or repercussions for companies in the case of unfair dismissals), the lower the earnings mobility (either upwards or downwards) for the population as a whole. In contrast, protection of temporary employment, which includes issues such as regulation of fixed-term contracts and the establishment and operation of temporary work agencies, seems to be associated only with lower downward earnings mobility when considering transitions into and out of employment.

Our study goes a step further by examining whether employment protection is gender neutral in terms of mobility. To this end, we explore potential specific effects on women in the high-fertility age bracket; a group that is especially exposed to gender discrimination in labour markets and therefore particularly sensitive to employment protection. In this case, we find that EPRC may exert a significant differential effect on women of high reproductive age by counteracting downward earnings mobility. Nevertheless, although EPT protects against downward earnings mobility, it has no significant gendered effects.

Our findings highlight that employment regulations which seek to protect both permanent and temporary workers may play a significant role in terms of earnings stability. Nonetheless, unlike the gendered effectiveness of employment protection for permanent workers, employment protection for temporary workers has not been shown to sufficiently attend to the particular characteristics of women of high reproductive age; a period of life that is highly prone to gender labour inequalities. This supports the call for labour reforms to make employment protection for temporary workers more sensitive to the specific circumstances of women during this life stage in order to improve their protection and favour their transition from temporary to permanent employment.

Furthermore, these insights have direct policy implications for reducing earnings instability and not backtracking on gender equality in labour markets under circumstances of economic downturns, such as the current pandemic-induced crisis. Overall, women are more vulnerable than men to economic shocks, as it is often more difficult for them to access the labour market and they have worse employment conditions, including higher temporary employment rates. Indeed, as in prior crises, everything points to the fact that the labour impact of the COVID-19 pandemic will not be gender neutral, so we should not be gender blind in our responses to the pandemic. Our empirical evidence on

the gendered effects of protection regulation and the subsequent lessons drawn from it could be useful for both researchers and policymakers, as it sheds light on the links between employment protection and earnings mobility from a gender perspective and may help combat the adverse effects of the coronavirus economic crisis on the situation of women in labour markets.

