Are atypical workers worse off? Essays on temporary and part-time employment in Europe



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Abstract

This doctoral thesis contributes to research on socio-economic inequalities associated with two types of atypical employment, part-time and temporary work. Paper 1, entitled "Wage differences between atypical and standard workers in European countries: Moving beyond average effects" shows that wage penalties associated with temporary and part-time employment differ across the wage distribution, based on a sample of seven European countries. Temporary employment is associated with significant wage penalties that decrease but largely remain significant towards the upper end of the wage distribution. In contrast, wage differences between part-time and full-time workers are smaller and range from part-time penalties at lower deciles of the wage distribution to non-significant differences or premiums at the top. Paper 2, "Bridge for some, trap for others? Career phase variation in the long-term wage growth of temporary workers", examines whether the long-term wage growth consequences of temporary employment differ by career phase. Focusing on Germany, it shows that the wages of early-career temporary workers eventually converge with those of permanent workers, while temporary workers at later career stages experience long-term wage divergence. This variation can partially be attributed to differences in the subsequent labour market careers of temporary workers. Paper 3 is entitled "Does atypical employment come in couples? Evidence from European countries". It examines whether partner atypical employment affects own atypical employment, based on a sample of 29 European countries. The results show that partner temporary employment increases the likelihood of own temporary employment. Accumulation of part-time employment is also observed, albeit at a smaller scale. Finally, paper 4, entitled "Accumulation or mitigation? The impact of atypical employment in couples on joint labour income" looks at the effect of part-time and temporary employment in German couples on couples' joint labour income, and gender differences therein. Both temporary and part-time employment in couples are associated with a negative income effect, which becomes insignificant for part-time employment once adjusting for working hours. There is also some indication that disadvantages are more pronounced when male partners are in atypical employment compared to when female partners are atypically employed.

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Introduction

1 Background

In recent decades, European labour markets have undergone profound transformation within the context of rising female labour force participation, educational upgrading and technological change. This transformation was accompanied by the increased prominence of "atypical"[1] forms of employment (Hipp, Bernhardt and Allmendinger, 2015). Against a backdrop of labour market and welfare state reforms starting in the mid-1970s, greater flexibilization of employment was advocated by policymakers as a means of adapting to changing labour market conditions (Kalleberg, 2000; Hipp, Bernhardt and Allmendinger, 2015). Yet, scholars have linked flexibility in hours and contract structures to a process of labour market segmentation, where labour markets are divided into groups of core and atypical workers (Tomlinson and Walker, 2012). In order to advance meaningful analysis of such potential labour market divides, research should enquire into the implications of different employment relationships for the economic and social outcomes of individuals (Häusermann and Schwander, 2012).

While varying definitions of atypical employment exist, it is usually defined relative to what is termed the standard employment relationship. Though there is no general consensus on what the standard employment relationship entails, characteristics typically include a fixed full-time schedule and the exchange of labour for employer compensation, under employer control and at their place of business, with a mutual expectation of continued employment (Kalleberg, Reskin and Hudson, 2000). For the purposes of this doctoral project, atypical employment is defined as employment diverging from the standard employment relationship, that is permanent, full-time employment where the worker is employed on a contractual basis by an

[1] This thesis makes reference to atypical (relative to standard) employment but the term nonstandard could equally be used.

employer (Giesecke, 2009; Keller and Seifert, 2013; Hipp, Bernhardt and Allmendinger, 2015; ILO, 2015). Atypical employment differs from this standard employment relationship in one or more aspects. This doctoral thesis focuses on two types of atypical employment, part-time employment and temporary employment.

Temporary employment is employment where a worker is employed only for a specific period of time, as opposed to a permanent working relationship without a fixed end date. In the 1990s, many European countries underwent labour market deregulation, often involving the loosening of protections for temporary contracts and subsequent increases in temporary employment rates (Esping-Andersen and Regini, 2000; Hipp, Bernhardt and Allmendinger, 2015). While growth in temporary employment has stagnated in the past decade, the individual-level risk of holding a temporary contract has increased (Latner, 2022).

This project also investigates a second form of atypical employment, part-time employment. Part-time work, the most common form of atypical work, is employment where working hours are less than "normal" (Kalleberg, 2000). Internationally, the standard definition of part-time work is working less than 30 hours per week (van Bastelaer, Lemaître and Marianna, 1997). Some research has also focused on marginal part time work, defined as employment with an extremely low number of hours, commonly less than 15 per week (Messenger and Wallot, 2013). Relative to the standard employment relationship as defined above – rooted in stable, full-time, permanent employment (Barbieri, 2009) - part-time work is clearly atypical. Yet it should be recognized that it has become increasingly common and well-regulated in European labour markets (Giesecke, 2009; Hinterseer, 2013). This is a crucial difference between temporary and part-time employment that will inform the analyses presented in this thesis.

A substantial amount of scholarship has investigated the characteristics and consequences of atypical employment in European countries. Research efforts have focused on the determinants of atypical employment (e.g. Arulampalam and Booth, 1998; Baranowska and Gebel, 2010; Gebel and Giesecke, 2011; Eichhorst and Marx, 2015), the material circumstances and working conditions of atypical workers (e.g. Hirsch, 2005; Manning and Petrongolo, 2008; Giesecke, 2009; Eurofound, 2012; Matteazzi, Pailhé and Solaz, 2014; Kahn, 2016) and the career implications of holding an atypical job (e.g. Russo and Hassink, 2008; Gebel, 2009, 2010; Fuller and Stecy-Hildebrandt, 2015; Häusermann, Kurer and Schwander, 2016; Mattijssen and Pavlopoulos, 2019). Yet although a large number of studies on atypical employment have been conducted, there are still gaps in knowledge surrounding the phenomenon, as will be discussed in more detail in later sections of this introduction. This doctoral thesis aims to contribute to the endeavour of further illuminating how temporary and part-time work shape social and labour market inequalities in European societies. The empirical examination of socio-economic disadvantages focuses mainly on differences in wages and incomes between atypical and standard workers as the main outcome of interest.

The doctoral thesis consists of four articles. Two of the articles take a cross-country approach, analysing a large sample of European countries in order to establish whether empirical regularities in the associations observed can be found across countries. The other two papers focus on a specific country case study, Germany. Germany is considered a dualized labour market economy, with labour market and social policy institutions that are strongly marked by unions representing inside labour, so that atypical work may be associated with more marked disadvantages than standard work (Häusermann and Schwander, 2012). As such, the country represents an interesting case to study the implications of atypical employment for workers.

In this introduction, the literature on atypical employment as it relates to this doctoral project is first briefly surveyed in order to identify open questions (Section 2). In Section 3, building on this review, the contributions of the doctoral thesis are detailed. Finally, Section 4 summarizes the structure of the thesis and the four articles contained within it.

2 A brief survey of scholarship on atypical employment

A number of studies have examined the socio-economic consequences of various types of atypical employment, particularly temporary and part-time work. This section briefly summarizes the main insights of existing scholarship on temporary and part-time employment as they relate to this doctoral project and highlights the gaps in the literature that the four articles in this thesis seek to address.

Wage gaps associated with atypical work

One of the primary outcomes of interest in the literature on atypical employment are the wages of atypical workers relative to standard workers. While many studies investigate the wage consequences of temporary and part-time employment, research focuses almost exclusively on the average effect of these employment relationships. However, this thesis makes the case that wage effects of atypical employment are likely heterogeneous, a phenomenon that should be investigated in more detail. In particular, wage consequences of atypical employment may differ across the wage distribution.

To begin with, there are several reasons to expect wage differences between atypical and standard workers. These include compositional effects and "genuine" effects of atypical employment itself. If workers in atypical work differ systematically from those in standard

work, this should be associated with wage differences between these types of workers. Indeed, scholarship has shown that both part-time and temporary workers differ from standard workers in terms of characteristics such as age, education and labour market experience, though these associations differ by type of atypical employment (Giesecke, 2009; Baranowska and Gebel, 2010; Gebel and Giesecke, 2011). Furthermore, it is conceivable that (a subset of) workers in atypical contracts have a preference for shorter working hours or lower contractual long-time commitment due to non-market based preferences or commitments, particularly women, younger or older workers, with potential effects on productivity (Hagen, 2002; McGinnity and McManus, 2007). Finally, atypical employment is also disproportionately located in certain sectors and occupations (Eichhorst and Marx, 2015; Nightingale, 2019). All these factors related to the composition of the atypical workforce could account for potential differences in wages between atypical and standard workers.

Beyond such compositional effects, differences in wages between atypical and standard workers may be a product of distinct levels of labour market bargaining power associated with this type of work, as argued in labour market segmentation theory. Briefly, according to this theory, labour markets are divided into a primary labour market segment consisting of high-quality, "insider" jobs and a secondary segment consisting of lower-skilled, lower-waged work (Piore, 1975). Wage setting in Europe is dominated by insider, incumbent employees with highly protected jobs who maximize the rent they can extract from employers through bargaining (Bentolila *et al.*, 1994). If atypical work is disproportionately located in the unskilled, low-waged secondary labour market segment, with lower union membership and higher vulnerability, it should accordingly be associated with lower labour market bargaining power and therefore wage disadvantages relative to standard workers (O'Dorchai, Plasman and Rycx, 2007; Comi and Grasseni, 2012).

It follows that the extent of wage disadvantage associated with atypical employment will depend on whether it is indeed part of the secondary labour market and associated with lower labour market bargaining power. Here, it is important to highlight the heterogeneity of part-time and temporary employment. In general, both temporary and part-time employment are associated with some negative characteristics, such as lower job autonomy and control over working time as well as lack of training and lifelong learning (Eurofound, 2012). However, while temporary workers are expected to be disproportionately located in the secondary labour market, part time workers are commonly guaranteed the same amount of employment protection and regulation as workers in full-time jobs (Giesecke, 2009). Given that part-time work is more fully embedded in social and labour legislation and is becoming increasingly common (Hinterseer, 2013), it is in some sense distinct from other forms of atypical employment, such as temporary work. On average, the labour market disadvantage – and therefore wage penalties – associated with part-time work should be less severe relative to temporary work.

Empirical findings on the average wage gaps associated with temporary and part-time work, relative to permanent and full-time work, respectively, tend to bear out this expectation. A comparatively large literature examines wage effects of temporary employment, or some subset thereof. Studies focusing on fixed-term or temporary employment for single countries (Blanchard and Landier, 2002; McGinnity and Mertens, 2002; De La Rica, 2004; Gebel, 2009) as well as comparative work (Mertens, Gash and McGinnity, 2007; Giesecke and Groß, 2009; Comi and Grasseni, 2012; Dias da Silva and Turrini, 2014; Kahn, 2016) tend to find substantial wage penalties associated with this form of employment relative to permanent work, though the size of the penalty may depend on the country context. In contrast, studies looking at part-time wage gaps, often focusing on women, tend to find that the wage penalties associated with this work strongly decrease or disappear once accounting for worker and industry

characteristics (Hirsch, 2005; Bardasi and Gornick, 2008; Manning and Petrongolo, 2008; Matteazzi, Pailhé and Solaz, 2014; Paul, 2016). However, part-time wage penalties may persist when specifically examining marginal forms of part-time work (i.e. working very low hours) (Giesecke, 2009; Paul, 2016).

Overall, the literature on wage gaps associated with atypical employment largely focuses on the average effect of these forms of employment, paying less attention to effects across the wage distribution. Yet it should be noted that atypical workers – as will be set out in greater detail in this thesis – may in fact be part of both the primary and secondary labour market (Piore, 1975; Tilly, 1992). Hence, there may be substantial variation in the wage disadvantages associated with atypical employment within the population of atypical workers. Indeed, some indicative evidence on wage gaps across the wage distribution suggests that variation across the distribution exists and warrants further investigation. Tõnurist and Pavlopoulos (2013) identify a decreasing part-time wage gap in the higher quantiles of the wage distribution in Germany. Nightingale (2019) finds a persistent low-pay part-time penalty for both men and women in the UK. For fixed term employment, Mertens, Gash and McGinnity (2007) show that in Germany, fixed term wage differentials decrease clearly with higher quantiles, while in Spain they remain similar. Similarly, Comi and Grasseni (2012) identify differing patterns across the wage distribution for temporary employment in several European countries. However, the wage consequences of atypical employment beyond the average effects remain relative underexplored in the literature. This is why this thesis sets out to more systematically develop a theoretical framework according to which the wage consequences of atypical employment differ across the wage distribution, and subsequently investigates this empirically.

Long-term wage consequences of atypical employment

Beyond the immediate material disadvantages potentially associated with atypical employment, it is important to consider whether and how a spell in atypical employment impacts the longer-term careers of workers. This has been a concern particularly in the literature on temporary employment, given that temporary employment is especially common among younger workers (Baranowska and Gebel, 2010). This thesis similarly focuses on long-term wage growth trajectories of temporary workers.

Briefly, the literature on the long-term career consequences of temporary employment has developed two contrasting theoretical scenarios – a bridge and a trap scenario. In the bridge scenario, temporary employment provides a path into the labour market and results in long-term labour market integration. Such labour market integration is mainly driven by screening processes. As employers observe worker productivity imperfectly, job allocation is driven by learning about the quality of a match and subsequently screening workers on the job (Faccini, 2014). Temporary contracts can increase the value of posting job vacancies for employers as they can screen workers without incurring the costs of a bad match (Ibid.). In turn, for workers with lower qualifications, atypical work may be a chance to develop contacts and build human capital (Autor and Houseman, 2010). As the worker reveals their productivity and builds up human capital, the potential problem of asymmetric information between worker and employer may disappear resulting in longer term labour market integration (with the current or a new employer), a potential transition to permanent employment and income progression (Mooi-Reci and Wooden, 2017). From this perspective, initial lower earnings associated with temporary employment should be compensated as workers catch up with those in permanent employment.

In contrast, the trap scenario posits that temporary employment will be associated with long-term entrapment in the secondary labour market, lack of (high-quality) employment and divergent wage growth from permanent workers. This is driven by two main mechanisms. First, temporary employment may be associated with reduced human capital accumulation due to a lack of opportunities for training and skills development. Employer incentives to invest in training for workers who have very little attachment to their firm are low (Niebuhr and Buch, 2018). Research has shown that permanent, full-time workers are likely to receive more and higher-quality training (Arulampalam and Booth, 1998; O'Connell and Byrne, 2012; McVicar *et al.*, 2016). Second, temporary employment may be associated with substantial stigma. Employers may believe that atypical workers are less productive, and perceive previous experience in atypical forms of employment as a negative signal of performance (Gebel, 2010). The training and stigma mechanisms imply that temporary employment entails the risk of entrapment in precarious employment and low mobility into higher-quality jobs (Barbieri, 2009), and therefore long-term wage divergence relative to permanent workers.

A large part of the empirical research on career progression of temporary workers, particularly that found in the sociological literature, focuses on moves into different contract types or unemployment (Scherer, 2001; Giesecke and Groß, 2003; McGinnity, Mertens and Gundert, 2005; Gash, 2008; Barbieri and Scherer, 2009; Buchholz *et al.*, 2009; Fervers and Schwander, 2015; Barbieri and Cutuli, 2016). As regards studies on wage progression, when focusing on labour market entrants, it is generally found that initial wage disadvantages associated with temporary employment disappear within a few years (McGinnity, Mertens and Gundert, 2005; Gebel, 2010; De Lange, Wolbers and Ultee, 2013), though some studies find evidence of more lasting disadvantages for certain groups (Pavlopoulos, 2013). When examining the general labour market, results are more mixed, with some evidence of lasting wage penalties associated with temporary employment that are not compensated over time (Fuller and Stecy-Hildebrandt,

2014), and other findings of insignificant long-term differences (Booth, Francesconi and Frank, 2002; Gash and McGinnity, 2007).

In recent years, the literature on atypical employment has increasingly acknowledged that the simple bridge versus trap scenario likely does not capture the complexities of the career consequences of temporary employment. For instance, some scholars have used sequence analysis to emphasize the multidimensionality of employment and wage trajectories associated with temporary employment (Fuller and Stecy-Hildebrandt, 2015; Mattijssen and Pavlopoulos, 2019; Mattijssen, Pavlopoulos and Smits, 2020). This literature illustrates that future scholarship should take into account heterogeneity within the labour market careers of temporary workers to a larger extent and analyse labour market outcomes beyond short-term transitions to permanent employment in more detail. This thesis contributes to this broader research endeavour by investigating heterogeneity in the longer-term wage trajectories of temporary and permanent workers, specifically focusing on variation by career phases.

Atypical employment in couples

Up to now, this review – following the majority of the literature on atypical employment – has focused on the individual level. However, alongside this investigation at the individual level, there are significant reasons to examine the forms and consequences of atypical employment constellations within households and couples. Indeed, interlinkages in the lives of partners may substantially influence their employment careers. Focusing on how employment, including atypical employment, is structured within couples is of even higher importance in a context where dual-earner couples are becoming increasingly prominent (Horemans, 2016). However, research on atypical employment has hitherto paid relatively limited attention to the dimension of partners and couples.

In the first place, it is important to establish whether atypical employment of partners can be linked to own atypical employment. Within the broader sociological literature, a large body of work has examined how partner characteristics may influence individuals' careers, specifically labour force participation and occupational attainment (Bernasco, De Graaf and Ultee, 1998; Bernardi, 1999; Brynin and Francesconi, 2004; Verbakel and De Graaf, 2008; Shafer, 2011). For instance, this literature has shown that for women, higher partner income reduces labour market activity (Henz and Sundström, 2001). This scholarship develops several theoretical mechanisms linking partner employment and resources and own employment, which may similarly apply to the case of atypical employment. These arguments are briefly sketched here but are developed more fully within the body of the thesis.

On the one hand, partner atypical employment may increase the likelihood of own atypical employment. First, partners share restrictions, in the form of local labour market conditions and household circumstances, that may predispose them to being atypically employed (Grotti and Scherer, 2014). Second, homogamy within couples may imply that individuals who are more likely to be atypically employed match in the marriage market, increasing the likelihood of atypical employment being concentrated in couples (Bernasco, De Graaf and Ultee, 1998). Third, atypically employed individuals may have access to inferior labour market resources relative to those in standard employment, in turn influencing the labour market success and likelihood of atypical employment of their partner (Verbakel and De Graaf, 2008; De Lange, Wolbers and Ultee, 2013). On the other hand, it is also conceivable that atypical employment does not accumulate in couples. Theoretically, we would expect atypical employment not to accumulate in couples if couples engage in household specialization and divide domestic and market labour between partners (Becker, 1993; Bernardi, 1999).

Moreover, it should be noted that these mechanisms likely do not apply equally to temporary and part-time employment. Given the differences in labour market standing and socio-economic characteristics of workers between part-time and temporary employment (Barbieri, 2009; Giesecke, 2009), as well as the gendered nature of part-time work, it is conceivable that these contrasting scenarios apply differently to the two employment relationships, as will be further developed in the articles presented in this thesis.

The empirical investigation of atypical employment in couples and households is an emerging field. Following contributions on the concentration of unemployment in households (Gregg and Wadsworth, 2001; Gregg, Scutella and Wadsworth, 2009; de Graaf-Zijl and Nolan, 2011), Horemans (2016) develops an index of the concentration of atypical employment – defined as deviations from full-year full-time employment – in Europe. The analysis finds marked differences across European countries, with polarization particularly evident in Southern and Eastern Europe. On the micro level, two studies (De Lange, Wolbers and Ultee, 2013; Grotti and Scherer, 2014) find that partner temporary employment increases the likelihood of own temporary employment. No such investigation exists for part-time employment.

Furthermore, the consequences of the presence of atypical employment in couples for the couple's material circumstances are of importance, particularly if there are links between partner and own atypical employment. However, very little empirical evidence exists as of today. An analysis by the OECD (2015) shows that atypical working patterns – including own-account self-employment, temporary work and part-time work – are disproportionately located at the lower end of the household income distribution, particularly where they constitute the main sources of earnings. A study of the Australian context (Laß and Wooden, 2020) shows that fixed-term work is associated with higher household income, while the reverse is true for casual and agency work. Overall, however, it is evident that the couple dimension of atypical

employment and its socio-economic consequences remain underexplored in the literature. This doctoral project aims to contribute to filling this gap by examining links between partner and own atypical employment and the consequences of atypical employment in couples for these couples' socio-economic position.

3 Contributions

This thesis presents a collection of four articles contributing to research on two forms of atypical employment, temporary and part-time employment. Papers 1 and 2 focus on the wage consequences of atypical employment for individual workers, looking at variation in wage gaps associated with atypical employment across the wage distribution (paper 1) and career phase variation in the wage growth of temporary workers (paper 2). The second half of the thesis includes two articles looking at atypical employment from a couple perspective. They examine the relationship between partner atypical employment and own atypical employment (paper 3) and the effects of atypical employment in couples on couple income (paper 4). Jointly, these articles form a novel contribution to scholarly knowledge on the socio-economic implications of atypical employment.

Overall, this thesis aims to contribute to the broader literature on atypical forms of work by providing detailed and comprehensive evidence on the potential socio-economic disadvantages of atypical work at the level of both individuals and couples. That is, are temporary and part-time employment associated with different socio-economic outcomes for workers compared to those in standard work? If so, is there heterogeneity in these patterns across and within these types of atypical employment?

By addressing the research questions set out above, the four articles contribute to scholarly knowledge on atypical employment in a variety of ways. First, the articles presented explicitly examine heterogeneity in wage and income effects of atypical employment *within* the population of atypical workers. As described in the previous section, scholarship on wage gaps associated with atypical employment has largely focused on average effects across the population. Similarly, further attention towards heterogeneity across social groups in the longer-term consequences of temporary employment, particularly wage growth patterns, is warranted. This thesis explores whether the economic effects of atypical employment are stratified based on various characteristics, including position within the wage distribution, career phase, and gender. In doing so, the thesis draws renewed attention to the fact that the socio-economic circumstances of atypical workers may differ significantly based on both their individual and job characteristics.

Second, the doctoral project moves on from a focus on atypical employment at the individual-level to examining couple-level dynamics. The lives of individuals, including atypical workers, are shaped by partnerships and the influence these have on employment and career decisions and trajectories (Blossfeld and Buchholz, 2009). It is conceivable that atypical employment within households and couples has significant implications for the labour market chances and material circumstances of these units. However, these aspects remain understudied in the literature on atypical employment. An analysis at the couple level, advanced in this thesis, enables a more nuanced account of how atypical employment translates into social and economic divides. Specifically, the thesis explores two significant aspects that have been underexplored in previous literature: the influence of partner atypical employment on own atypical employment, and the presence of atypical employment in couples on couples' labour income.

Finally, three out of the four articles presented explicitly compare and contrast two types of atypical employment, part-time and temporary employment. Existing examination of atypical employment tends to be limited to specific types of such employment (Robert De Vries, Maarten and Wolbers, 2005; Addison and Surfield, 2007; Bardasi and Gornick, 2008; Manning and Petrongolo, 2008; Buchholz *et al.*, 2009; Fervers and Schwander, 2015). By jointly examining part-time and temporary employment, two distinct types of atypical employment, the thesis intends to advance both theoretical and empirical insights into the extent to which different forms of atypical employment are associated with labour market disadvantage, and underlying mechanisms potentially driving the differences between them. In doing so, it seeks to draw out differences, but also similarities between the two different forms of atypical employment, and implications for future research.

4 Structure of the thesis

Situated within the scholarship briefly summarized above, this thesis consists of four papers that jointly contribute to the investigation of part-time and temporary employment in European countries. This section briefly describes the aims and structure of each of the four articles.

The first paper **"Wage differences between atypical and standard workers in European countries: Moving beyond average effects"** explores variation in wage gaps associated with temporary and part-time employment across the wage distribution. The paper first reviews the literature on wage differences between atypical and standard workers, focusing particularly on labour market segmentation theory. It then develops a theoretical framework arguing that atypical employment relationships may be located in both the secondary and primary labour market segment. This will in turn affect the levels of labour market bargaining power and wages associated with them. Moreover, the paper explicitly compares and contrasts part-time and

temporary work, arguing that the theoretical mechanisms set out apply to these employment relationships in different ways, given the different levels of protection they are accorded in European labour markets.

Subsequently, the paper uses 2016 EU-SILC data for a pooled sample of seven European countries to estimate quantile regressions that show the wage gaps associated with temporary and part-time employment across the wage distribution. The paper also seeks to enquire into the mechanisms driving these differences, specifically highlighting the occupational position of atypical workers as one key driving factor. In doing so, it contributes a detailed exploration of the heterogeneous wage consequences of atypical employment across the population of atypical workers, as well as a theoretical framework outlining the potential mechanisms driving these differences. In a second step, the article provides an auxiliary analysis where quantile regressions are run separately for each country. A description of commonalities and differences in these patterns across seven European countries is put forward, though a formal investigation of differences is left to future research.

A version of paper 1 has been published in the *European Sociological Review* (Westhoff, 2022).

The second paper **"Bridge for some, trap for others? Career phase variation in the long-term wage growth of temporary workers"** moves on from cross-sectional analysis to provide an account of the long-term career consequences of atypical employment. Specifically, the paper focuses on the long-term wage growth consequences of temporary employment, and career phase variation therein. At the outset, the paper lays out the "bridge vs trap" scenario traditionally employed in the literature on the longer-term career consequences of atypical employment, specifically isolating the human capital accumulation, stigma and screening mechanisms. It then argues that these three mechanisms are likely to apply differently to

workers depending on the career phase they are in during their spell in temporary employment, and the associated labour market experience and standing they (are expected to) have.

To explore the long-term wage growth consequences of temporary employment, the paper makes use of longitudinal data (1995-2018) from the German Socio-Economic Panel (SOEP). Growth curve models are estimated to model wage curves for temporary and permanent workers at different stages of their career. Furthermore, the analysis accounts for a number of mediating variables aiming to capture the subsequent career after the initial spell in temporary or permanent employment. In this way, the paper seeks to explore in how far divergences in wage growth between temporary and permanent workers at different career stages are associated with variation in the subsequent labour market career, focusing on subsequent spells in temporary employment, employment and unemployment.

In the second half of the thesis, the dynamics of atypical employment within couples are examined. The third paper **"Does atypical employment come in couples? Evidence from European countries"** provides a novel account of the dynamics of atypical employment, specifically part-time and temporary employment, within couples. The paper starts out from the sociological literature, summarized in section 2, exploring the relationship between partner characteristics and resources and individuals' own careers. It argues that in a similar fashion, partner atypical employment status may influence one's own likelihood to be atypically employed. It further explores several theoretical pathways through which partner atypical employment may positively or negatively influence the individual likelihood of atypical employment. The theoretical discussion also highlights differences in the theoretical expectations and driving mechanisms between part-time and temporary employment.

Based on this theoretical background, the paper explores the relationship between partner and own temporary and part-time employment in 29 European countries, using EU-SILC 2016 data. First, the paper employs logistic regressions to investigate this association for the pooled European sample, separately for men and women. The paper also operationalizes various types of household characteristics and partner resources in order to establish – in a descriptive fashion - whether they can (partially) account for the effects observed. Second, the paper provides a disaggregated analysis of the influence of partner atypical employment on own atypical employment by country. In a similar fashion to paper 1, this allows for a descriptive account of country differences and commonalities relative to the average European pattern.

Finally, the fourth paper **"Accumulation or mitigation? The impact of atypical employment in couples on joint labour income"** addresses the question of how constellations of atypical employment in couples affect the socio-economic standing of couples. Specifically, it examines how atypical employment in couples affects these couples' joint labour income. Theoretically, the paper juxtaposes an accumulation and a mitigation scenario. On the one hand, the presence of atypical employment in the couple – known to be associated with income and other labour market disadvantages at the individual level – may lead to an accumulation of disadvantage within the couple. On the other hand, it is possible that by pooling risks within the couple and employing household specialization strategies, couples can mitigate against the income disadvantages associated with atypical employment at individual level. Furthermore, given persistent gender inequalities within labour markets and couples, the paper explores whether the impact of atypical employment on couples' income position is gendered.

Empirically, the paper then employs data from the SOEP (1995-2018) to estimate fixed effects models that investigate the association between different constellations of atypical employment in couples and couples' joint labour income, separately for temporary and part-time

employment. The paper juxtaposes results for gross labour income and income equivalized for working hours, thereby illustrating to what extent the income disadvantage associated with atypical employment is accounted for by differences in working hours. The paper also provides an in-depth analysis of the interaction between atypical employment and gender in influencing couple's joint labour income. In doing so, it showcases the heterogeneity of the socio-economic effects of atypical employment in couples not only across but also within these employment relationships.

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Wage differences between atypical and standard workers in European countries: Moving beyond average effects

Leonie Westhoff

Abstract

This article provides a detailed picture of wage differences between atypical and standard workers across the wage distribution. It compares two distinct types of atypical employment, part-time and temporary employment, and examines seven European countries. Using 2016 EU-SILC data, the article presents quantile regression estimates of wage gaps associated with atypical employment across the wage distribution. The results show that wage patterns associated with different types of atypical employment are diverse and complex. Temporary employment is associated with significant wage penalties that decrease but largely remain significant towards the upper end of the wage distribution. In contrast, wage differences between part-time and full-time workers are smaller and range from part-time penalties at lower deciles of the wage distribution to non-significant differences or premiums at the top. These results suggest that different mechanisms may drive wage differences associated with different types of atypical employment. In particular, the article highlights the role of occupation in affecting atypical workers' labour market position and, consequently, wages relative to standard workers. Overall, the significant heterogeneity in atypical employment and its wage consequences calls into question the usefulness of the concept as a unifying category for research.

1 Introduction

Political and research attention towards the phenomenon of atypical employment has increased in recent decades (Hipp, Bernhardt and Allmendinger, 2015; ILO, 2015). Some policymakers have argued that the flexibilization of contracts and working hours are advantageous for both workers and firms (Kalleberg, Reskin and Hudson, 2000; Nienhueser, 2005). Yet there remain questions about the social and economic consequences of atypical employment, commonly linked to emerging labour market divides (Häusermann and Schwander, 2012). This article explores the consequences of atypical employment relative to standard employment for individual wages in Europe, focusing on potential heterogeneity in wage effects. Does the wage gap between atypical and standard workers vary across the wage distribution? This question has important implications for both future academic research and policy responses to the growth of atypical employment.

Atypical employment is conceptualized as employment diverging from the "standard employment relationship", that is permanent, full-time employment where the worker is employed on a contractual basis by an employer (Hipp, Bernhardt and Allmendinger, 2015; ILO, 2016). Atypical employment therefore includes part-time work, temporary employment, contractual arrangements involving multiple parties (particularly temporary agency work) and dependent self-employment (Hipp, Bernhardt and Allmendinger, 2015). Unfortunately, limitations in the dataset prohibit the examination of dependent self-employment and temporary agency work[1]. As such, the subsequent discussion and analysis focus on temporary and part-time employment.

[1] The dataset used, EU-SILC, does not capture multi-employment relationships or dependent self-employment.

Previous research has established that atypical workers differ from standard workers in their individual and job characteristics (Baranowska and Gebel, 2010; Eichhorst and Marx, 2015; Gebel and Giesecke, 2009), and that both temporary and part-time employment may be associated with wage penalties relative to permanent and full-time employment, respectively, though these associations differ by type of atypical employment analysed (Blanchard and Landier, 2002; Hirsch, 2005; Addison and Surfield, 2007; Manning and Petrongolo, 2008; Giesecke, 2009; Matteazzi, Pailhé and Solaz, 2014; Kahn, 2016). Moreover, scholarship has increasingly emphasised heterogeneity within atypical employment, as temporary and part-time workers have diverse socio-economic characteristics and work in a range of jobs (de Jong *et al.*, 2009; Eichhorst and Marx, 2015; Nightingale, 2019). This heterogeneity will likely affect the socio-economic consequences of atypical employment, including wage differences associated with it.

Building on this literature, the central contribution of this study is a detailed investigation into the differences in wage gaps associated with part-time and temporary employment across the wage distribution. Several theoretical mechanisms may explain changing wage gaps between atypical and standard workers across the wage distribution, including compensating differential and labour market segmentation theory. In this paper, applications of the latter to temporary and part-time employment will be used to argue that these employment relationships may be located in both the secondary and primary labour market segment, in turn associated with differing levels of bargaining power and wages. However, these mechanisms likely apply to temporary and part-time employment in differing ways, as they are established and protected to highly different extents in European labour markets.

In addition, this paper adopts a comparative European perspective, examining a sample of seven countries. Most existing literature on wage differences associated with atypical employment

across the wage distribution focuses on single countries. For both part-time and fixed-term employment, decreasing wage penalties and emerging premiums at higher deciles have been found in Germany (Mertens and McGinnity, 2005; Mertens, Gash and McGinnity, 2007; Tõnurist and Pavlopoulos, 2013; Gallego-Granados, 2019), while in Spain, differentials for fixed-term work are similar across quantiles (Mertens, Gash and McGinnity, 2007). By analysing both a pooled country sample and individual countries, the paper establishes in how far patterns are systematic across Europe. The analysis examines commonalities and differences across countries and discusses some potential explanations, though a formal investigation of country differences is left to future research.

This paper builds on a previous contribution by Comi and Grasseni (2012), who conduct a cross-national analysis of wage penalties associated with temporary employment across the wage distribution. Examining nine European countries, they find a pattern of decreasing wage gaps in several countries, though not in all cases studied. This article updates and extends these results. In particular, unlike the aforementioned study - and other previous scholarship on atypical employment and wages across the wage distribution (Mertens and McGinnity, 2005; Mertens, Gash and McGinnity, 2007; Tõnurist and Pavlopoulos, 2013; Gallego-Granados, 2019) - this paper jointly examines two types of atypical employment, temporary and part-time employment. Moreover, it contributes a detailed theoretical framework outlining the mechanisms affecting wage differences between atypical and standard workers across the wage distribution, and how they may apply differently to part-time and temporary employment. The subsequent comparative empirical analysis enables a detailed exploration of how the potential theoretical mechanisms apply in practice.

2 Why expect differences in wage gaps between atypical and standard workers across the wage distribution?

Several theories could explain wage differences between workers in atypical – that is, part-time and temporary - and standard employment. On the one hand, compensating differential theory argues that in perfectly competitive markets, wage differentials are required to compensate for (dis)advantages among work activities which influence the desirability of different employment options (Rosen, 1969). Wage discounts or premiums should reflect this (Addison and Surfield, 2007). Indeed, both temporary and part-time employment are associated with negative characteristics, such as lower job autonomy and fewer training opportunities (Eurofound, 2012), as well as lower non-wage benefits, such as pensions (Schulze Buschoff, 2015). In addition, the lower job permanency associated with temporary employment may itself be seen as undesirable. If atypical employment is systematically related to negative characteristics, this should lead to relatively higher earnings among atypical workers.

On the other hand, following labour market segmentation theory, atypical employment may be associated with wage penalties. Here, labour markets consist of two market segments, one internal, or primary, segment of stable, well-paid positions with good career prospects and working conditions, and an external, or secondary, segment with lower-grade jobs and no advancement prospects (Doeringer and Piore, 1971; Tomlinson and Walker, 2012). Jobs in the internal segment are characterized by higher stability and wages than those in the external segment, where turnover is high (Reich, Gordon and Edwards, 1973). Employees in the internal labour market can extract wage advantages from employers through bargaining, resulting in relative wage penalties for workers in the external segment (Bentolila, Dolado, Franz, and Pissarides, 1994). If atypical workers are disproportionately located in this external segment, they should suffer wage penalties relative to standard workers.

Generally, temporary employees are more likely to face labour market disadvantages and wage penalties than part-time workers. Following Sørensen (2000), the predominant labour market positions in internal labour markets are "closed", that is, permanent and not freely available to external labour market workers. In contrast, "open" positions are allocated through competitive market allocation mechanisms, with matches short and definite (Sørensen, 2000). Workers within the internal labour market can claim "positional rents" from employers, who have incentives to avoid the turnover cost of replacing workers in closed positions, as they are protected by job-preserving measures and legislation (Giesecke, 2009; Giesecke and Groß, 2009). Temporary contracts are by nature more open than permanent ones, and thus inherently put workers at a disadvantage when it comes to wage bargaining.

In contrast, part-time workers are exposed to much lower labour market disadvantage (Giesecke, 2009). Relative to the definition of the standard employment relationship rooted in the Fordist "golden age", built on stable, full-time, permanent and dominantly male employment (Barbieri, 2009), part-time work is clearly "atypical". Nevertheless, it has become highly established in labour markets and usually entails similar employment rights as full-time employment (Barbieri, 2009; Nicolaisen, Kavli and Steen Hensen, 2019). Though part-time workers face some institutional disadvantages such as lower unionization (O'Dorchai, Plasman and Rycx, 2007), temporary work is inherently associated with greater labour market insecurity and disadvantage than part-time employment. With regard to wages, research confirms this, as wage penalties associated with temporary employment are consistently identified (e.g. Giesecke and Groß, 2009; Kahn, 2016), whereas part-time wage gaps tend to become very small or disappear once accounting for the characteristics of workers, though results vary (e.g. Hardoy and Schøne, 2006; O'Dorchai, Plasman and Rycx, 2007; Manning and Petrongolo, 2008; Matteazzi, Pailhé and Solaz, 2014).

However, atypical employment is a diverse category and different theoretical mechanisms may explain wage dynamics across the population of atypical workers. Indeed, to this end, the primary interest of this paper lies in investigating whether wage patterns associated with different types of atypical employment differ across the wage distribution. For both part-time and temporary employment, theoretical arguments will be developed to explain such differences.

Turning first to temporary employment, Piore (1975) proposes that the primary labour market segment is heterogeneous. More precisely, the primary sector can be divided into a lower and upper tier. Whereas the lower tier is defined by the traits detailed above characterizing the primary labour market segment, the upper tier consists of professional and managerial jobs. Professions in the upper tier are associated with higher status, career advancement and pay relative to the lower tier. Job mobility and turnover are relatively high, but tend to be associated with career advancement, unlike the high job turnover characterizing the secondary sector (Ibid.). Hence, more mobile temporary jobs may exist in both the external and the primary labour market. However, temporary workers in the primary segment have higher status and tend to work in certain professional occupations, such as creative occupations (Reich, Gordon and Edwards, 1973)[2]. Therefore, they have higher labour market bargaining power than temporary workers in the external segment. Empirical evidence demonstrates that temporary employment is located in highly different professions. While many temporary workers work in elementary occupations (Eichhorst and Marx, 2015), some high-skilled occupations are also disproportionately temporary, such as entry-level jobs in academia (Hagen, 2002) or skilled manufacturing (Eichhorst and Marx, 2015).

[2] Some professional jobs, for instance in early-career academia (e.g. OECD, 2021), are increasingly precarious and unstable. Hence, some professional occupations may not be part of the primary sector, particularly among younger workers.

At the bottom of the wage distribution, temporary workers are expected to be part of the external labour market and experience wage penalties due to their lower labour market bargaining power. In contrast, higher-earning temporary workers, located in professional occupations in the primary labour market segment, will have more bargaining power relative to temporary workers in the external labour market. The higher bargaining power associated with their position will, at least to some extent, counteract the disadvantage associated with a temporary position. At the very top of the distribution, high-earning, highly-qualified temporary workers may even be able to claim a compensating differential for the negative labour market attributes associated with temporary work. While the assumption of a single competitive market underlying compensating differential theory likely does not apply across the overall labour market, it may hold within occupations at a given skill level (Kalleberg and Sørensen, 1979). Hence, wage penalties associated with temporary employment should be largest at the bottom of the wage distribution and decrease gradually, possibly becoming insignificant at the top.

Similar arguments apply to part-time employment. According to Tilly (1992, 1996), part-time work is segmented. While "secondary" part-time jobs are part of the external labour market, with lower compensation and skill levels, and rapid turnover, "retention" part-time jobs in internal markets feature high wages, substantial skill levels and employment stability. The latter are used by companies to retain or attract valued workers who prefer part-time work. As for temporary work, a crucial dividing line between retention and secondary part-time workers are their skill level and occupation, with technical and professional workers more likely to be employed in retention part-time jobs.

As set out, part-time work is overall associated with lower labour market disadvantage than temporary work. Hence, part-time wage penalties are expected only at the bottom of the wage distribution, where secondary part-time work dominates. In contrast, retention part-time

workers at the middle and upper end of the wage distribution may not experience significant wage penalties relative to full-time workers and may even claim part-time premiums. If so, such premiums should not be driven by compensating differentials, as retention part-time work is not associated with inferior labour market attributes. Rather, offering wage premiums to highly-skilled retention part-time workers can be an efficient strategy for firms to hire and retain experts on a lower overall hourly basis (Tõnurist and Pavlopoulos, 2013).

To summarize, both temporary and part-time work are expected to be associated with wage penalties at the bottom of the wage distribution, whereas wage gaps should become more positive towards the middle and top of the distribution. However, the scale of these penalties may differ between temporary and part-time work. As temporary work is associated with higher labour market disadvantage than part-time work, temporary wage penalties should be relatively larger and present across more of the wage distribution. In contrast, part-time wage penalties should only be observed at the bottom of the distribution, with non-significant differences or premiums at the top.

3 Data, variables and methods

To address the research question, cross-sectional data from the EU Statistics on Income and Living Conditions (EU-SILC) 2016 is used[3]. EU-SILC consists of harmonized European data, including high-quality wage data, allowing for a cross-national analysis. Seven Western European countries are examined: the UK, Ireland, Switzerland, Austria, Portugal, Italy and Greece. Primarily, the choice of countries is motivated by the availability of data on hourly

[3] Unfortunately, EU-SILC cross-sections cannot be pooled, as they contain some repeated observations, which cannot be identified (Iacovou, Kaminska and Levy, 2012).

wages, discussed below. Moreover, post-socialist countries[4] are not included. Due to their unique social and economic history, these countries' employment regimes differ significantly from Western Europe, and in most countries, atypical employment is significantly less prevalent (Gebel, 2008). Preliminary data examination confirmed very low rates of part-time work, in particular, in the four post-Socialist countries. Therefore, this explorative analysis focuses on Western Europe.[5] The cases constitute a reasonably balanced sample of Western European countries with different institutional and labour market structures. All data are weighted to account for sampling design.[6]

The target population examined are working age (16-64) employees.[7] Key independent variables are temporary and part-time employment.[8] Temporary employment is defined as having a non-permanent contract. Part-time employment is defined as an individual stating that they work part-time, following the Eurostat recommendation. However, a variable based on working less than 30 hours per week, recommended by some experts (van Bastelaer, Lemaître and Marianna, 1997), is used as a robustness check.[9]

Table 1 presents the proportions of temporary and part-time employees in the pooled sample and for individual countries. Rates of temporary employment vary across countries, being lowest in the UK and highest in Southern Europe. Part-time work is much more prevalent among women than men. Southern European countries tend to have lower rates of part-time employment than other countries, particularly for women. Due to its particularly low proportion, male part-time work in Portugal is excluded from the analysis.[10]

[4] These include Bulgaria, Hungary, Poland and Serbia.
[5] Another country, Iceland, was excluded due to the small sample size.
[6] Dataset preparation drew on documentation by GESIS (GESIS, 2016) and Goedemé (2019).
[7] Defining the sample as employees 25-64 did not substantially change results.
[8] All information refers to the main job. Unfortunately, data on second jobs is not available.
[9] The results of this robustness check are presented in the Appendix, Figures A3/A4.
[10] There is some overlap between temporary and part-time employment (Appendix, Table A3). A robustness check (Appendix, Figures A5-A8) including both jointly did not substantially change results.