Appendix

Figure A1. Trends in overall upward and downward EM-E by gender, 2008–2014

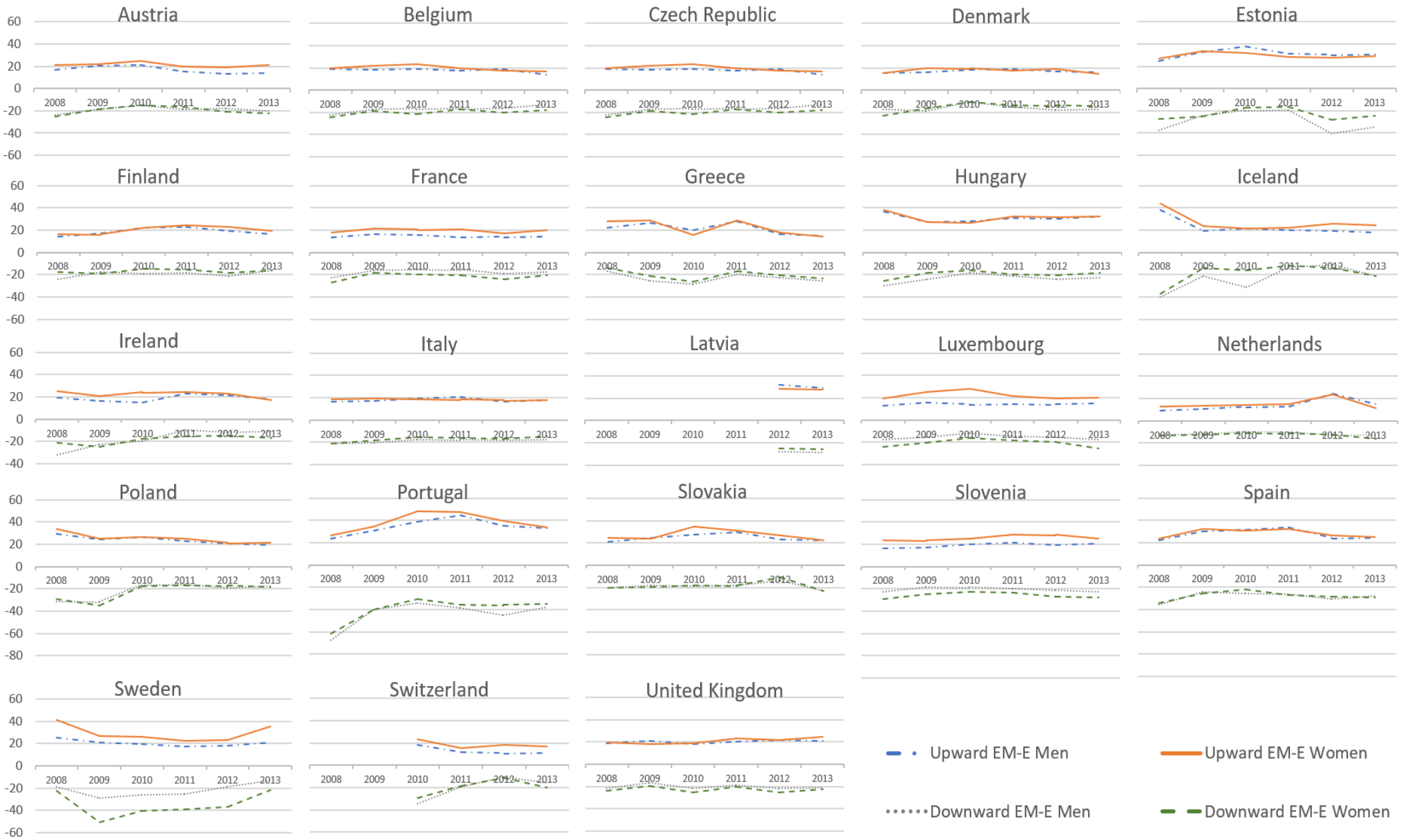
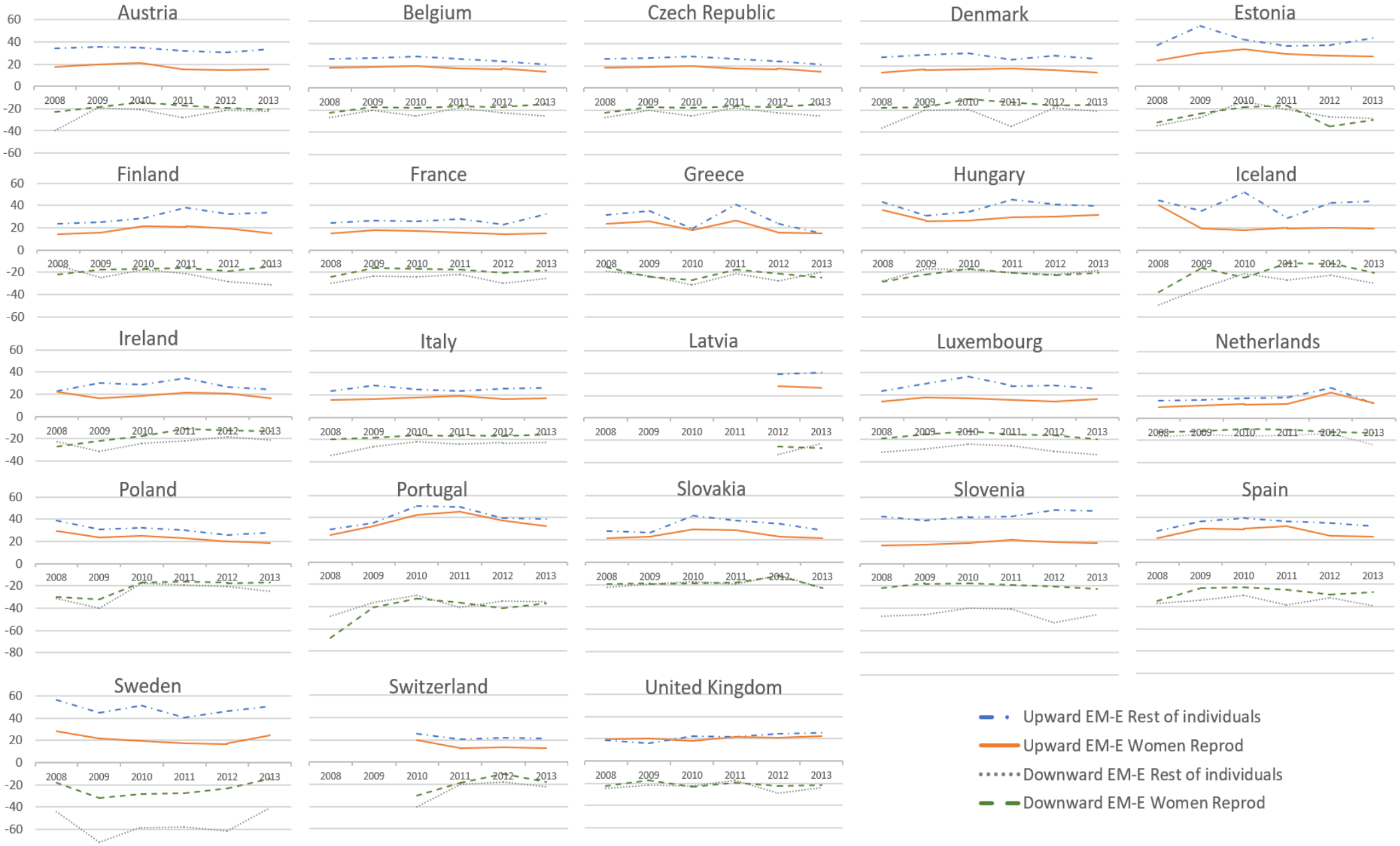


Figure A2. Trends in overall upward and downward EM-E. Women of high reproductive age vs. rest of individuals, 2008–2014



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[1] When we only consider employed individuals to analyse earning mobility, there are 554,058 observations.

[2] Note that EM-E corresponds to "earnings volatility" and EM-A to "labour market volatility" in Cappellari and Jenkins (2014) and Ayllón and Ramos (2019).

[3] Figure A1 in the Appendix shows the equivalent of Figure 2 for individual EM-E.

[4] Figure A2 in the Appendix is equivalent to Figure 3 but for EM-E.

[v] Note that the mean age of women at birth of first child for the 23 selected countries in 2013 was 28.6 years.