Table 1[11]: Proportion of atypical workers by country, weighted sample (employees 16-64), 95% confidence intervals in brackets

Country	Temporary work		Part-time work	
	Men	Women	Men	Women
All	8.3 [7.7; 8.9]	9.2 [8.6;9.8]	7.6 [6.7;8.4]	31.6 [30.6; 32.6]
UK	4.1 [3.2;5.3]	4.3 [3.4;5.4]	7.8 [6.4;9.5]	32.4 [30.5;34.3]
IE	8.1 [6.6;9.9]	9.4 [7.8;11.1]	11.1 [9.3;13.2]	33.4 [30.6;36.2]
CH	9.5 [8.3;10.9]	8.8 [7.6;10.2]	9.6 [8.2;11.1]	46.2 [44.1;48.3]
AT	6.2 [5.1;7.5]	7.9 [6.7;9.4]	5.7 [4.8;6.8]	47.4 [45.2;49.7]
PT	18.6 [17.1;20.2]	20 [18.4;21.7]	1.6 [1.2; 2.1]	5.7 [4.9;6.6]
IT	14.3 [13.2;15.4]	16.1 [14.8;17.5]	6.5 [5.7;7.5]	27.4 [25.9;29]
EL	18.2 [16.6;19.9]	21 [19.3;22.8]	4.7 [3.9;5.5]	12.3 [10.9;13.9]

Note: Pooled sample weighted so that each country counts equally.

The dependent variable is log gross hourly wages[12], available for the countries chosen. This variable is constructed using gross monthly earnings, based on the month of the interview, in the main job, before the deduction of tax and social insurance contributions, including paid overtime, tips and commissions and supplementary payments.[13] Monthly earnings are adjusted using monthly working hours to derive gross hourly wages.[14] An alternative measure is annual cash income, provided for all countries. However, this refers to the 12-month income reference period, in most cases meaning the calendar year prior to the interview[15], while other variables, including contract and working hours, refer to the time of interview. Thus, annual income cannot reliably be linked to current characteristics (Iacovou, Kaminska and Levy, 2012).

[11] The order of countries in tables and figures roughly follows the institutional configurations they belong to (Esping-Andersen, 1990; Soskice and Hall, 2001)
[12] The appendix (Tables A1/A2) provides statistics on the distribution of the dependent variable for atypical and standard workers in the pooled sample and individual countries.
[13] Earnings data was top- and bottom coded at 0.1%. Changing the level of trimming did not substantially change results.
[14] Monthly hours are constructed as (weekly hours*52)/12
[15] In the UK, it refers to the current year and in Ireland, to the previous 12 months.

Moreover, a range of control variables is included. Demographic characteristics include age (categories 16-25, 26-40, 41-55 and 56-64), cohabitation and own children aged 0-5 and 6-17 in the household. Human capital variables include education (categories primary and lower secondary education, upper secondary education, post-secondary non-tertiary education and tertiary education), years in paid work and unemployment in the past 12 months. The model also includes variables on the characteristics of individuals' jobs, including industry (categories extractive services, construction, trade, accommodation and food services, professional services, public services and other services[16]) and working in a small firm (10 employees or less). To capture occupations, an internationally comparable measure of occupational status is used, the International Socio-Economic Index 2008 (De Graaf, Treiman and Ganzeboom, 1992), derived from two-digit ISCO-08 codes. All models are run separately by gender.

To examine effects across the wage distribution, quantile regressions (Koenker and Bassett, 1978) are estimated for all deciles of the distribution, using log gross hourly wages as the dependent variable. Quantile regressions supplement the conditional mean function with conditional median and other quantile functions to analyse the complete conditional wage distribution (Angrist and Pischke, 2009; Mertens and McGinnity, 2005). In a first step, the quantile regressions are run for the pooled sample of seven countries, to examine the average pattern across Western Europe.[17] In a second step, the models are run separately for each country to examine whether individual countries diverge from the main pattern.

[16] The categorization is as follows: Extractive services – NACE REV. 2 A-E; Construction – NACE REV. 2 F; Trade, accommodation and food services – NACE REV. 2 G-I; professional services – NACE REV. 2 J-N; public services – NACE REV. 2 O-Q; other services – NACE REV. 2 R-U

[17] Wages are adjusted by purchasing power parity to account for differences in price level across countries. Pooled country models are weighted so that each country counts equally. Alternatively, the appendix presents models weighted according to population size (Figures A1/A2).

Selection on unobservable characteristics may be an issue, as only labour market participants are observed, and individuals select into atypical employment (Comi and Grasseni, 2012). In the absence of panel data, a Heckman two-step model is commonly used to correct for such bias (Heckman, 1979). To estimate the selection term, the exclusion restriction requires a variable that affects the propensity to work (in atypical employment), but is unrelated to wages (Wooldridge, 2002). Instruments in the EU-SILC data – such as family circumstances – likely do not fulfil this requirement. In fact, in this context, the assumptions involved in the Heckman approach may be stronger than the OLS exogeneity assumption (Manning and Petrongolo, 2008). Furthermore, there remain serious challenges in adopting selection correction methods for quantile regression (Koenker, 2017). Therefore, no selection correction is employed.

4 Results

Wage differences between atypical and standard workers across the wage distribution: what is the average pattern?

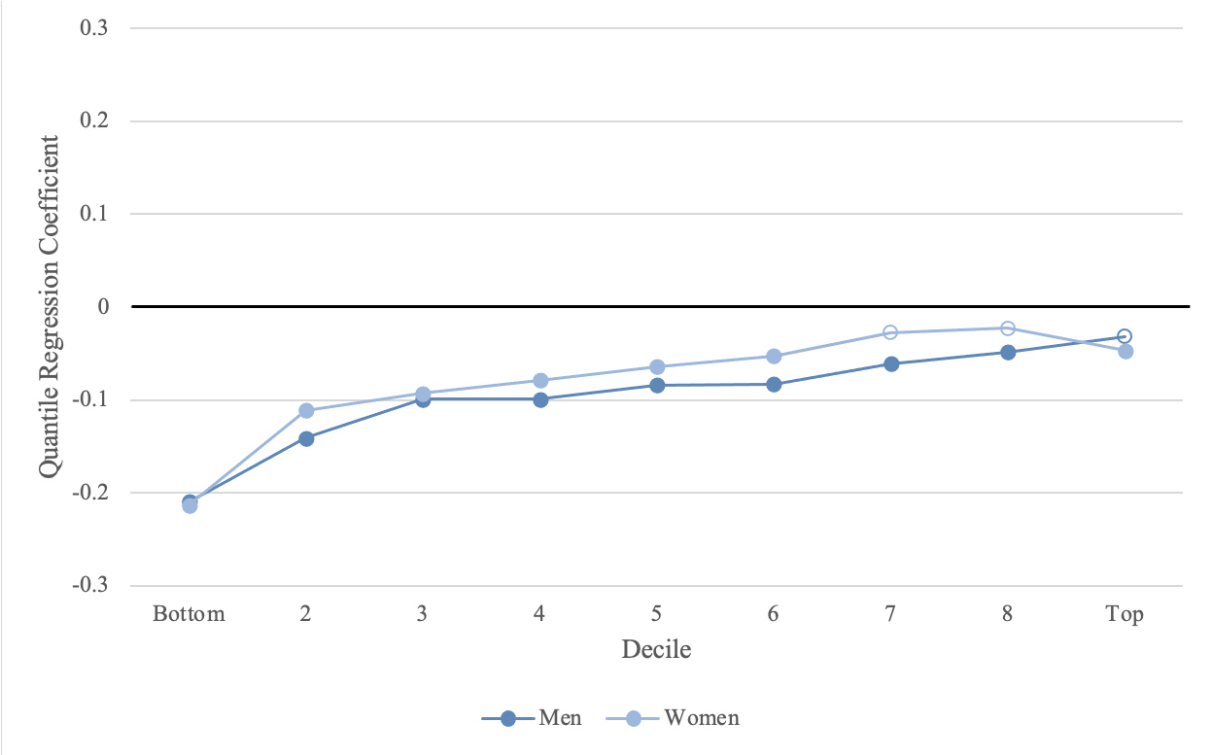
In a first step, quantile regressions on log gross hourly wages were run for the pooled country sample.[18,19] Figure 1 shows the quantile regression coefficients on temporary employment, relative to permanent employment, at all deciles of the wage distribution. While temporary employment is generally associated with wage penalties relative to permanent employment across the wage distribution, these penalties change substantially across deciles. Wage penalties are largest at the bottom of the wage distribution, reaching up to 21% for men and 21.3% for

[18] To check for consistency with past literature, logit regressions examining the characteristics of temporary and part-time workers (Appendix, Table A4) and OLS wage regressions with part-time and temporary employment as the main explanatory variable (Appendix, Table A5) were run on the pooled sample. The patterns found align with past research (Bardasi and Gornick, 2008; Manning and Petrongolo, 2008; Giesecke, 2009; Baranowska and Gebel, 2010).

[19] Full regression results for the pooled sample are shown in the Appendix, Tables A6-9.

women. In contrast, penalties decrease significantly towards the upper deciles of the wage distribution, and even become statistically insignificant at some top deciles.

Figure 1: Regression coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, pooled country sample

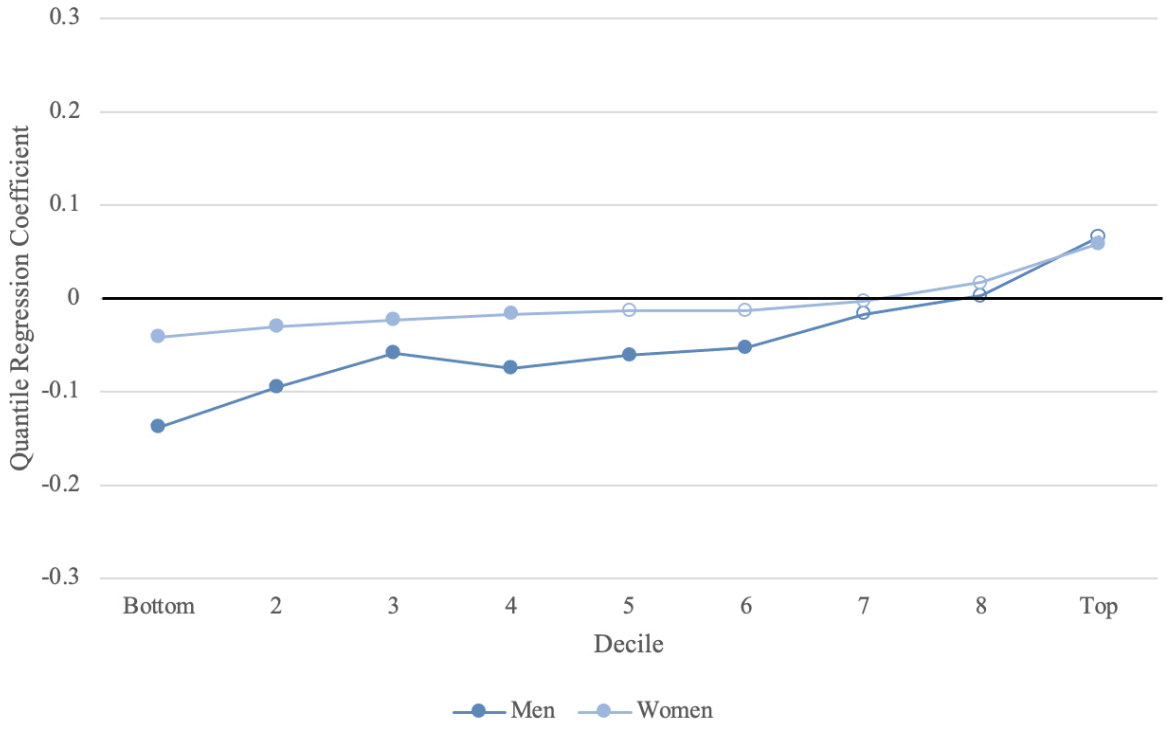


Note: Hollow dots indicate statistical insignificance. Filled dots indicate significance at 5%. Results for employees aged 16-64. Coefficients include controls for age, cohabitation, children aged 0-5, children aged 6-17, education, years in work, unemployment in past 12 months, industry, firm size, occupation (ISEI) and country fixed effects for pooled models. Coefficients indicate results for temporary employment relative to permanent employment. Proportion of temporary workers by decile (N,%): Men: Bottom – 998, 37.6%; 2 – 664, 25%; 3 – 450, 16.4%, 4- 340, 13.2%, 5 – 258, 9.3%, 6 - 189, 7.5%, 7 – 180, 6.8%, 8 – 117, 4.4%, 9 – 83, 3.1%, Top – 83, 3.1%; Women: Bottom – - 871, 34.6%; 2 – 676, 26.6%, 3 – 458, 18.5%, 4 – 396, 14.8%, 5 – 271, 11.5%, 6 – 233, 9.3%, 7 – 206, 8.2%, 8 – 135, 5.4%, 9 – 99, 3.9%, Top – 107, 4.3%.

Figure 2 shows the corresponding results for part-time employment. As for temporary employment, wage gaps associated with part-time employment become more positive towards the upper end of the wage distribution. However, part-time wage penalties are only observed at the lower end of the wage distribution, particularly for women. In contrast, no significant wage differences between part-time and full-time workers are observed at the upper deciles of the

wage distribution. In fact, at the top of the distribution, there is some evidence of wage premiums for female part-time workers.[20]

Figure 2: Regression coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, pooled country sample



Note: Hollow dots indicate statistical insignificance. Filled dots indicate significance at 5%. Results for employees aged 16-64. Coefficients include controls for age, cohabitation, children aged 0-5, children aged 6-17, education, years in work, unemployment in past 12 months, industry, firm size, occupation (ISEI) and country fixed effects for pooled models. Coefficients indicate results for part-time employment relative to full-time employment. Proportion of part-time workers by decile (N,%): Men: Bottom – 235, 10.4%; 2 – 213, 9.4%, 3 – 219, 9.6%, 4 – 142, 6.3%, 5 – 102, 4.5%, 6 – 109, 4.8%, 7 – 109, 4.8%, 8 – 110, 4.9%, 9 – 114, 5%, Top – 142, 6.3%; Women: Bottom – 399, 15.9%, 2 – 526, 20.7%, 3 – 754, 30.4%, 4 – 737, 27.6%, 5 – 654, 27.7%, 6 – 646, 25.8%, 7 – 689, 27.3%, 8 – 717, 28.6%, 9 – 806, 32.1%, Top – 976, 38.9%.

Overall, the patterns observed align with the theoretical expectations. The decreasing wage penalties associated with temporary employment at the upper deciles of the wage distribution may be explained by the heterogeneity of temporary jobs, particularly in occupations. While temporary workers at the lower deciles of the wage distribution may be located in the external labour market segment associated with lower bargaining power and wages, temporary contracts

[20] Using an hours-based definition of part-time work, the observed patterns are similar overall, though wage penalties for part-time workers are less pronounced. Differences likely relate to the fact that the hours-based definition may not accurately reflect part-time work in some countries.

are also common for some professional workers in the upper tier of the internal segment. Table 2 shows the mean ISEI of temporary and permanent workers across the wage distribution. Indeed, the occupational status of temporary workers substantially increases with wage quintiles. Moreover, while temporary workers in lower quintiles, particularly men, are in lower-status occupations relative to permanent workers, this disadvantage disappears in the upper quintiles.

Table 2: Mean ISEI score by quintile of the wage distribution and temporary employment status, weighted sample (employees 16-64)

	Quintile				
Employment status	**1**	**2**	**3**	**4**	**5**
Men					
Temporary	34.8 (0.6)	34.6 (0.8)	40.7 (1.4)	48.8 (1.6)	57 (1.4)
Permanent	37.4 (0.5)	38 (0.3)	42.7 (0.4)	49.3 (0.3)	57.5 (0.3)
Women					
Temporary	33.3 (0.6)	33 (0.8)	41.9 (1.2)	49.2 (1.2)	57.13 (1.6)
Permanent	33.1 (0.4)	35.6 (0.3)	43.4 (0.3)	50.4 (0.3)	55.8 (0.3)

Note: Standard error in parentheses.

To further elucidate the role of occupations in influencing wage gaps, Table 3 shows quantile regression coefficients on temporary employment at select deciles for a baseline model without controls and a model excluding occupation only, compared to the full model.[21] While, as expected, adding controls to the model substantially reduces the wage penalty associated with temporary employment, the addition of occupation leads to a further reduction. In particular, occupation plays a significant role at the upper deciles of the wage distribution. This lends

[21] The Appendix shows the full models for all deciles (Tables A10/11, A14/15).

support to the theory set out - within highly skilled, professional occupations at the top of the wage distribution, temporary employment is less of a disadvantage. In contrast, occupation is a less significant distinguishing factor in lower-waged jobs, where substantial disadvantages are associated with temporary employment even within occupations.

Table 3: Regression coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at select wage deciles, various model specifications, pooled country sample, upper panel men, lower panel women

			Men	
Decile	**2**	**4**	**6**	**8**
Model 1				
Temporary employment	-0.272***	-0.301***	-0.318***	-0.288***
Standard error	(0.021)	(0.016)	(0.017)	(0.020)
N	26557	26557	26557	26557
Model 2				
Temporary employment	-0.171***	-0.108***	-0.106***	-0.089***
Standard error	(0.018)	(0.013)	(0.017)	(0.020)
N	26557	26557	26557	26557
Model 3				
Temporary employment	-0.141***	-0.099***	-0.083***	-0.049**
Standard error	(0.025)	(0.013)	(0.016)	(0.024)
N	26557	26557	26557	26557

			Women	
Decile	**2**	**4**	**6**	**8**
Model 1				
Temporary employment	-0.215***	-0.208***	-0.234***	-0.205***
Standard error	(0.016)	(0.015)	(0.021)	(0.028)
N	25125	25125	25125	25125
Model 2				
Temporary employment	-0.146***	-0.109***	-0.089***	-0.050**
Standard error	(0.018)	(0.019)	(0.018)	(0.020)
N	25125	25125	25125	25125
Model 3				
Temporary employment	-0.111***	-0.079***	-0.053***	-0.023
Standard error	(0.020)	(0.016)	(0.015)	(0.015)
N	25125	25125	25125	25125

Note: Baseline model shows coefficients on temporary employment from quantile regressions on log gross hourly wages at select deciles without controls. M2 additionally includes age, education, cohabitation, own children aged 0-5 and 6-17 in household, years in paid work, unemployment in past 12 months, industry, firm size. M3 further includes occupation (ISEI). All models include country fixed effects. *** p<0.01, ** p<0.05, * p<0.1*.

However, even at most higher deciles of the wage distribution, temporary workers do still experience wage penalties relative to permanent workers. Possibly, measurement error or unobserved heterogeneity play a role here. In particular, EU-SILC does not include information on occupations beyond ISCO 2-digit level, so detailed information on occupational status could

not be derived. As occupations play a significant role in influencing wage penalties, this could influence the observed effects. Nevertheless, temporary workers may also experience "genuine" wage disadvantages even at the top of the wage distribution. In this sense, as previously theorized, temporary employment could have inherent disadvantages for most temporary workers, though the scale of disadvantage differs across the wage distribution.

Similarly, the observed wage differences between part-time and full-time workers reflect the theory set out. While workers in secondary part-time jobs at the lower end of the wage distribution have inferior labour market standing and accordingly, experience wage penalties, higher-waged retention part-time jobs are not associated with wage disadvantages. In fact, there is some evidence of wage premiums for women at the upper end of the wage distribution. Analogous to Table 2, Table 4 shows the mean occupational status of part-time and full-time workers by wage quintile. As for temporary employment, the occupational status of part-time workers increases significantly across the wage distribution, though some disadvantage relative to full-time workers remains in top quintiles, particularly for women. As theorized, differences in occupational status are a key distinguishing factor between part-time workers across the wage distribution.

Table 4: Mean ISEI score by quintile of the wage distribution and part-time employment status, weighted sample (employees 16-64)

	Quintile				
Employment status	**1**	**2**	**3**	**4**	**5**
Men					
Part-time	31.8 (0.8)	34.3 (1)	35.8 (2.8)	44.8 (1.7)	53.5 (1.5)
Full-time	37.1 (0.4)	39.2 (0.4)	44.1 (0.4)	50.6 (0.3)	58 (0.3)
Women					
Part-time	31 (0.7)	31.4 (0.4)	38.5 (0.6)	44.9 (0.6)	51 (0.5)
Full-time	34.1 (0.4)	37.5 (0.4)	45.4 (0.4)	52.5 (0.4)	58 (0.3)

Note: Standard error in parentheses.

In addition, to further discern the role of occupations in influencing wage differences, Table 5 shows the stepwise model coefficients on part-time employment[22]. In fact, occupation plays a substantial role, to a somewhat larger extent than for temporary employment. Across the wage distribution, including occupation in the model reduces wage penalties to a large extent. At the top deciles, it is typically only after the addition of occupation that wage premiums and non-significant differences emerge. Going back to the theoretical framework, this confirms the expectation that within occupations, high-earning workers in retention part-time jobs do not face wage disadvantages relative to full-time workers, or may even attract wage premiums, which could be traced back to firms trying to attract and retain these highly-skilled workers at a lower hourly basis (Tõnurist and Pavlopoulos, 2013).

[22] The Appendix shows the full models for all deciles (Tables A12/13, A16/17).

Table 5: Regression coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at select wage deciles, various model specifications, pooled country sample, upper panel men, lower panel women

			Men	
Decile	**2**	**4**	**6**	**8**
Model 1				
Part-time employment	-0.233***	-0.257***	-0.231***	-0.229***
Standard error	(0.038)	(0.020)	(0.050)	(0.063)
N	22628	22628	22628	22628
Model 2				
Part-time employment	-0.167***	-0.122***	-0.149***	-0.072
Standard error	(0.032)	(0.037)	(0.027)	(0.048)
N	22628	22628	22628	22628
Model 3				
Part-time employment	-0.095**	-0.075***	-0.053**	0.003
Standard error	(0.042)	(0.023)	(0.024)	(0.022)
N	22628	22628	22628	22628

			Women	
Decile	**2**	**4**	**6**	**8**
Model 1				
Part-time employment	-0.092***	-0.134***	-0.125***	-0.111***
Standard error	(0.011)	(0.011)	(0.013)	(0.017)
N	25125	25125	25125	25125
Model 2				
Part-time employment	-0.067***	-0.067***	-0.061***	-0.042***
Standard error	(0.011)	(0.010)	(0.010)	(0.014)
N	25125	25125	25125	25125
Model 3				
Part-time employment	-0.030***	-0.017**	-0.013	0.017
Standard error	(0.010)	(0.008)	(0.009)	(0.011)
N	25125	25125	25125	25125

Note: Baseline model shows coefficients on part-time employment from quantile regressions on log gross hourly wages at select deciles without controls. M2 additionally includes age, education, cohabitation, own children aged 0-5 and 6-17 in household, years in paid work, unemployment in past 12 months, industry, firm size. M3 further includes occupation (ISEI). All models include country fixed effects. *** p<0.01, ** p<0.05, * p<0.1*.

Moreover, for men, part-time wage penalties are larger and more persistent across the wage distribution than for women, likely due to male part-time work being less common in labour markets, and therefore associated with a lower level of labour market integration. In contrast, wage penalties for female part-time workers are substantially smaller and only found at the bottom wage deciles. These results are situated within a broader literature suggesting that, particularly for better-off female part-time workers, part-time work may be a choice rather than constraint (Hakim, 2002), though choices are situated within a context of human capital, partner

preferences and institutional support (Kangas and Rostgaard, 2007). However, this correlational analysis cannot identify whether part-time work is indeed a choice.

While wage gaps associated with temporary and part-time employment change in similar ways along wage deciles, penalties associated with temporary employment are much more pronounced and lasting across the distribution. This observation can be related back to differences between these employment relationships. In particular, part-time employment is associated with better employment protection and lower societal stigma than temporary employment, especially for women. Indeed, part-time work is more common for women in the middle and upper parts of the wage distribution, rather than being a low-wage phenomenon (see note to Figure 2). As such, wage penalties associated with part-time employment are concentrated at the lower end of the wage distribution, where secondary part-time workers have lower labour market standing.

To what extent is there country variation around the average pattern?

As a supplementary analysis to the European patterns detailed previously, the quantile regressions were run separately by country to investigate the extent of commonalities across countries in the results. Country differences could be explained by national labour market structures and institutions, which shape labour market segmentation between atypical and standard workers and accordingly, the extent of disadvantage associated with atypical work. Indeed, scholarship has elaborated on how labour market institutions such as employment protection legislation, collective bargaining and unemployment protection and active labour market spending influence the bargaining power of workers, their location in the secondary labour market segment and accordingly, wage differences (e.g. Biegert, 2019; Häusermann and Schwander, 2012). However, this article does not seek to provide comprehensive explanations

relating to country variation in wage patterns, but rather to provide additional nuance to the main European results shown earlier. While the conclusion offers some discussion on potential reasons for country variation, to the extent that it is observed, further investigation is left to future research.

Figure 3 shows the quantile regression coefficients on temporary employment in regressions on log gross hourly wages by deciles of the distribution, for individual countries and the pooled sample, as a reference point.[23] As described previously, in the pooled sample, wage penalties associated with temporary employment decrease substantially, but remain mostly statistically significant towards the upper end of the wage distribution. Overall, this pattern does apply in most countries. Nevertheless, there are some interesting country differences.

In the majority of countries – the UK, Switzerland, Austria, Italy and Greece – there are wage penalties associated with temporary employment relative to permanent employment, which decrease towards the upper end of the wage distribution. However, the scale of penalties differs relative to the average pattern in some countries. In Switzerland, though the overall pattern matches the pooled sample, the wage penalties are much larger than in other countries. Conversely, in the UK and for Austrian men, wage penalties associated with temporary employment are smaller and only significant at the bottom deciles, while there are no significant wage differences between temporary and permanent workers at other points of the wage distribution. In these two countries, as shown previously, the proportion of temporary workers is much smaller than elsewhere. Moreover, the number of temporary workers – as in all countries – decreases significantly in upper quintiles of the wage distribution[24]. Hence, the few

[23] The Appendix summarizes the quantile regression coefficients for temporary (Tables A18-A24) and part-time (Tables A25-A31) employment by country.

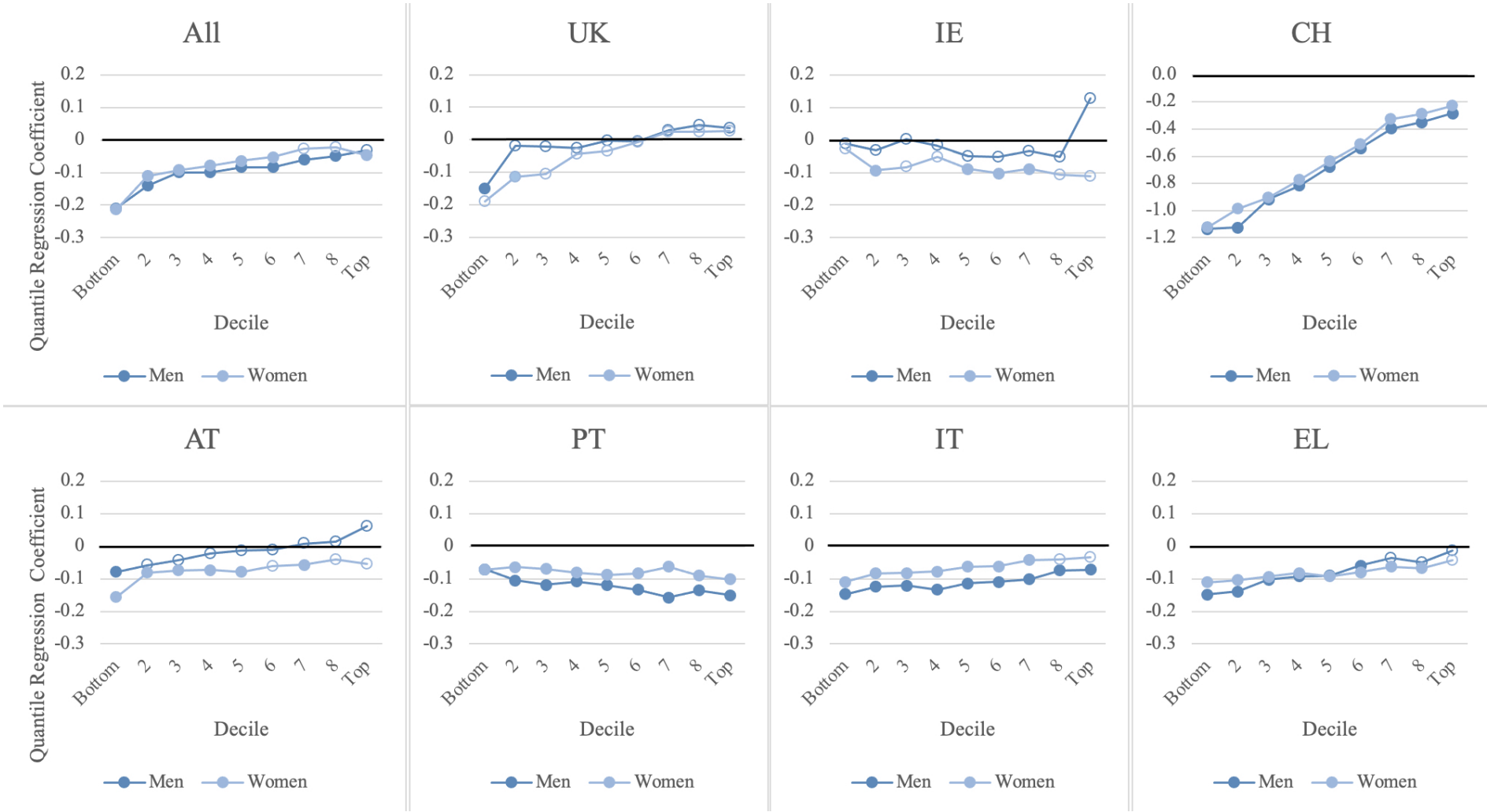
[24] The appendix (Tables A32/A33) shows the proportion and sample observations of temporary workers across the wage distribution by country. Equivalent figures for part-time employment are also given (Tables A34/A35).

temporary workers in the middle and top of the wage distribution are likely highly selected. This may explain why they do not face wage penalties like those in the lower end.

In addition, while most countries match the average pattern, despite differences in scale, there are some exceptions, namely Portugal and Ireland. In Portugal, wage penalties associated with temporary employment do not change systematically across the wage distribution. This pattern matches the findings of Comi and Grasseni (2012), where wage penalties associated with temporary employment in Portugal do not change across the wage distribution. In Ireland, in contrast, male temporary workers do not experience wage penalties relative to permanent workers, whereas female ones do, but the pattern is unsystematic. The number of female temporary workers at the top of the wage distribution is very low in Ireland. Hence, the somewhat erratic patterns at the top of the wage distribution could be driven by select observations.

In summary, most countries in the sample match the average pattern of decreasing wage penalties associated with temporary employment across the wage distribution, though there are differences in scale. In particular, a wage penalty is observed at the bottom of the wage distribution in almost all cases, while stronger country variation is found around the middle and top of the wage distribution. These patterns broadly match the results of the only previous cross-national study on this issue, Comi and Grasseni (2012), though their analysis was not disaggregated by gender. In some countries, the proportion of temporary workers - and the underlying number of observations in the sample – at the upper end of the wage distribution are very low. Hence, in some cases, idiosyncratic reasons could be driving the variation at the top deciles.

Figure 3: Regression coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile in individual countries



Note: Hollow dots indicate statistical insignificance. Filled dots indicate significance at 5%. Results for employees aged 16-64. Coefficients include controls for age, partnership, children aged 0-5, children aged 6-17, education, years in work, unemployment in past 12 months, industry, firm size and occupation (ISEI), and country fixed effects for pooled models. Coefficients indicate results for temporary employment relative to permanent employment.

Figure 4 shows the quantile regression coefficients on part-time employment, for the pooled sample and individual countries. More than with temporary employment, a pattern of commonalities dominates. In most countries, including Ireland, Switzerland, Austria, Greece and the UK (particularly for men), wage differences between part-time and full-time workers become more positive towards the upper deciles of the income distribution, with wage penalties or non-significant differences observed at the bottom of the wage distribution and, sometimes, premiums at the top. This general pattern is also observed in Portugal, apart from a small but significant wage premium at one select decile in the lower third of the wage distribution. Part-time work in Portugal is a relatively marginal labour market phenomenon even for women, and selectivity in observed part-time workers may drive this somewhat erratic result. In Switzerland, similarly to the case of temporary employment, the low-wage penalty associated with male part-time employment is larger than elsewhere. However, the difference in scale is somewhat less pronounced than for temporary employment.

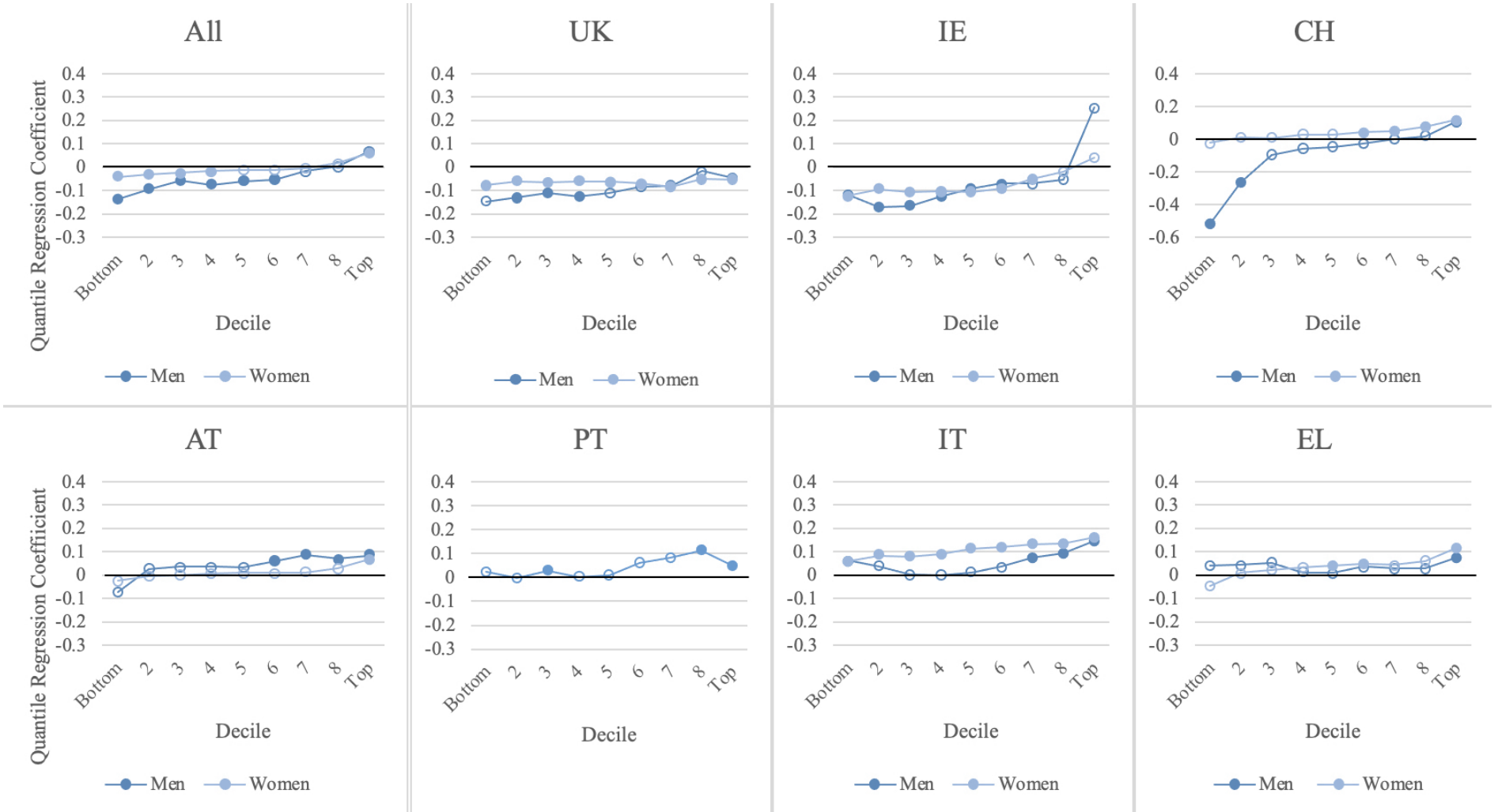
Though no previous studies on part-time wage gaps across the wage distribution exist for the countries examined, similar patterns were found in two studies on Germany (Tõnurist and Pavlopoulos, 2013; Gallego-Granados, 2019). One outlier case is Italy – here, wage premiums associated with part-time work are observed across the wage distribution, particularly for women. Nevertheless, the predominant pattern is one of commonality. In most countries, there are wage penalties or non-significant wage gaps associated with part-time employment at the bottom of the wage distribution, while towards higher deciles, penalties decrease and even turn into premiums in some cases.

It should also be noted that the proportion of male part-time workers decreases significantly towards the top of the wage distribution. The skewed distribution of part-time workers may influence the results observed, in that the significant wage premiums observed could be driven

by a very small proportion of observations in some countries. Hence, the results for male part-time workers at the top end of the wage distribution should be interpreted with caution. In contrast, female part-time work is evenly spread across the wage distribution. This illustrates the point made earlier, that female part-time work is a well-established and non-marginal labour market phenomenon, which likely explains why it is not associated with wage penalties, particularly in the middle and top of the wage distribution.

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Figure 4: Regression coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile in individual countries



Note: Hollow dots indicate statistical insignificance. Filled dots indicate significance at minimum 5%. Results for employees aged 16-64. Coefficients include controls for age, partnership, children aged 0-5, children aged 6-17, education, years in work, unemployment in past 12 months, industry, firm size and occupation (ISEI), and country fixed effects for pooled models. Coefficients indicate results for part-time employment relative to full-time employment

5 Conclusion

This article, based on EU-SILC data for seven European countries, has provided a detailed analysis of wage gaps associated with temporary and part-time employment across the wage distribution. On average across Western Europe, temporary employment is associated with wage penalties relative to permanent employment, but these penalties decrease significantly at the top of the wage distribution, and even disappear at some high deciles. Similarly, wage differences between part-time and full-time workers also become more positive towards the top of the wage distribution. In contrast to temporary employment, however, part-time wage penalties only occur at the bottom of the wage distribution, with insignificant effects or even premiums towards the top.

The empirical analysis illuminates how theoretical mechanisms may explain wage differences between atypical and standard workers across the wage distribution. In particular, according to labour market segmentation theory, atypical workers experience wage penalties as they are located in an external labour market segment with lower bargaining power. Crucially, however, both temporary and part-time work are heterogeneous and in themselves segmented. For instance, occupation is a central differentiating factor within temporary and part-time employment. While some atypical jobs, particularly in temporary and male part-time work, are located in the external labour market at the bottom of the wage distribution and associated with wage penalties, this is not the case for all.

Nevertheless, even at the top of the wage distribution, most temporary workers experience wage penalties relative to permanent workers. Therefore, some inherent labour market disadvantage appears to be associated with temporary employment, rather than higher-earning temporary workers claiming compensating differentials for disadvantages associated with this

employment relationship. In contrast, wage penalties were not observed for high-earning part-time workers, who in some cases claim wage premiums relative to permanent workers. These part-time employees work in higher-skilled retention part-time jobs, where firms offer wage incentives to retain experts on a lower hourly basis. The results reflect that part-time work, particularly for women, is more established and protected in European labour markets than temporary employment.

This article also studied whether these patterns are systematic across Europe. While the aim of this analysis was not to develop or test definitive explanations for any variation observed, some tentative interpretations may be offered to identify points of interest for future research. For temporary employment, a low-wage penalty was identified in almost all countries, with larger variation around the middle and top of the wage distribution. Moreover, the scale of penalties differs. In particular, wage penalties were much larger in Switzerland than in other countries. There, the proportion of temporary workers is much higher in the bottom quintile than elsewhere, a starker difference than in other countries. As such, in Switzerland in particular, temporary employment is primarily a low-pay phenomenon. In the context of the low-regulated Swiss economy, characterized by very high wage flexibility (Fritsch and Verwiebe, 2018), this could drive the particularly large wage penalties associated with it.

Though the overall pattern is one of country commonality in the main pattern, if not in scale, there were also some deviating cases. One surprising finding is that in Portugal, wage penalties associated with temporary employment do not change systematically across the wage distribution. While this result is consistent with previous research, decreasing wage penalties would have been expected, given that the Portuguese labour market is strongly segmented and characterized by stark differentiations in protections between temporary and permanent contracts (ILO, 2018). Though the possibility of measurement error cannot be excluded, further

country-specific empirical work on the Portuguese case would be needed to explain these findings.

Relative to temporary employment, part-time wage gaps were more systematic across most countries, though some differences in scale and pattern remain. A pertinent outlier case, however, was Italy, where wage premiums associated with part-time work were observed across the wage distribution. In Italy, part-time work expanded much later than elsewhere in Europe as a response to severe constraints on the core labour market and increasing labour market dualization (Maestripieri and Léon, 2019). Part-time workers tend to be less included in the core labour market, experience particularly strong occupational segregation and have less job security. One explanation for the premiums observed is that the non-wage attributes of part-time work are likely more undesirable in Italy than in other countries, so that part-time workers across the distribution may have more scope to claim compensating differentials, resulting in a part-time wage premium (Pissarides *et al.*, 2005). If this were the case, the underlying theoretical mechanism would be different from the framework outlined in the main body of this article, where premiums are claimed by workers in high-quality retention part-time jobs. However, other mechanisms beyond what was addressed in this exploratory paper may also be at play. Future research may examine the specific Italian case in a more detailed manner, also making use of country-specific data.

Indeed, future work could extend these results in several ways. First, it would be desirable to extend this analysis to more countries. This would enable a more systematic investigation of country commonalities and differences, moving beyond the predominantly descriptive and exploratory country-level account provided in this paper. In addition, country case studies using richer data could consider selection on unobservable characteristics and the role of attitudes and preferences, as well as examining the role of institutional context in depth. Finally, due to data

limitations, this analysis could not include all types of atypical employment, including multi-employment relationships and dependent self-employment. It would be desirable to extend the analysis to these employment relationships.

Overall, wage patterns associated with atypical employment are diverse and complex. This illustrates that temporary and part-time employment are highly different employment relationships, regarding the composition of individuals in such employment, their labour market standing relative to standard workers and their wages. Indeed, to a large extent, the dividing line between workers that structures wage disparities may lie in characteristics such as occupation, rather than the employment relationship itself. This heterogeneity should be considered when theorizing as to the bargaining power and (dis)advantages associated with atypical employment. As such, the use of umbrella terms such as “atypical” employment is of limited usefulness when examining changing labour market relationships.

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Appendix

Table A1: Summary statistics on the distribution of hourly wages for temporary and permanent workers, upper panel men, lower panel women, employees 16-64

Country	Mean		Standard Deviation		Median		Range		IQR		Skewness	
	P	T	P	T	P	T	P	T	P	T	P	T
All	18.6	11.7	15.7	11.9	14.3	9	439.8	219	11.7	8.1	4.7	7.6
UK	19.4	14.8	15.1	10.1	15.3	11.7	200.3	74	11.8	9.9	4.1	2.8
IE	23.6	18.9	19.4	20.2	19	14.5	289.5	212.9	15.5	8.5	5.6	7.4
CH	45.5	20.2	27.8	21.7	40.3	12.5	439.8	178	21.9	22.7	4.9	2.5
AT	17.9	17.3	7.8	10.7	16.2	14.4	70.7	71.2	8.3	7.9	1.7	2.5
PT	7.8	5.1	5.4	3.7	5.9	4.2	47.2	50.2	5.2	1.8	2.4	6
IT	12.8	9.4	4.9	3.4	11.8	9.1	43.4	32.1	4.9	3.8	1.9	1.5
EL	7.7	5.5	4	3	6.9	4.8	33.8	29.9	3.9	2.5	2.2	3.3

Country	Mean		Standard Deviation		Median		Range		IQR		Skewness	
	P	T	P	T	P	T	P	T	P	T	P	T
All	15.7	10.9	12.1	9.9	12.4	9.1	320	156.6	9.6	6.9	4.5	6.1
UK	15.1	13.2	9.8	9.1	12.7	10.5	165	79.3	9	7.9	4.2	3.5
IE	21.5	16.8	16.1	15	17.9	12.4	289.9	152.2	13.7	8.7	5.6	6.3
CH	37.4	22.1	20.2	21.2	33.9	15.9	320	155.3	18.1	27.4	3.4	2
AT	15.1	13.4	6.6	6.4	13.8	12.1	61.6	56.8	7.7	5.7	1.7	2.8
PT	6.9	4.6	4.8	2.4	5	3.8	47.7	18.4	5	1.5	2.3	2.7
IT	12.1	9.4	4.4	3.8	11.5	9.1	42.9	36.9	4.9	4.3	1.6	2.1
EL	7.3	5	3.7	2.1	6.5	4.6	30.8	18.6	3.8	2	1.9	2

Note: P = Permanent Employment; T = Temporary Employment

Table A2: Summary statistics on the distribution of hourly wages for part-time and full-time workers, upper panel men, lower panel women, employees 16-64

Country	Mean		Standard Deviation		Median		Range		IQR		Skewness	
	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
All	18.9	26.8	15.3	19.9	14.7	11.4	392.4	439.3	11.8	7.6	4.3	7.1
UK	19.6	14.5	15.1	12.8	15.6	10.4	200.3	96.4	11.8	7.1	4.1	3.5
IE	23.1	23.5	14.6	40.2	19.3	11.9	190.4	289.5	14.9	6.5	3.1	4.4
CH	43.3	43.6	26.7	41.1	39.3	36.3	392.4	439.3	22.3	25.2	4	5.1
AT	17.9	16.9	7.9	9.1	16.1	14.7	73.3	57.5	8.3	8.7	1.8	2
IT	12.5	10.7	4.9	3.9	11.5	9.9	43.6	29.5	5.1	4.4	1.9	1.3
EL	7.4	5.6	3.9	2.5	6.3	5.2	33.8	16.5	3.9	2.4	2.3	1.9

Country	Mean		Standard Deviation		Median		Range		IQR		Skewness	
	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
All	15.1	15.7	11.4	13.3	12.2	11.6	235.3	319.7	9.5	9.2	3.9	5.4
UK	16.1	123.1	10.2	8.5	13.7	10.6	165	102.1	9.3	6.4	4.2	3.8
IE	22.4	18.5	13.6	19.6	19.1	12.5	152.4	288.9	13.9	10.7	3.1	7.2
CH	34.2	38	19.3	21.9	32.3	34.2	235.3	319.7	18	19.1	2.3	3.5
AT	15.4	14.6	6.6	6.5	14	13.2	61.1	57	7.9	7.1	1.7	1.8
PT	6.6	4.7	4.6	2.6	4.7	3.9	47.7	27.7	4.6	1.9	2.4	4.3
IT	11.7	11.5	4.4	4.7	11.1	10.9	42.9	37.2	4.6	5.3	1.6	1.5
EL	7	5.4	3.6	2.2	6	5.2	30.8	28.3	3.9	2.3	1.9	3.7

Note: FT = Full-time Employment; PT = Part-time Employment

Table A3: Crosstabulation of types of atypical employment, weighted sample (employees 16-64), 95% confidence intervals in brackets

Country	Temporary workers in part-time employment		Part-time workers in temporary employment	
	Men	Women	Men	Women
All	16.8 [14.5;19.3]	36.1 [33;39.3]	18.5 [15.5;22]	10.5 [9.5;11.5]
UK	17.4 [10.9;26.7]	40 [29.5;51.4]	9.2 [5.6;14.8]	5.3 [4.1;6.9]
IE	48.8 [38.4;59.3]	49.7 [39.9;59.5]	35.7 [27.7;44.6]	13.9 [10.9;17.6]
CH	11.4 [7.6;16.8]	30.4 [24.2;37.5]	11.4 [7.5;16.8]	5.8 [4.6;7.3]
AT	13.5 [7.8;21.9]	45.5 [37;54.2]	14.7 [8.8;23.5]	7.6 [6;9.6]
PT		11.2 [8.7;14.2]		39.2 [31.6;47.4]
IT	18.8 [15.6;22.6]	43.2 [38.6;48]	41.1 [34.9;47.5]	25.4 [22.2;28.8]
EL	11.9 [9.5;14.9]	26.4 [22.6;30.5]	46.7 [38.5;55.2]	45 [39;51.1]

Table A4: Logit regressions on temporary and part-time employment, pooled country sample, employees 16-64

	Temporary		Part-time	
	Men	Women	Men	Women
Age (ref = 16-25)				
26-40	-0.485***	0.242	-0.368***	0.362***
	(0.142)	(0.216)	(0.130)	(0.110)
41-55	-0.396**	0.749***	-0.419*	0.916***
	(0.185)	(0.226)	(0.222)	(0.130)
56-64	0.211	1.777***	-0.155	1.557***
	(0.259)	(0.305)	(0.231)	(0.159)
Education (ref = Primary and lower secondary)				
Upper secondary	-0.545***	0.046	-0.452***	-0.119
	(0.105)	(0.123)	(0.106)	(0.074)
Post-secondary non-tertiary	-0.645***	0.123	-0.560***	0.065
	(0.216)	(0.248)	(0.175)	(0.133)
Tertiary	-0.410***	0.307*	-0.173	-0.357***
	(0.132)	(0.169)	(0.139)	(0.088)
Cohabitation	0.074	-0.636***	-0.272**	0.344***
	(0.131)	(0.138)	(0.110)	(0.058)
Own children age 0-5 in household	-0.560***	0.070	-0.479***	1.119***
	(0.123)	(0.145)	(0.100)	(0.073)
Own children age 6-17 in household	-0.250***	0.114	-0.131	0.799***
	(0.093)	(0.129)	(0.095)	(0.056)
Years in paid work	-0.069***	-0.036***	-0.058***	-0.010**
	(0.006)	(0.007)	(0.005)	(0.004)
Unemployed in past 12 months	1.962***	0.813***	1.950***	0.609***
	(0.121)	(0.152)	(0.106)	(0.119)
Industry (ref = Extractive and manufacturing)				
Construction	-0.033	-0.099	-0.883***	0.387
	(0.145)	(0.235)	(0.314)	(0.236)
Trade, accommodation and food services	-0.200**	1.261***	-0.161	0.881***
	(0.101)	(0.130)	(0.112)	(0.093)
Professional services	-0.286**	1.061***	-0.332**	0.624***
	(0.131)	(0.151)	(0.134)	(0.098)
Public services	0.428***	1.578***	0.107	0.616***
	(0.126)	(0.185)	(0.111)	(0.086)
Other services including private households	0.681**	1.975***	0.104	0.730***
	(0.321)	(0.198)	(0.158)	(0.125)
ISEI	-0.018***	-0.046***	-0.013***	-0.029***
	(0.004)	(0.006)	(0.004)	(0.002)
Small firm	0.189**	0.553***	0.088	0.567***
	(0.083)	(0.099)	(0.078)	(0.055)
Constant	-0.258	-1.682***	-0.395**	-0.669***
	(0.204)	(0.266)	(0.201)	(0.154)
Observations	26,557	22,628	25,125	25,125

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Regressions weighted so that all countries count equally. Country fixed effects included in all models. Regression for male part-time excludes Portugal.

Table A5: OLS wage regressions on log gross hourly wages with temporary and part-time employment as key independent variables, pooled country sample, employees 16-64

	Temporary		Part-time	
Y = Log Gross Hourly Wages	Men	Women	Men	Women
Temporary employment	-0.117***	-0.108***		
	(0.019)	(0.021)		
Part-time employment			-0.053**	-0.002
			(0.025)	(0.010)
Age (ref = 16-25)				
26-40	0.166***	0.151***	0.181***	0.156***
	(0.020)	(0.019)	(0.021)	(0.019)
41-55	0.221***	0.182***	0.230***	0.188***
	(0.027)	(0.025)	(0.029)	(0.024)
56-64	0.170***	0.128***	0.172***	0.133***
	(0.038)	(0.031)	(0.039)	(0.031)
Education (ref = Primary and lower secondary)				
Upper secondary	0.095***	0.058***	0.089***	0.062***
	(0.013)	(0.013)	(0.014)	(0.013)
Post-secondary non-tertiary	0.087***	0.098***	0.080***	0.103***
	(0.022)	(0.019)	(0.023)	(0.019)
Tertiary	0.256***	0.211***	0.249***	0.213***
	(0.018)	(0.016)	(0.019)	(0.016)
Cohabitation	0.062***	0.040***	0.060***	0.043***
	(0.014)	(0.009)	(0.014)	(0.009)
Own children age 0-5 in household	0.060***	0.034**	0.067***	0.039***
	(0.016)	(0.014)	(0.017)	(0.015)
Own children age 6-17 in household	0.028**	-0.001	0.028**	0.001
	(0.012)	(0.010)	(0.012)	(0.010)
Years in paid work	0.006***	0.006***	0.007***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
Unemployed in past 12 months	-0.075***	-0.057**	-0.106***	-0.093***
	(0.022)	(0.025)	(0.022)	(0.022)
Industry (ref = Extractive and manufacturing)				
Construction	-0.009	0.001	-0.011	0.005
	(0.018)	(0.043)	(0.019)	(0.043)
Trade, accommodation and food services	-0.091***	-0.044***	-0.097***	-0.042***
	(0.013)	(0.014)	(0.014)	(0.014)
Professional services	0.043***	0.075***	0.045**	0.078***
	(0.017)	(0.015)	(0.017)	(0.015)
Public services	-0.048***	0.008	-0.057***	0.007
	(0.014)	(0.013)	(0.015)	(0.013)
Other services including private households	-0.114***	-0.024	-0.123***	-0.025
	(0.034)	(0.023)	(0.034)	(0.023)
ISEI	0.011***	0.011***	0.010***	0.011***
	(0.000)	(0.000)	(0.000)	(0.000)
Small firm	-0.158***	-0.101***	-0.154***	-0.102***
	(0.013)	(0.011)	(0.014)	(0.011)
Constant	1.768***	1.693***	1.763***	1.667***
	(0.028)	(0.025)	(0.029)	(0.025)
Observations	26557	25125	22628	25125
R-squared	0.430	0.436	0.404	0.433

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Regressions weighted so that all countries count equally. Country fixed effects included in all models. Regression for male part-time excludes Portugal.

Table A6: Quantile regressions on gross log hourly wages at every wage decile with temporary employment as key independent variable, men, employees 16-64, pooled country sample

Y = Log Gross Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Temporary employment	-0.210***	-0.141***	-0.099***	-0.099***	-0.084***	-0.083***	-0.061***	-0.049**	-0.032
	(0.024)	(0.025)	(0.016)	(0.013)	(0.013)	(0.016)	(0.016)	(0.024)	(0.025)
Age (ref = 16-25)									
26-40	0.178***	0.161***	0.130***	0.120***	0.124***	0.130***	0.148***	0.117***	0.125***
	(0.034)	(0.028)	(0.023)	(0.016)	(0.018)	(0.019)	(0.019)	(0.024)	(0.025)
41-55	0.145***	0.157***	0.160***	0.177***	0.191***	0.195***	0.213***	0.200***	0.233***
	(0.038)	(0.033)	(0.029)	(0.022)	(0.023)	(0.024)	(0.025)	(0.031)	(0.032)
56-64	0.049	0.109***	0.104***	0.130***	0.167***	0.156***	0.179***	0.151***	0.238***
	(0.049)	(0.041)	(0.035)	(0.030)	(0.031)	(0.032)	(0.034)	(0.042)	(0.043)
Education (ref = Primary and lower secondary)									
Upper secondary	0.095***	0.074***	0.070***	0.073***	0.069***	0.081***	0.094***	0.084***	0.079***
	(0.016)	(0.014)	(0.012)	(0.010)	(0.010)	(0.011)	(0.012)	(0.013)	(0.018)
Post-secondary non-tertiary	0.095***	0.071***	0.066***	0.069***	0.053***	0.069***	0.059***	0.071***	0.084*
	(0.024)	(0.017)	(0.013)	(0.025)	(0.020)	(0.016)	(0.021)	(0.019)	(0.049)
Tertiary	0.198***	0.179***	0.204***	0.225***	0.221***	0.247***	0.266***	0.274***	0.297***
	(0.021)	(0.019)	(0.017)	(0.015)	(0.015)	(0.016)	(0.018)	(0.021)	(0.022)
Cohabitation	0.099***	0.078***	0.066***	0.048***	0.037***	0.043***	0.038***	0.047***	0.039**
	(0.016)	(0.015)	(0.013)	(0.010)	(0.012)	(0.013)	(0.014)	(0.015)	(0.017)
Own children age 0-5 in household	-0.009	0.027*	0.043***	0.056***	0.070***	0.072***	0.070***	0.075***	0.096***
	(0.012)	(0.015)	(0.013)	(0.011)	(0.012)	(0.013)	(0.014)	(0.015)	(0.020)
Own children age 6-17 in household	-0.003	0.016	0.015	0.025**	0.036***	0.036***	0.048***	0.049***	0.036**
	(0.012)	(0.013)	(0.010)	(0.010)	(0.010)	(0.011)	(0.013)	(0.013)	(0.016)
Years in paid work	0.006***	0.006***	0.006***	0.005***	0.005***	0.006***	0.006***	0.007***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployed in past 12 months	-0.093**	-0.083***	-0.085***	-0.085***	-0.083***	-0.065***	-0.072***	-0.064***	-0.058***
	(0.040)	(0.012)	(0.022)	(0.015)	(0.020)	(0.021)	(0.014)	(0.022)	(0.017)
Industry (ref = Extractive and manufacturing)									
Construction	-0.036	-0.016	-0.011	0.015	0.015	-0.010	-0.015	-0.023	0.001
	(0.036)	(0.019)	(0.018)	(0.014)	(0.014)	(0.016)	(0.017)	(0.020)	(0.023)
Trade, accommodation and food services	-0.090***	-0.100***	-0.104***	-0.084***	-0.082***	-0.090***	-0.085***	-0.091***	-0.099***
	(0.009)	(0.015)	(0.012)	(0.011)	(0.011)	(0.012)	(0.013)	(0.016)	(0.015)
Professional services	0.006	0.024	0.006	0.025**	0.015	0.024	0.039**	0.067***	0.099***
	(0.022)	(0.017)	(0.017)	(0.010)	(0.013)	(0.016)	(0.016)	(0.021)	(0.023)
Public services	-0.003	-0.004	-0.027**	-0.021	-0.018	-0.024*	-0.039**	-0.072***	-0.111***
	(0.018)	(0.019)	(0.011)	(0.013)	(0.014)	(0.014)	(0.016)	(0.014)	(0.018)
Other services including private households	-0.139***	-0.165***	-0.156***	-0.121***	-0.104***	-0.126***	-0.104***	-0.071*	-0.025
	(0.038)	(0.038)	(0.027)	(0.023)	(0.036)	(0.025)	(0.035)	(0.041)	(0.041)
ISEI	0.008***	0.009***	0.010***	0.010***	0.011***	0.011***	0.011***	0.012***	0.013***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Small firm	-0.240***	-0.149***	-0.144***	-0.135***	-0.122***	-0.114***	-0.107***	-0.100***	-0.091***
	(0.028)	(0.015)	(0.011)	(0.011)	(0.010)	(0.010)	(0.013)	(0.014)	(0.015)
Constant	1.585***	1.658***	1.752***	1.792***	1.828***	1.875***	1.913***	1.940***	2.000***
	(0.038)	(0.033)	(0.027)	(0.020)	(0.023)	(0.024)	(0.025)	(0.028)	(0.032)
N	26557	26557	26557	26557	26557	26557	26557	26557	26557

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A7: Quantile regressions on gross log hourly wages at every wage decile with temporary employment as key independent variable, women, employees 16-64, pooled country sample

Y = Log Gross Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Temporary employment	-0.213***	-0.111***	-0.093***	-0.079***	-0.064***	-0.053***	-0.028	-0.023	-0.047**
	(0.029)	(0.020)	(0.015)	(0.016)	(0.016)	(0.015)	(0.020)	(0.015)	(0.022)
Age (ref = 16-25)									
26-40	0.178***	0.145***	0.129***	0.108***	0.117***	0.136***	0.131***	0.107***	0.062
	(0.020)	(0.025)	(0.019)	(0.016)	(0.016)	(0.016)	(0.016)	(0.019)	(0.038)
41-55	0.150***	0.150***	0.138***	0.126***	0.141***	0.167***	0.171***	0.156***	0.155***
	(0.026)	(0.029)	(0.022)	(0.020)	(0.020)	(0.020)	(0.020)	(0.023)	(0.044)
56-64	0.093***	0.092***	0.097***	0.082***	0.097***	0.121***	0.118***	0.115***	0.147***
	(0.034)	(0.034)	(0.027)	(0.024)	(0.025)	(0.023)	(0.025)	(0.029)	(0.052)
Education (ref = Primary and lower secondary)									
Upper secondary	0.093***	0.061***	0.041***	0.036***	0.035***	0.037***	0.033***	0.038***	0.030
	(0.014)	(0.012)	(0.011)	(0.009)	(0.011)	(0.010)	(0.011)	(0.012)	(0.020)
Post-secondary non-tertiary	0.155***	0.104***	0.090***	0.101***	0.097***	0.106***	0.120***	0.113***	0.067***
	(0.023)	(0.023)	(0.019)	(0.017)	(0.020)	(0.017)	(0.019)	(0.020)	(0.024)
Tertiary	0.205***	0.172***	0.157***	0.163***	0.173***	0.192***	0.204***	0.240***	0.267***
	(0.015)	(0.016)	(0.014)	(0.013)	(0.014)	(0.013)	(0.015)	(0.015)	(0.026)
Cohabitation	0.043***	0.038***	0.030***	0.028***	0.023***	0.022***	0.023**	0.015*	0.031**
	(0.010)	(0.010)	(0.009)	(0.008)	(0.009)	(0.008)	(0.010)	(0.009)	(0.015)
Own children age 0-5 in household	-0.020	0.003	0.018	0.028**	0.028**	0.034***	0.048***	0.065***	0.130***
	(0.016)	(0.014)	(0.014)	(0.011)	(0.011)	(0.012)	(0.012)	(0.016)	(0.020)
Own children age 6-17 in household	0.001	-0.003	0.003	-0.002	0.001	-0.008	0.001	0.015	0.024*
	(0.010)	(0.010)	(0.009)	(0.008)	(0.009)	(0.009)	(0.010)	(0.011)	(0.014)
Years in paid work	0.006***	0.005***	0.004***	0.004***	0.004***	0.004***	0.005***	0.006***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployed in past 12 months	-0.056***	-0.063***	-0.059**	-0.050***	-0.054***	-0.053***	-0.066***	-0.072***	-0.074***
	(0.019)	(0.022)	(0.026)	(0.015)	(0.014)	(0.017)	(0.019)	(0.020)	(0.023)
Industry (ref = Extractive and manufacturing)									
Construction	-0.066	0.023	0.017	0.017	0.005	-0.004	0.014	0.001	0.063
	(0.140)	(0.050)	(0.026)	(0.041)	(0.026)	(0.023)	(0.038)	(0.030)	(0.042)
Trade, accommodation and food services	-0.029*	-0.024*	-0.034***	-0.049***	-0.060***	-0.054***	-0.058***	-0.058***	-0.032
	(0.015)	(0.014)	(0.013)	(0.012)	(0.015)	(0.012)	(0.015)	(0.015)	(0.022)
Professional services	0.034	0.057***	0.046***	0.052***	0.052***	0.076***	0.078***	0.086***	0.138***
	(0.023)	(0.017)	(0.016)	(0.014)	(0.016)	(0.016)	(0.018)	(0.019)	(0.027)
Public services	0.038***	0.049***	0.035***	0.034***	0.014	0.015	0.003	-0.006	-0.010
	(0.015)	(0.014)	(0.013)	(0.011)	(0.013)	(0.011)	(0.015)	(0.013)	(0.019)
Other services including private households	-0.076***	-0.045	-0.050***	-0.061***	-0.084***	-0.067***	-0.052**	-0.013	0.038
	(0.017)	(0.031)	(0.018)	(0.015)	(0.021)	(0.018)	(0.024)	(0.027)	(0.033)
ISEI	0.009***	0.009***	0.011***	0.011***	0.012***	0.012***	0.012***	0.012***	0.012***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Small firm	-0.156***	-0.109***	-0.090***	-0.076***	-0.079***	-0.080***	-0.066***	-0.063***	-0.065***
	(0.015)	(0.011)	(0.009)	(0.008)	(0.009)	(0.009)	(0.009)	(0.011)	(0.014)
Constant	1.431***	1.581***	1.661***	1.722***	1.770***	1.798***	1.818***	1.915***	2.046***
	(0.024)	(0.029)	(0.024)	(0.020)	(0.021)	(0.020)	(0.023)	(0.026)	(0.045)
N	25125	25125	25125	25125	25125	25125	25125	25125	25125

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A8: Quantile regressions on gross log hourly wages at every wage decile with part-time employment as key independent variable, men, employees 16-64, pooled country sample

Y = Log Gross Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Part-time employment	-0.138***	-0.095**	-0.059**	-0.075***	-0.061**	-0.053**	-0.017	0.003	0.066
	(0.027)	(0.042)	(0.027)	(0.023)	(0.026)	(0.024)	(0.039)	(0.022)	(0.066)
Age (ref = 16-25)									
26-40	0.196***	0.187***	0.137***	0.122***	0.124***	0.138***	0.155***	0.129***	0.136***
	(0.039)	(0.028)	(0.027)	(0.017)	(0.020)	(0.017)	(0.021)	(0.022)	(0.031)
41-55	0.157***	0.193***	0.166***	0.180***	0.192***	0.203***	0.213***	0.203***	0.235***
	(0.042)	(0.034)	(0.031)	(0.023)	(0.025)	(0.022)	(0.027)	(0.030)	(0.036)
56-64	0.073	0.141***	0.105***	0.130***	0.168***	0.163***	0.174***	0.157***	0.233***
	(0.055)	(0.044)	(0.036)	(0.031)	(0.032)	(0.030)	(0.036)	(0.039)	(0.046)
Education (ref = Primary and lower secondary)									
Upper secondary	0.095***	0.073***	0.064***	0.071***	0.062***	0.062***	0.083***	0.079***	0.075***
	(0.021)	(0.017)	(0.012)	(0.010)	(0.011)	(0.011)	(0.013)	(0.011)	(0.017)
Post-secondary non-tertiary	0.095***	0.071**	0.066***	0.072***	0.043***	0.044*	0.053**	0.063***	0.069
	(0.023)	(0.028)	(0.014)	(0.023)	(0.016)	(0.025)	(0.021)	(0.019)	(0.057)
Tertiary	0.194***	0.171***	0.197***	0.219***	0.213***	0.226***	0.252***	0.261***	0.288***
	(0.025)	(0.021)	(0.017)	(0.015)	(0.016)	(0.015)	(0.019)	(0.019)	(0.024)
Cohabitation	0.103***	0.069***	0.064***	0.048***	0.040***	0.042***	0.035**	0.043***	0.040**
	(0.019)	(0.017)	(0.011)	(0.012)	(0.012)	(0.012)	(0.015)	(0.015)	(0.019)
Own children age 0-5 in household	-0.000	0.046***	0.050***	0.062***	0.078***	0.071***	0.070***	0.085***	0.101***
	(0.013)	(0.016)	(0.014)	(0.012)	(0.013)	(0.012)	(0.016)	(0.013)	(0.023)
Own children age 6-17 in household	-0.005	0.011	0.019*	0.028**	0.037***	0.034***	0.047***	0.044***	0.030*
	(0.012)	(0.014)	(0.011)	(0.011)	(0.011)	(0.011)	(0.013)	(0.012)	(0.016)
Years in paid work	0.007***	0.006***	0.006***	0.006***	0.005***	0.006***	0.006***	0.007***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployed in past 12 months	-0.144***	-0.105***	-0.112***	-0.114***	-0.107***	-0.087***	-0.086***	-0.084***	-0.054*
	(0.036)	(0.028)	(0.021)	(0.020)	(0.018)	(0.022)	(0.014)	(0.025)	(0.032)
Industry (ref = Extractive and manufacturing)									
Construction	-0.036	-0.019	-0.003	0.017	0.009	-0.009	-0.015	-0.018	0.003
	(0.042)	(0.023)	(0.020)	(0.015)	(0.015)	(0.016)	(0.017)	(0.018)	(0.024)
Trade, accommodation and food services	-0.082***	-0.103***	-0.114***	-0.091***	-0.090***	-0.097***	-0.093***	-0.105***	-0.103***
	(0.013)	(0.017)	(0.013)	(0.012)	(0.012)	(0.012)	(0.014)	(0.016)	(0.016)
Professional services	0.012	0.020	0.007	0.024*	0.009	0.022	0.039**	0.069***	0.101***
	(0.020)	(0.018)	(0.015)	(0.014)	(0.014)	(0.016)	(0.018)	(0.023)	(0.028)
Public services	-0.001	-0.007	-0.032***	-0.031**	-0.027*	-0.035***	-0.047***	-0.084***	-0.125***
	(0.026)	(0.018)	(0.010)	(0.013)	(0.015)	(0.013)	(0.015)	(0.013)	(0.021)
Other services including private households	-0.129***	-0.169***	-0.156***	-0.129***	-0.109***	-0.135***	-0.117***	-0.085**	-0.041
	(0.036)	(0.039)	(0.032)	(0.029)	(0.028)	(0.023)	(0.040)	(0.042)	(0.039)
ISEI	0.008***	0.009***	0.010***	0.010***	0.011***	0.011***	0.011***	0.012***	0.013***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Small firm	-0.224***	-0.153***	-0.141***	-0.130***	-0.121***	-0.111***	-0.105***	-0.094***	-0.093***
	(0.027)	(0.015)	(0.011)	(0.012)	(0.010)	(0.010)	(0.014)	(0.015)	(0.019)
Constant	1.545***	1.639***	1.753***	1.796***	1.843***	1.892***	1.926***	1.959***	2.001***
	(0.044)	(0.033)	(0.030)	(0.020)	(0.024)	(0.022)	(0.025)	(0.025)	(0.033)
N	22628	22628	22628	22628	22628	22628	22628	22628	22628

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A9: Quantile regressions on gross log hourly wages at every wage decile with part-time employment as key independent variable, women, employees 16-64, pooled country sample

Y = Log Gross Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Part-time employment	-0.042***	-0.030***	-0.023**	-0.017**	-0.013	-0.013	-0.003	0.017	0.059***
	(0.015)	(0.010)	(0.009)	(0.008)	(0.009)	(0.009)	(0.010)	(0.011)	(0.016)
Age (ref = 16-25)									
26-40	0.191***	0.151***	0.130***	0.106***	0.121***	0.141***	0.134***	0.108***	0.063
	(0.023)	(0.025)	(0.020)	(0.017)	(0.015)	(0.017)	(0.015)	(0.021)	(0.039)
41-55	0.158***	0.155***	0.138***	0.126***	0.146***	0.175***	0.176***	0.148***	0.145***
	(0.031)	(0.029)	(0.023)	(0.021)	(0.019)	(0.020)	(0.019)	(0.023)	(0.045)
56-64	0.110***	0.094***	0.093***	0.080***	0.104***	0.129***	0.124***	0.106***	0.126**
	(0.039)	(0.034)	(0.028)	(0.025)	(0.025)	(0.024)	(0.025)	(0.029)	(0.054)
Education (ref = Primary and lower secondary)									
Upper secondary	0.091***	0.059***	0.043***	0.035***	0.041***	0.040***	0.034***	0.034***	0.033*
	(0.016)	(0.013)	(0.011)	(0.009)	(0.010)	(0.010)	(0.010)	(0.011)	(0.019)
Post-secondary non-tertiary	0.138***	0.120***	0.094***	0.099***	0.097***	0.110***	0.118***	0.105***	0.065***
	(0.020)	(0.020)	(0.025)	(0.020)	(0.020)	(0.018)	(0.019)	(0.021)	(0.023)
Tertiary	0.193***	0.165***	0.151***	0.156***	0.177***	0.188***	0.205***	0.235***	0.265***
	(0.019)	(0.016)	(0.015)	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.024)
Cohabitation	0.057***	0.040***	0.033***	0.030***	0.024***	0.026***	0.026***	0.022**	0.027**
	(0.012)	(0.010)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.012)
Own children age 0-5 in household	-0.019	0.012	0.020	0.037***	0.032***	0.039***	0.052***	0.060***	0.109***
	(0.018)	(0.014)	(0.015)	(0.012)	(0.011)	(0.013)	(0.012)	(0.016)	(0.020)
Own children age 6-17 in household	0.005	0.005	0.004	0.002	0.003	-0.007	0.002	0.016	0.011
	(0.010)	(0.009)	(0.009)	(0.008)	(0.009)	(0.009)	(0.010)	(0.011)	(0.012)
Years in paid work	0.006***	0.005***	0.005***	0.005***	0.005***	0.004***	0.005***	0.006***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployed in past 12 months	-0.117***	-0.102***	-0.084***	-0.081***	-0.078***	-0.081***	-0.069***	-0.088***	-0.100***
	(0.027)	(0.023)	(0.022)	(0.012)	(0.014)	(0.016)	(0.017)	(0.018)	(0.017)
Industry (ref = Extractive and manufacturing)									
Construction	-0.064	0.022	0.009	0.023	0.005	0.008	0.017	0.003	0.080**
	(0.170)	(0.042)	(0.036)	(0.053)	(0.023)	(0.027)	(0.032)	(0.031)	(0.036)
Trade, accommodation and food services	-0.027*	-0.023*	-0.037***	-0.043***	-0.061***	-0.050***	-0.053***	-0.061***	-0.039**
	(0.016)	(0.014)	(0.014)	(0.012)	(0.014)	(0.013)	(0.015)	(0.014)	(0.016)
Professional services	0.036*	0.059***	0.051***	0.057***	0.053***	0.076***	0.083***	0.084***	0.128***
	(0.020)	(0.017)	(0.017)	(0.014)	(0.015)	(0.016)	(0.017)	(0.017)	(0.025)
Public services	0.034**	0.046***	0.035***	0.035***	0.017	0.019*	0.008	-0.011	-0.019
	(0.015)	(0.013)	(0.014)	(0.011)	(0.012)	(0.011)	(0.015)	(0.012)	(0.013)
Other services including private households	-0.085**	-0.062**	-0.048**	-0.058***	-0.078***	-0.056***	-0.045*	-0.015	0.025
	(0.035)	(0.025)	(0.021)	(0.015)	(0.019)	(0.020)	(0.023)	(0.029)	(0.031)
ISEI	0.009***	0.010***	0.011***	0.011***	0.011***	0.012***	0.012***	0.012***	0.013***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Small firm	-0.153***	-0.108***	-0.088***	-0.077***	-0.079***	-0.078***	-0.067***	-0.067***	-0.075***
	(0.014)	(0.012)	(0.009)	(0.009)	(0.008)	(0.009)	(0.009)	(0.010)	(0.013)
Constant	1.422***	1.572***	1.650***	1.718***	1.759***	1.788***	1.806***	1.912***	2.016***
	(0.029)	(0.029)	(0.025)	(0.021)	(0.020)	(0.020)	(0.021)	(0.026)	(0.043)
N	25125	25125	25125	25125	25125	25125	25125	25125	25125

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A10: Quantile regressions on gross log hourly wages at every wage decile with temporary employment as key independent variable, baseline model without controls, men, employees 16-64, pooled country sample

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Temporary employment	-0.350***	-0.272***	-0.281***	-0.301***	-0.290***	-0.318***	-0.288***	-0.288***	-0.322***
	(0.041)	(0.021)	(0.013)	(0.016)	(0.015)	(0.017)	(0.017)	(0.020)	(0.026)
Constant	2.210***	2.376***	2.488***	2.584***	2.664***	2.782***	2.877***	3.018***	3.223***
	(0.014)	(0.010)	(0.012)	(0.007)	(0.012)	(0.011)	(0.012)	(0.019)	(0.024)
N	26557	26557	26557	26557	26557	26557	26557	26557	26557

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A11: Quantile regressions on gross log hourly wages at every wage decile with temporary employment as key independent variable, baseline model without controls, women, employees 16-64, pooled country sample

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Temporary employment	-0.316***	-0.215***	-0.201***	-0.208***	-0.234***	-0.234***	-0.243***	-0.205***	-0.169***
	(0.036)	(0.016)	(0.016)	(0.015)	(0.015)	(0.021)	(0.023)	(0.028)	(0.030)
Constant	2.055***	2.190***	2.307***	2.401***	2.514***	2.623***	2.751***	2.874***	3.066***
	(0.017)	(0.012)	(0.015)	(0.010)	(0.015)	(0.014)	(0.014)	(0.015)	(0.013)
N	25125	25125	25125	25125	25125	25125	25125	25125	25125

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A12: Quantile regressions on gross log hourly wages at every wage decile with part-time employment as key independent variable, baseline model without controls, men, employees 16-64, pooled country sample

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Part-time employment	-0.225***	-0.233***	-0.240***	-0.257***	-0.278***	-0.231***	-0.265***	-0.229***	-0.206***
	(0.047)	(0.038)	(0.037)	(0.020)	(0.032)	(0.050)	(0.012)	(0.063)	(0.075)
Constant	2.205***	2.376***	2.480***	2.584***	2.664***	2.782***	2.877***	3.017***	3.214***
	(0.014)	(0.008)	(0.012)	(0.008)	(0.011)	(0.011)	(0.011)	(0.015)	(0.022)
N	22628	22628	22628	22628	22628	22628	22628	22628	22628

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A13: Quantile regressions on gross log hourly wages at every wage decile with part-time employment as key independent variable, baseline model without controls, women, employees 16-64, pooled country sample

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Part-time employment	-0.098***	-0.092***	-0.118***	-0.134***	-0.124***	-0.125***	-0.125***	-0.111***	-0.085***
	(0.012)	(0.011)	(0.012)	(0.011)	(0.013)	(0.013)	(0.013)	(0.017)	(0.020)
Constant	2.088***	2.219***	2.351***	2.458***	2.556***	2.668***	2.782***	2.914***	3.074***
	(0.012)	(0.012)	(0.013)	(0.013)	(0.014)	(0.014)	(0.015)	(0.017)	(0.015)
N	25125	25125	25125	25125	25125	25125	25125	25125	25125

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A14: Quantile regressions on gross log hourly wages at every wage decile with temporary employment as key independent variable, model with all controls except occupation, men, employees 16-64, pooled country sample

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Temporary employment	-0.230***	-0.171***	-0.138***	-0.108***	-0.121***	-0.106***	-0.102***	-0.089***	-0.044
	(0.025)	(0.018)	(0.022)	(0.013)	(0.015)	(0.017)	(0.016)	(0.020)	(0.029)
Age (ref = 16-25)									
26-40	0.185***	0.167***	0.131***	0.132***	0.115***	0.133***	0.134***	0.133***	0.148***
	(0.056)	(0.022)	(0.022)	(0.023)	(0.022)	(0.018)	(0.024)	(0.023)	(0.022)
41-55	0.142**	0.168***	0.152***	0.177***	0.183***	0.221***	0.226***	0.245***	0.295***
	(0.061)	(0.029)	(0.027)	(0.028)	(0.028)	(0.024)	(0.031)	(0.030)	(0.033)
56-64	0.050	0.110***	0.098***	0.118***	0.125***	0.181***	0.196***	0.213***	0.268***
	(0.069)	(0.040)	(0.035)	(0.035)	(0.035)	(0.033)	(0.040)	(0.042)	(0.046)
Education (ref = Primary and lower secondary)									
Upper secondary	0.128***	0.127***	0.125***	0.142***	0.132***	0.147***	0.164***	0.161***	0.155***
	(0.019)	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.017)	(0.014)
Post-secondary non-tertiary	0.131***	0.138***	0.130***	0.146***	0.127***	0.167***	0.176***	0.149***	0.125***
	(0.027)	(0.033)	(0.024)	(0.016)	(0.026)	(0.022)	(0.023)	(0.023)	(0.022)
Tertiary	0.296***	0.337***	0.379***	0.420***	0.431***	0.459***	0.485***	0.499***	0.538***
	(0.024)	(0.017)	(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.019)	(0.022)
Cohabitation	0.094***	0.088***	0.074***	0.074***	0.072***	0.058***	0.065***	0.073***	0.076***
	(0.022)	(0.015)	(0.013)	(0.012)	(0.014)	(0.013)	(0.015)	(0.017)	(0.017)
Own children age 0-5 in household	0.008	0.027*	0.044***	0.058***	0.066***	0.084***	0.070***	0.068***	0.090***
	(0.021)	(0.015)	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.016)	(0.019)
Own children age 6-17 in household	0.005	0.011	0.021*	0.016	0.024**	0.042***	0.044***	0.043***	0.018
	(0.016)	(0.013)	(0.012)	(0.011)	(0.011)	(0.011)	(0.013)	(0.014)	(0.018)
Years in paid work	0.007***	0.005***	0.006***	0.006***	0.006***	0.006***	0.007***	0.007***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployed in past 12 months	-0.112*	-0.108***	-0.109***	-0.114***	-0.094***	-0.084***	-0.078***	-0.072***	-0.091***
	(0.065)	(0.024)	(0.022)	(0.025)	(0.021)	(0.019)	(0.023)	(0.025)	(0.021)
Industry (ref = Extractive and manufacturing)									
Construction	-0.036	-0.010	0.011	0.015	0.014	0.008	0.004	0.003	-0.009
	(0.030)	(0.020)	(0.020)	(0.018)	(0.015)	(0.014)	(0.016)	(0.021)	(0.027)
Trade, accommodation and food services	-0.113***	-0.113***	-0.101***	-0.095***	-0.091***	-0.095***	-0.100***	-0.093***	-0.102***
	(0.017)	(0.014)	(0.012)	(0.013)	(0.012)	(0.012)	(0.015)	(0.015)	(0.015)
Professional services	0.078***	0.072***	0.078***	0.089***	0.116***	0.122***	0.149***	0.170***	0.210***
	(0.027)	(0.015)	(0.017)	(0.016)	(0.016)	(0.017)	(0.019)	(0.021)	(0.027)
Public services	0.032	0.039**	0.034**	0.027**	0.013	0.016	-0.009	-0.002	-0.048***
	(0.023)	(0.016)	(0.013)	(0.012)	(0.015)	(0.015)	(0.014)	(0.018)	(0.018)
Other services including private households	-0.086**	-0.130***	-0.099***	-0.094***	-0.085***	-0.096***	-0.094**	-0.075	-0.020
	(0.035)	(0.038)	(0.025)	(0.025)	(0.033)	(0.020)	(0.045)	(0.051)	(0.062)
Firm has 10 employees or less	-0.253***	-0.178***	-0.168***	-0.165***	-0.149***	-0.145***	-0.135***	-0.111***	-0.088***
	(0.024)	(0.014)	(0.012)	(0.011)	(0.012)	(0.011)	(0.014)	(0.014)	(0.017)
Constant	1.831***	1.972***	2.067***	2.095***	2.166***	2.205***	2.253***	2.321***	2.428***
	(0.056)	(0.023)	(0.022)	(0.025)	(0.022)	(0.019)	(0.025)	(0.027)	(0.026)
	(0.065)	(0.024)	(0.022)	(0.025)	(0.021)	(0.019)	(0.023)	(0.025)	(0.021)
N	26557	26557	26557	26557	26557	26557	26557	26557	26557

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A15: Quantile regressions on gross log hourly wages at every wage decile with temporary employment as key independent variable, model with all controls except occupation, women, employees 16-64, pooled country sample

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Temporary employment	-0.218***	-0.146***	-0.119***	-0.109***	-0.094***	-0.089***	-0.063***	-0.050**	-0.063**
	(0.026)	(0.018)	(0.015)	(0.019)	(0.015)	(0.018)	(0.023)	(0.020)	(0.025)
Age (ref = 16-25)									
26-40	0.155***	0.143***	0.159***	0.154***	0.144***	0.148***	0.160***	0.177***	0.124***
	(0.038)	(0.023)	(0.019)	(0.020)	(0.016)	(0.020)	(0.019)	(0.020)	(0.028)
41-55	0.120***	0.122***	0.147***	0.150***	0.149***	0.169***	0.194***	0.236***	0.212***
	(0.044)	(0.026)	(0.023)	(0.024)	(0.021)	(0.024)	(0.024)	(0.022)	(0.037)
56-64	0.056	0.066**	0.096***	0.104***	0.096***	0.117***	0.129***	0.176***	0.179***
	(0.050)	(0.030)	(0.028)	(0.029)	(0.026)	(0.029)	(0.030)	(0.024)	(0.046)
Education (ref = Primary and lower secondary)									
Upper secondary	0.130***	0.118***	0.111***	0.121***	0.130***	0.137***	0.141***	0.145***	0.129***
	(0.017)	(0.013)	(0.011)	(0.011)	(0.010)	(0.012)	(0.013)	(0.012)	(0.021)
Post-secondary non-tertiary	0.208***	0.187***	0.213***	0.228***	0.234***	0.244***	0.225***	0.219***	0.181***
	(0.027)	(0.021)	(0.030)	(0.018)	(0.020)	(0.021)	(0.019)	(0.019)	(0.029)
Tertiary	0.329***	0.336***	0.365***	0.398***	0.437***	0.455***	0.477***	0.521***	0.528***
	(0.020)	(0.015)	(0.013)	(0.014)	(0.013)	(0.014)	(0.015)	(0.014)	(0.024)
Cohabitation	0.059***	0.050***	0.035***	0.034***	0.032***	0.030***	0.035***	0.021*	0.025
	(0.014)	(0.011)	(0.010)	(0.010)	(0.009)	(0.010)	(0.011)	(0.012)	(0.015)
Own children age 0-5 in household	-0.037	0.001	0.016	0.033**	0.042***	0.047***	0.046***	0.083***	0.115***
	(0.025)	(0.015)	(0.015)	(0.015)	(0.013)	(0.013)	(0.016)	(0.018)	(0.024)
Own children age 6-17 in household	-0.019	-0.021*	-0.012	-0.003	-0.014	-0.009	-0.015	-0.002	0.027*
	(0.013)	(0.011)	(0.010)	(0.010)	(0.009)	(0.010)	(0.012)	(0.013)	(0.016)
Years in paid work	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***	0.007***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployed in past 12 months	-0.106***	-0.098***	-0.069***	-0.071***	-0.073***	-0.088***	-0.102***	-0.073***	-0.058***
	(0.022)	(0.016)	(0.022)	(0.018)	(0.012)	(0.018)	(0.027)	(0.015)	(0.021)
Industry (ref = Extractive and manufacturing)									
Construction	0.004	0.049	0.104***	0.086**	0.098**	0.110**	0.092***	0.083**	0.039
	(0.073)	(0.084)	(0.025)	(0.036)	(0.046)	(0.051)	(0.032)	(0.033)	(0.033)
Trade, accommodation and food services	-0.044**	-0.042**	-0.057***	-0.070***	-0.070***	-0.073***	-0.086***	-0.068***	-0.047**
	(0.019)	(0.017)	(0.013)	(0.016)	(0.014)	(0.014)	(0.014)	(0.017)	(0.021)
Professional services	0.067***	0.093***	0.105***	0.102***	0.116***	0.132***	0.142***	0.160***	0.188***
	(0.021)	(0.020)	(0.014)	(0.019)	(0.017)	(0.016)	(0.016)	(0.019)	(0.024)
Public services	0.059***	0.061***	0.066***	0.059***	0.056***	0.052***	0.046***	0.042***	0.033
	(0.019)	(0.016)	(0.012)	(0.015)	(0.014)	(0.013)	(0.013)	(0.013)	(0.021)
Other services including private households	-0.114***	-0.119***	-0.103***	-0.106***	-0.105***	-0.099***	-0.089***	-0.057*	-0.020
	(0.038)	(0.022)	(0.029)	(0.019)	(0.024)	(0.025)	(0.024)	(0.030)	(0.028)
Firm has 10 employees or less	-0.169***	-0.126***	-0.115***	-0.105***	-0.103***	-0.102***	-0.091***	-0.089***	-0.085***
	(0.016)	(0.011)	(0.010)	(0.010)	(0.009)	(0.011)	(0.011)	(0.013)	(0.014)
Constant	1.733***	1.859***	1.926***	1.991***	2.049***	2.093***	2.148***	2.190***	2.341***
	(0.041)	(0.027)	(0.023)	(0.025)	(0.020)	(0.023)	(0.022)	(0.022)	(0.036)
N	25125	25125	25125	25125	25125	25125	25125	25125	25125

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A16: Quantile regressions on gross log hourly wages at every wage decile with part-time employment as key independent variable, model with all controls except occupation, men, employees 16-64, pooled country sample

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Part-time employment	-0.165***	-0.167***	-0.165***	-0.122***	-0.123***	-0.149***	-0.116***	-0.072	-0.016
	(0.028)	(0.032)	(0.035)	(0.037)	(0.021)	(0.027)	(0.021)	(0.048)	(0.065)
Age (ref = 16-25)									
26-40	0.176***	0.170***	0.142***	0.142***	0.152***	0.140***	0.132***	0.143***	0.158***
	(0.044)	(0.028)	(0.022)	(0.026)	(0.022)	(0.019)	(0.020)	(0.023)	(0.022)
41-55	0.121**	0.172***	0.170***	0.187***	0.217***	0.230***	0.221***	0.250***	0.308***
	(0.048)	(0.034)	(0.027)	(0.032)	(0.028)	(0.024)	(0.026)	(0.030)	(0.034)
56-64	0.025	0.111***	0.099***	0.128***	0.159***	0.184***	0.196***	0.213***	0.276***
	(0.056)	(0.042)	(0.035)	(0.040)	(0.036)	(0.033)	(0.035)	(0.042)	(0.048)
Education (ref = Primary and lower secondary)									
Upper secondary	0.120***	0.114***	0.123***	0.136***	0.124***	0.130***	0.154***	0.147***	0.151***
	(0.017)	(0.012)	(0.012)	(0.014)	(0.012)	(0.012)	(0.011)	(0.016)	(0.013)
Post-secondary non-tertiary	0.121***	0.130***	0.122***	0.141***	0.138***	0.150***	0.162***	0.135***	0.111***
	(0.020)	(0.016)	(0.024)	(0.035)	(0.028)	(0.024)	(0.021)	(0.025)	(0.022)
Tertiary	0.280***	0.320***	0.375***	0.413***	0.422***	0.430***	0.462***	0.470***	0.517***
	(0.023)	(0.018)	(0.016)	(0.017)	(0.015)	(0.014)	(0.014)	(0.020)	(0.020)
Cohabitation	0.090***	0.083***	0.070***	0.077***	0.054***	0.058***	0.060***	0.069***	0.081***
	(0.018)	(0.015)	(0.013)	(0.015)	(0.014)	(0.013)	(0.014)	(0.017)	(0.018)
Own children age 0-5 in household	0.025	0.042***	0.055***	0.067***	0.077***	0.086***	0.072***	0.073***	0.096***
	(0.021)	(0.016)	(0.014)	(0.016)	(0.014)	(0.013)	(0.013)	(0.017)	(0.018)
Own children age 6-17 in household	0.002	0.006	0.021*	0.025**	0.029**	0.038***	0.042***	0.040**	0.015
	(0.015)	(0.013)	(0.012)	(0.012)	(0.012)	(0.011)	(0.012)	(0.016)	(0.016)
Years in paid work	0.008***	0.006***	0.006***	0.006***	0.006***	0.006***	0.007***	0.007***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployed in past 12 months	-0.202***	-0.123***	-0.140***	-0.137***	-0.121***	-0.090***	-0.118***	-0.106***	-0.116***
	(0.047)	(0.022)	(0.022)	(0.027)	(0.028)	(0.018)	(0.022)	(0.017)	(0.013)
Industry (ref = Extractive and manufacturing)									
Construction	-0.045	-0.019	0.011	0.018	0.010	0.007	0.001	-0.007	-0.023
	(0.035)	(0.023)	(0.020)	(0.018)	(0.018)	(0.014)	(0.017)	(0.022)	(0.025)
Trade, accommodation and food services	-0.116***	-0.113***	-0.109***	-0.095***	-0.099***	-0.096***	-0.098***	-0.100***	-0.115***
	(0.020)	(0.014)	(0.013)	(0.014)	(0.013)	(0.013)	(0.013)	(0.015)	(0.015)
Professional services	0.065***	0.081***	0.083***	0.087***	0.112***	0.124***	0.150***	0.168***	0.205***
	(0.024)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.021)	(0.021)	(0.026)
Public services	0.030*	0.038**	0.029**	0.023	0.020	0.009	-0.017	-0.020	-0.059***
	(0.017)	(0.017)	(0.013)	(0.016)	(0.015)	(0.013)	(0.013)	(0.019)	(0.018)
Other services including private households	-0.087***	-0.122***	-0.087***	-0.100***	-0.094***	-0.097***	-0.075*	-0.076*	-0.006
	(0.023)	(0.044)	(0.024)	(0.030)	(0.033)	(0.025)	(0.041)	(0.041)	(0.056)
Firm has 10 employees or less	-0.235***	-0.172***	-0.163***	-0.157***	-0.145***	-0.134***	-0.126***	-0.109***	-0.083***
	(0.026)	(0.016)	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)	(0.014)	(0.019)
Constant	1.839***	1.964***	2.037***	2.075***	2.154***	2.224***	2.274***	2.344***	2.439***
	(0.044)	(0.028)	(0.022)	(0.027)	(0.023)	(0.020)	(0.019)	(0.025)	(0.022)
N	22628	22628	22628	22628	22628	22628	22628	22628	22628

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A17: Quantile regressions on gross log hourly wages at every wage decile with part-time employment as key independent variable, model with all controls except occupation, women, employees 16-64, pooled country sample

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Part-time employment	-0.079***	-0.067***	-0.065***	-0.067***	-0.068***	-0.061***	-0.055***	-0.042***	-0.021
	(0.014)	(0.011)	(0.010)	(0.010)	(0.009)	(0.010)	(0.011)	(0.014)	(0.016)
Age (ref = 16-25)									
26-40	0.170***	0.157***	0.178***	0.158***	0.164***	0.150***	0.158***	0.179***	0.123***
	(0.036)	(0.020)	(0.016)	(0.022)	(0.016)	(0.022)	(0.019)	(0.021)	(0.032)
41-55	0.134***	0.137***	0.175***	0.167***	0.175***	0.178***	0.202***	0.244***	0.215***
	(0.043)	(0.025)	(0.022)	(0.025)	(0.020)	(0.026)	(0.025)	(0.025)	(0.041)
56-64	0.087*	0.086***	0.124***	0.130***	0.123***	0.133***	0.142***	0.189***	0.182***
	(0.050)	(0.032)	(0.028)	(0.029)	(0.025)	(0.030)	(0.031)	(0.028)	(0.048)
Education (ref = Primary and lower secondary)									
Upper secondary	0.124***	0.118***	0.114***	0.124***	0.125***	0.131***	0.141***	0.144***	0.134***
	(0.016)	(0.013)	(0.011)	(0.011)	(0.012)	(0.011)	(0.012)	(0.015)	(0.019)
Post-secondary non-tertiary	0.195***	0.190***	0.210***	0.231***	0.227***	0.234***	0.243***	0.210***	0.184***
	(0.029)	(0.026)	(0.025)	(0.020)	(0.018)	(0.021)	(0.019)	(0.019)	(0.021)
Tertiary	0.303***	0.329***	0.358***	0.391***	0.419***	0.446***	0.481***	0.516***	0.532***
	(0.020)	(0.016)	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.017)	(0.022)
Cohabitation	0.065***	0.054***	0.044***	0.035***	0.039***	0.034***	0.041***	0.025**	0.027*
	(0.014)	(0.011)	(0.010)	(0.010)	(0.009)	(0.010)	(0.011)	(0.013)	(0.015)
Own children age 0-5 in household	-0.009	0.008	0.034**	0.055***	0.059***	0.068***	0.060***	0.091***	0.117***
	(0.018)	(0.015)	(0.016)	(0.015)	(0.013)	(0.013)	(0.015)	(0.020)	(0.022)
Own children age 6-17 in household	-0.006	-0.009	-0.011	0.006	-0.001	-0.002	-0.006	0.005	0.035**
	(0.012)	(0.012)	(0.011)	(0.010)	(0.010)	(0.010)	(0.011)	(0.014)	(0.015)
Years in paid work	0.007***	0.006***	0.006***	0.006***	0.006***	0.006***	0.007***	0.007***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployed in past 12 months	-0.151***	-0.129***	-0.109***	-0.099***	-0.106***	-0.115***	-0.103***	-0.090***	-0.096***
	(0.035)	(0.019)	(0.019)	(0.018)	(0.015)	(0.012)	(0.024)	(0.023)	(0.035)
Industry (ref = Extractive and manufacturing)									
Construction	-0.011	0.061	0.102***	0.128***	0.095***	0.131***	0.094***	0.079*	0.032
	(0.044)	(0.092)	(0.028)	(0.042)	(0.032)	(0.034)	(0.033)	(0.042)	(0.029)
Trade, accommodation and food services	-0.037**	-0.031*	-0.044***	-0.048***	-0.058***	-0.059***	-0.063***	-0.060***	-0.050**
	(0.015)	(0.017)	(0.013)	(0.016)	(0.015)	(0.015)	(0.015)	(0.018)	(0.021)
Professional services	0.082***	0.108***	0.106***	0.119***	0.129***	0.138***	0.153***	0.168***	0.189***
	(0.022)	(0.020)	(0.015)	(0.018)	(0.017)	(0.018)	(0.018)	(0.020)	(0.023)
Public services	0.055***	0.069***	0.066***	0.074***	0.072***	0.061***	0.051***	0.047***	0.031
	(0.015)	(0.017)	(0.013)	(0.015)	(0.014)	(0.015)	(0.015)	(0.015)	(0.020)
Other services including private households	-0.110***	-0.103***	-0.103***	-0.082***	-0.088***	-0.088***	-0.073***	-0.045	-0.034
	(0.029)	(0.025)	(0.025)	(0.018)	(0.021)	(0.021)	(0.022)	(0.031)	(0.036)
Firm has 10 employees or less	-0.176***	-0.122***	-0.109***	-0.098***	-0.096***	-0.094***	-0.090***	-0.090***	-0.078***
	(0.017)	(0.012)	(0.011)	(0.010)	(0.009)	(0.010)	(0.011)	(0.013)	(0.014)
Constant	1.717***	1.841***	1.909***	1.979***	2.036***	2.097***	2.144***	2.197***	2.333***
	(0.041)	(0.025)	(0.020)	(0.026)	(0.021)	(0.025)	(0.023)	(0.025)	(0.037)
N	25125	25125	25125	25125	25125	25125	25125	25125	25125

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. All models include country fixed effects.

Table A18: Coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, UK

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-0.093**	-0.080	-0.008	-0.037	-0.014	0.021	0.022	0.027	0.019
SE	(0.047)	(0.068)	(0.023)	(0.041)	(0.052)	(0.057)	(0.064)	(0.030)	(0.043)
N	3351	3351	3351	3351	3351	3351	3351	3351	3351
Women									
Coefficient	-0.171	-0.113**	-0.070	-0.035	-0.022	0.011	0.056	-0.030	0.020
SE	(0.123)	(0.050)	(0.062)	(0.059)	(0.052)	(0.056)	(0.047)	(0.024)	(0.057)
N	3626	3626	3626	3626	3626	3626	3626	3626	3626

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A19: Coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Ireland

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-0.012	-0.031	-0.003	-0.017	-0.050*	-0.052	-0.033	-0.052	0.127
SE	(0.040)	(0.048)	(0.055)	(0.029)	(0.030)	(0.050)	(0.034)	(0.077)	(0.142)
N	1598	1598	1598	1598	1598	1598	1598	1598	3491
Women									
Coefficient	-0.027	-0.094***	-0.083*	-0.052	-0.089***	-0.103**	-0.089***	-0.107*	-0.111*
SE	(0.034)	(0.032)	(0.044)	(0.032)	(0.027)	(0.046)	(0.032)	(0.062)	(0.066)
N	1739	1739	1739	1739	1739	1739	1739	1739	1739

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A20: Coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Switzerland

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-1.137***	-1.125***	-0.917***	-0.817***	-0.677***	-0.542***	-0.396***	-0.349***	-0.285***
SE	(0.096)	(0.098)	(0.081)	(0.067)	(0.098)	(0.089)	(0.068)	(0.050)	(0.082)
N	3491	3491	3491	3491	3491	3491	3491	3491	3491
Women									
Coefficient	-1.124***	-0.989***	-0.908***	-0.777***	-0.638***	-0.514***	-0.329***	-0.290***	-0.228***
SE	(0.132)	(0.086)	(0.074)	(0.100)	(0.077)	(0.083)	(0.088)	(0.049)	(0.021)
N	3120	3120	3120	3120	3120	3120	3120	3120	3120

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A21: Coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Austria

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-0.080***	-0.058	-0.044	-0.023	-0.014	-0.011	0.008	0.013	0.061
SE	(0.020)	(0.052)	(0.028)	(0.031)	(0.034)	(0.041)	(0.045)	(0.055)	(0.054)
N	2428	2428	2428	2428	2428	2428	2428	2428	2428
Women									
Coefficient	-0.157***	-0.082***	-0.076**	-0.073***	-0.079***	-0.062*	-0.057**	-0.040	-0.055
SE	(0.055)	(0.023)	(0.037)	(0.020)	(0.029)	(0.037)	(0.022)	(0.037)	(0.037)
N	2277	2277	2277	2277	2277	2277	2277	2277	2277

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A22: Coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Portugal

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-0.071***	-0.105***	-0.119***	-0.108***	-0.120***	-0.133***	-0.157***	-0.136***	-0.151***
SE	(0.020)	(0.021)	(0.014)	(0.025)	(0.019)	(0.020)	(0.028)	(0.024)	(0.028)
N	3929	3929	3929	3929	3929	3929	3929	3929	3929
Women									
Coefficient	-0.072***	-0.064***	-0.070***	-0.081***	-0.088***	-0.083***	-0.063**	-0.090***	-0.102***
SE	(0.019)	(0.010)	(0.013)	(0.013)	(0.015)	(0.019)	(0.026)	(0.022)	(0.024)
N	4318	4318	4318	4318	4318	4318	4318	4318	4318

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A23: Coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Italy

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-0.147***	-0.124***	-0.121***	-0.133***	-0.114***	-0.110***	-0.102***	-0.075***	-0.072***
SE	(0.030)	(0.020)	(0.019)	(0.015)	(0.016)	(0.014)	(0.018)	(0.025)	(0.018)
N	7418	7418	7418	7418	7418	7418	7418	7418	7418
Women									
Coefficient	-0.110***	-0.084***	-0.082***	-0.078***	-0.063***	-0.062***	-0.042***	-0.040*	-0.035*
SE	(0.037)	(0.028)	(0.019)	(0.018)	(0.017)	(0.019)	(0.016)	(0.022)	(0.021)
N	6423	6423	6423	6423	6423	6423	6423	6423	6423

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A24: Coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Greece

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-0.148***	-0.139***	-0.103***	-0.092***	-0.090***	-0.060**	-0.037*	-0.050*	-0.013
SE	(0.043)	(0.031)	(0.033)	(0.023)	(0.022)	(0.026)	(0.019)	(0.028)	(0.037)
N	4342	4342	4342	4342	4342	4342	4342	4342	4342
Women									
Coefficient	-0.111***	-0.104***	-0.094***	-0.082***	-0.093***	-0.080***	-0.063***	-0.067***	-0.043*
SE	(0.032)	(0.023)	(0.018)	(0.018)	(0.016)	(0.021)	(0.021)	(0.025)	(0.024)
N	3622	3622	3622	3622	3622	3622	3622	3622	3622

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A25: Coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, UK

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-0.147	-0.130***	-0.109*	-0.127***	-0.112*	-0.084	-0.081	-0.018	-0.045
SE	(0.155)	(0.046)	(0.061)	(0.029)	(0.058)	(0.056)	(0.059)	(0.029)	(0.031)
N	3351	3351	3351	3351	3351	3351	3351	3351	3351
Women									
Coefficient	-0.076***	-0.060***	-0.066***	-0.060***	-0.062***	-0.070***	-0.085***	-0.051**	-0.053**
SE	(0.028)	(0.021)	(0.016)	(0.014)	(0.015)	(0.015)	(0.017)	(0.023)	(0.024)
N	3626	3626	3626	3626	3626	3626	3626	3626	3626

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A26: Coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Ireland

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-0.139***	-0.205***	-0.187***	-0.136***	-0.094***	-0.098**	-0.079	0.016	0.309*
SE	(0.028)	(0.036)	(0.049)	(0.052)	(0.030)	(0.043)	(0.064)	(0.113)	(0.160)
N	1598	1598	1598	1598	1598	1598	1598	1598	1598
Women									
Coefficient	-0.102***	-0.089***	-0.103***	-0.104***	-0.104***	-0.098***	-0.080**	-0.056*	0.032
SE	(0.022)	(0.021)	(0.025)	(0.024)	(0.021)	(0.025)	(0.037)	(0.032)	(0.033)
N	1739	1739	1739	1739	1739	1739	1739	1795	1795

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A27: Coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Switzerland

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-0.520***	-0.266**	-0.095	-0.060*	-0.048	-0.029	0.000	0.017	0.108
SE	(0.054)	(0.134)	(0.063)	(0.032)	(0.033)	(0.039)	(0.030)	(0.030)	(0.101)
N	3491	3491	3491	3491	3491	3491	3491	3491	3491
Women									
Coefficient	-0.024	0.009	0.007	0.026	0.029*	0.041**	0.050***	0.077***	0.118***
SE	(0.041)	(0.020)	(0.018)	(0.020)	(0.017)	(0.017)	(0.016)	(0.024)	(0.026)
N	3120	3120	3120	3120	3120	3120	3120	3120	3120

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A28: Coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Austria

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	-0.074	0.026	0.037	0.037	0.034	0.061**	0.085**	0.070*	0.084***
SE	(0.129)	(0.039)	(0.036)	(0.030)	(0.040)	(0.030)	(0.034)	(0.038)	(0.030)
N	2428	2428	2428	2428	2428	2428	2428	2428	2428
Women									
Coefficient	-0.023	-0.004	-0.002	0.007	0.010	0.009	0.012	0.029	0.068***
SE	(0.026)	(0.018)	(0.016)	(0.015)	(0.015)	(0.016)	(0.016)	(0.021)	(0.017)
N	2277	2277	2277	2277	2277	2277	2277	2277	2277

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A29: Coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, women, employees 16-64, Portugal

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Women									
Coefficient	0.025	-0.002	0.028**	0.002	0.009	0.060*	0.084*	0.112***	0.048**
SE	(0.023)	(0.027)	(0.012)	(0.017)	(0.035)	(0.032)	(0.051)	(0.034)	(0.024)
N	4318	4318	4318	4318	4318	4318	4318	4318	4318

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A30: Coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Italy

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	0.063***	0.038	0.001	-0.001	0.012	0.035	0.075**	0.093***	0.145***
SE	(0.020)	(0.030)	(0.014)	(0.033)	(0.026)	(0.025)	(0.036)	(0.029)	(0.028)
N	7418	7418	7418	7418	7418	7418	7418	7418	7418
Women									
Coefficient	0.059***	0.084***	0.080***	0.088***	0.114***	0.119***	0.133***	0.134***	0.163***
SE	(0.019)	(0.015)	(0.014)	(0.014)	(0.014)	(0.013)	(0.015)	(0.013)	(0.022)
N	6423	6423	6423	6423	6423	6423	6423	6423	6423

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A31: Coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, upper panel men, lower panel women, employees 16-64, Greece

Y = Log Hourly Wages, at different quantiles	Bottom	2	3	4	5	6	7	8	Top
Men									
Coefficient	0.039	0.043	0.053*	0.012	0.010	0.035	0.030	0.029	0.074***
SE	(0.083)	(0.033)	(0.027)	(0.023)	(0.039)	(0.036)	(0.027)	(0.056)	(0.022)
N	4342	4342	4342	4342	4342	4342	4342	4342	4342
Women									
Coefficient	-0.047	0.009	0.021	0.033	0.039**	0.048**	0.044*	0.058*	0.116***
SE	(0.033)	(0.036)	(0.024)	(0.026)	(0.017)	(0.021)	(0.023)	(0.034)	(0.040)
N	3622	3622	3622	3622	3622	3622	3622	3622	3622

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*. Model is a quantile regression of temporary employment on log hourly wages, at different quantiles. The model also includes controls for personal characteristics (age, education, cohabitation, young and old children, years spent in the labour market and unemployment in the past 12 months, industry, firm size and occupations.

Table A32: Number of temporary employed by country and quintile of the wage distribution, quantile regression sample, men, employees 16-64, unweighted sample

Country	Measure	Quintile				
		1	**2**	**3**	**4**	**5**
UK	%	[6.9]			[3.5]	
	N	20-49	<20	<20	20-49	<20
IE	%	15.9	[9.1]	[10.4]		
	N	51	20-49	20-49	<20	<20
CH	%	31.3	[3.6]			[3.1]
	N	219	20-49	<20	<20	20-49
AT	%	[8.6]	[5.6]	[4.3]		[4.9]
	N	20-49	20-49	20-49	<20	20-49
PT	%	36.6	26.7	19.7	9.8	6.4
	N	297	203	155	77	50
IT	%	33	17.1	11	6.6	3.5
	N	489	253	163	98	52
EL	%	38.7	26.4	14.8	7.9	8.4
	N	337	230	132	68	71

Note: Sample restricted to regression sample. In accordance with Eurostat microdata confidentiality restrictions, numbers of observation of less than 50 are not indicated exactly, figures for numbers of observation of less than 20 are not shown and figures for numbers of observation between 20 and 49 are indicated in brackets.

Table A33: Number of temporary employed by country and quintile of the wage distribution, quantile regression sample, women, employees 16-64, unweighted sample

Country	Measure	Quintile				
		1	**2**	**3**	**4**	**5**
UK	%	[5.6]	[5.1]		[3.2]	[3]
	N	20-49	20-49	<20	20-49	20-49
IE	%	16.7	[13.5]	[8.1]		
	N	58	20-49	20-49	<20	<20
CH	%	26.8	[3.4]	[3.4]	[3.5]	[5.1]
	N	167	20-49	20-49	20-49	20-49
AT	%	[9.9]	[8.2]	[8.7]	[5.8]	[3.5]
	N	20-49	20-49	20-49	20-49	20-49
PT	%	30.2	29.9	17.8	13.4	6
	N	298	222	153	116	52
IT	%	33.8	19.6	123	9.7	5.6
	N	434	258	166	125	71
EL	%	44.3	32.1	21.3	9.2	[6.5]
	N	323	236	151	67	20-49

Note: Sample restricted to regression sample. In accordance with Eurostat microdata confidentiality restrictions, numbers of observation of less than 50 are not indicated exactly, figures for numbers of observation of less than 20 are not shown and figures for numbers of observation between 20 and 49 are indicated in brackets.

Table A34: Number of part-time employed by country and quintile of the wage distribution, quantile regression sample, men, employees 16-64, unweighted sample

Country	Measure	Quintile				
		1	**2**	**3**	**4**	**5**
UK	%	16.1	[7]	[4.6]	[3.5]	[3.7]
	N	108	20-49	20-49	20-49	20-49
IE	%	29.6	[12.2]	[7.2]		
	N	95	20-49	20-49	<20	<20
CH	%	12.9	7.3	7.2	[7]	8.3
	N	90	51	50	20-49	58
AT	%	[9]	[5.4]	[5]	[4.9]	[4.7]
	N	20-49	20-49	20-49	20-49	20-49
IT	%	9.6	7.4	4.7	3.9	3.7
	N	143	110	64	58	55
EL	%	7.8	6.4	[4.5]		
	N	68	56	20-49	<20	<20

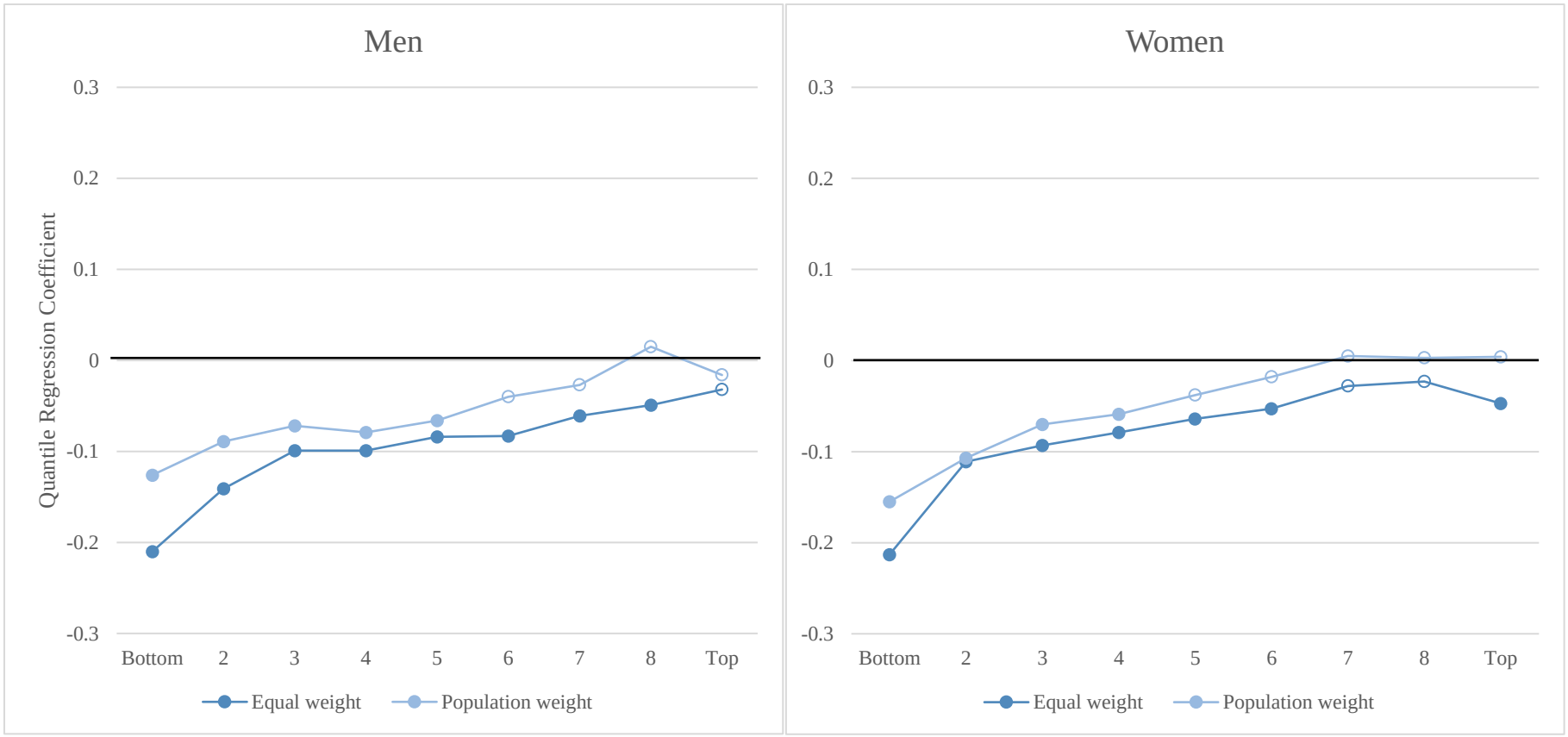
Note: Sample restricted to regression sample. In accordance with Eurostat microdata confidentiality restrictions, numbers of observation of less than 50 are not indicated exactly, figures for numbers of observation of less than 20 are not shown and figures for numbers of observation between 20 and 49 are indicated in brackets.

Table A35: Number of part-time employed by country and quintile of the wage distribution, quantile regression sample, women, employees 16-64, unweighted sample

Country	Measure	Quintile				
		1	**2**	**3**	**4**	**5**
UK	%	53.5	40.5	29.9	25.2	23.7
	N	392	296	213	183	171
IE	%	56.9	45.7	22.7	27.3	19.3
	N	198	159	79	95	67
CH	%	43.8	49.5	50.6	53	56.3
	N	273	309	316	331	351
AT	%	52.5	50.7	49.9	48.5	43.3
	N	240	230	229	219	197
PT	%	7.7	8.1	6.2	[4.2]	
	N	76	60	53	20-49	<20
IT	%	30.9	24.4	24.2	24.7	26.5
	N	397	320	305	319	337
EL	%	16.6	15.4	17	8.1	[3.3]
	N	121	113	121	59	20-49

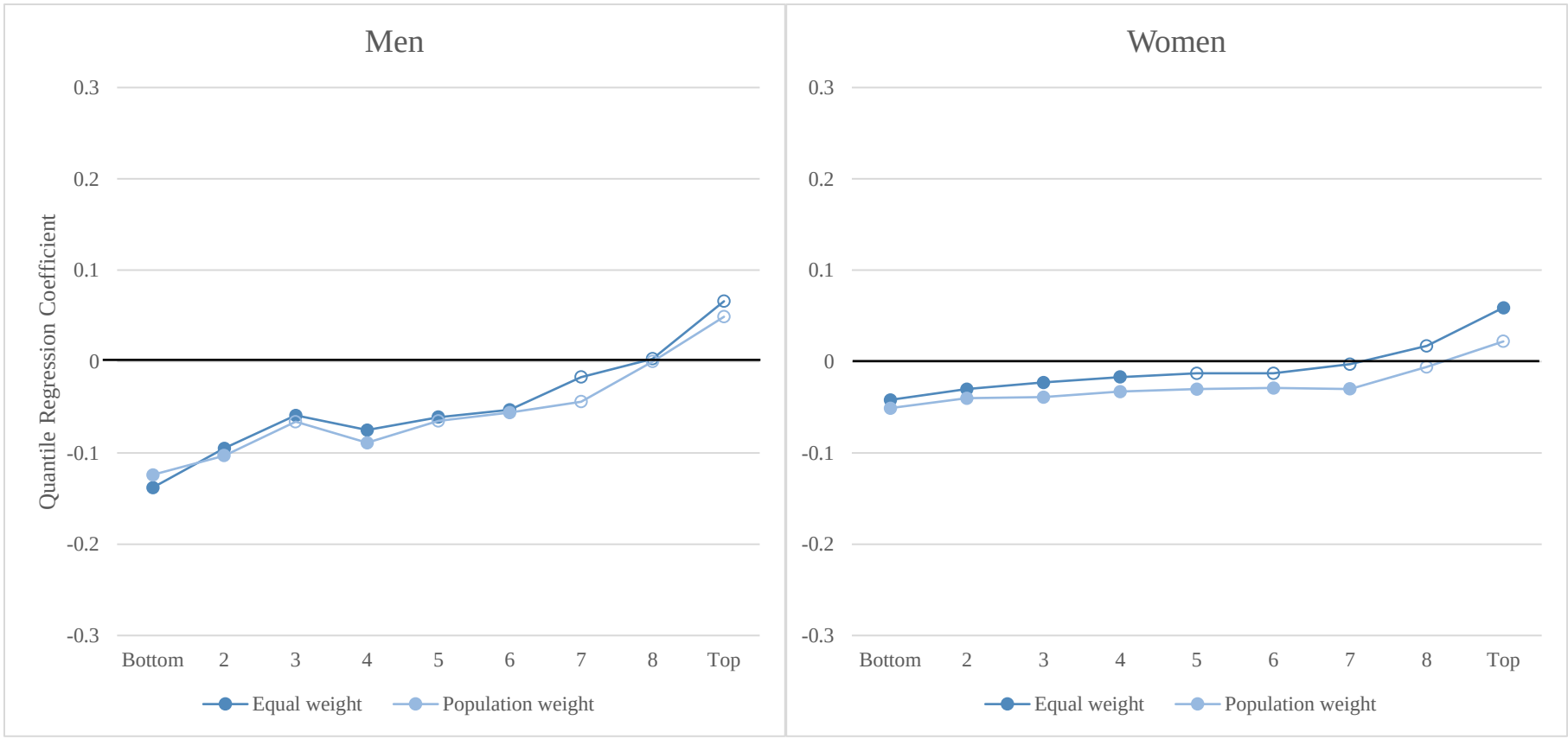
Note: Sample restricted to regression sample. In accordance with Eurostat microdata confidentiality restrictions, numbers of observation of less than 50 are not indicated exactly, figures for numbers of observation of less than 20 are not shown and figures for numbers of observation between 20 and 49 are indicated in brackets.

Figure A1: Regression coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, pooled country sample, robustness check with alternative country weighting, adjusted wage gaps, employees 16-64



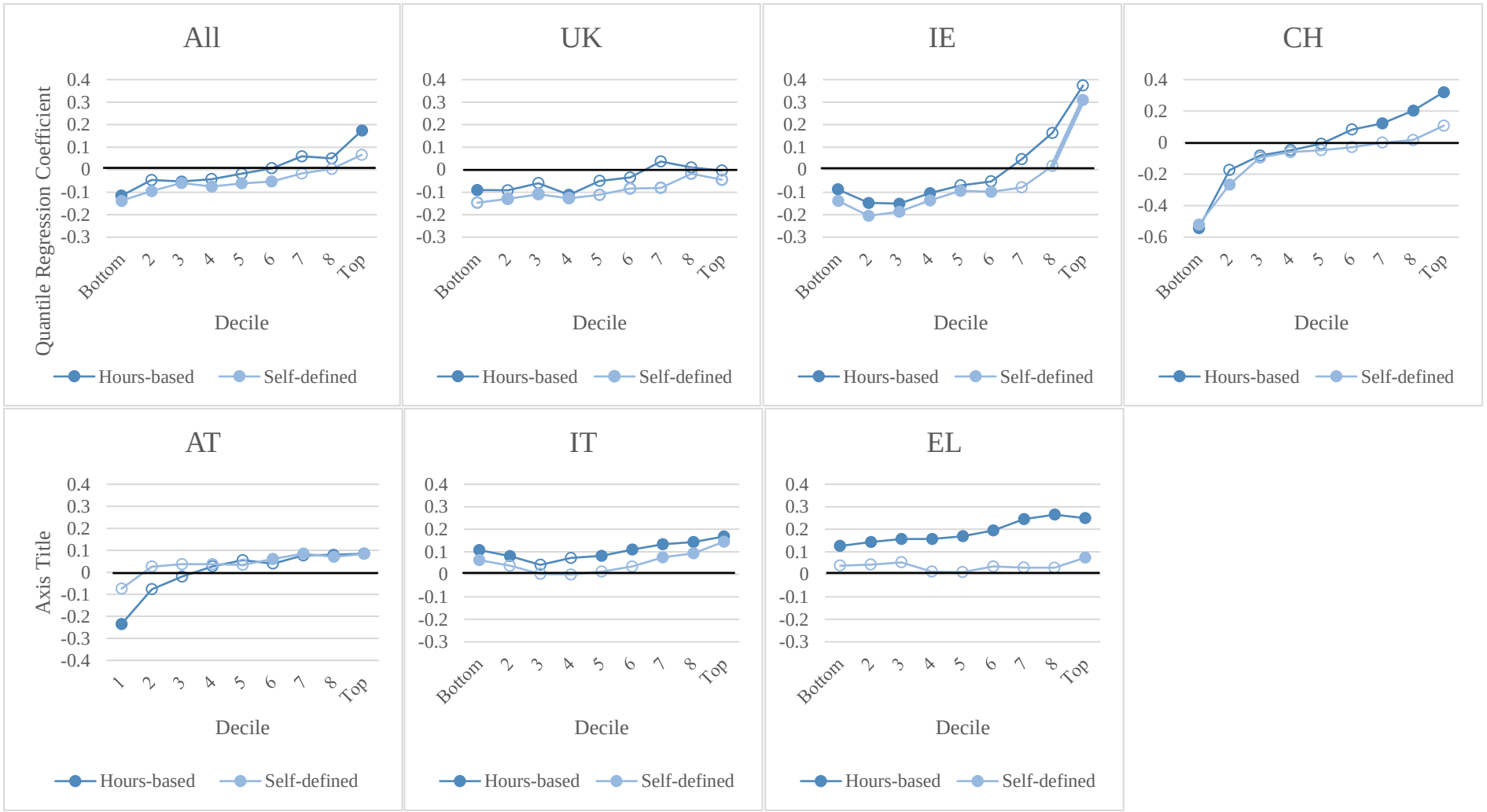
Note: All models include country fixed effects. Equal weight indicates that models are weighted so that each country counts equally. Population weight indicates that models are weighted by population size of each country.

Figure A2: Regression coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, pooled country sample, robustness check with alternative country weighting, adjusted wage gaps, employees 16-64



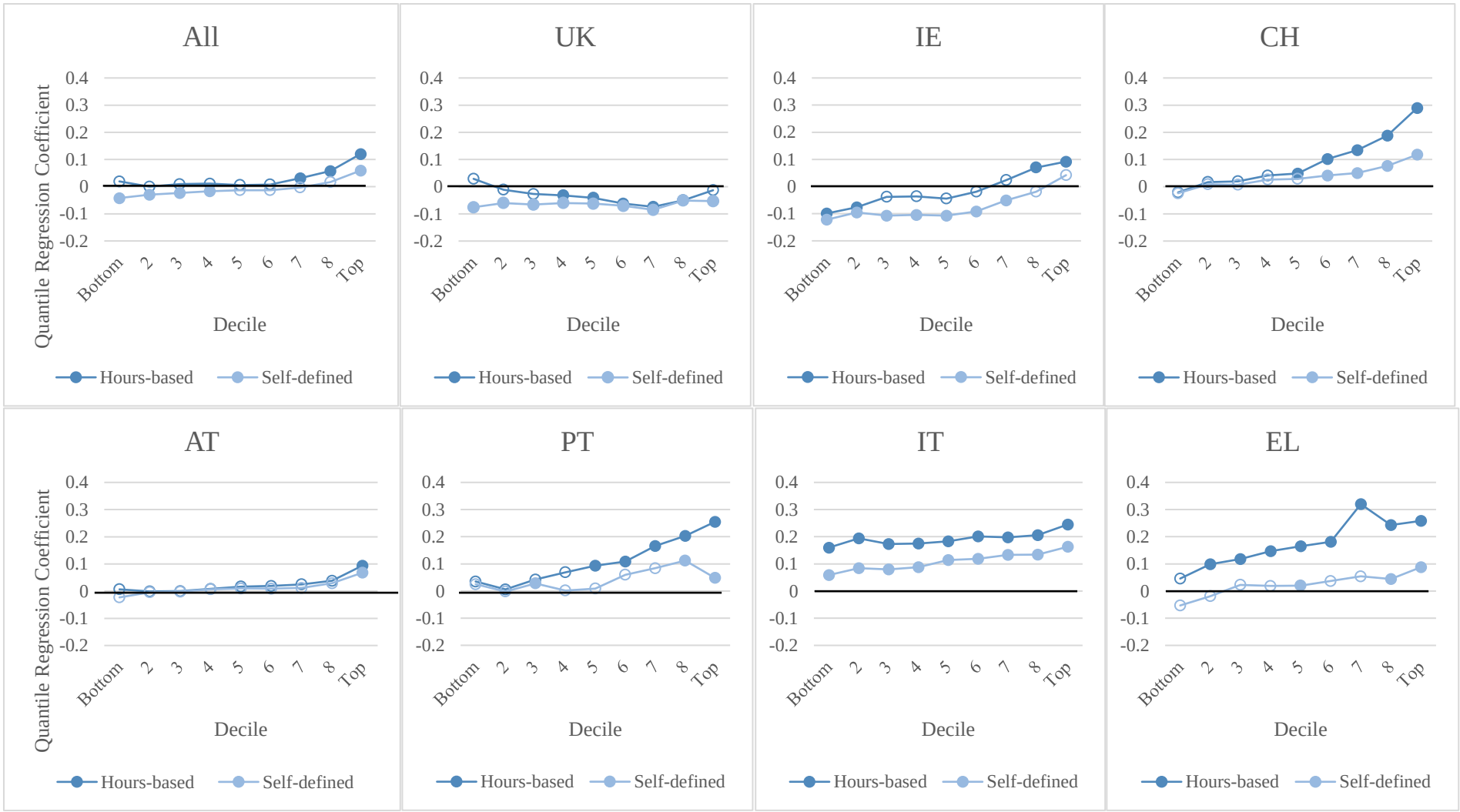
Note. Equal weight indicates that models are weighted so that each country counts equally. Population weight indicates that models are weighted by population size of each country.

Figure A3: Regression coefficients on part-time employment (self-defined and hours-based) in quantile regressions on log gross hourly wages at every wage decile, pooled country sample and individual countries, men, adjusted wage gaps, employees 16-64



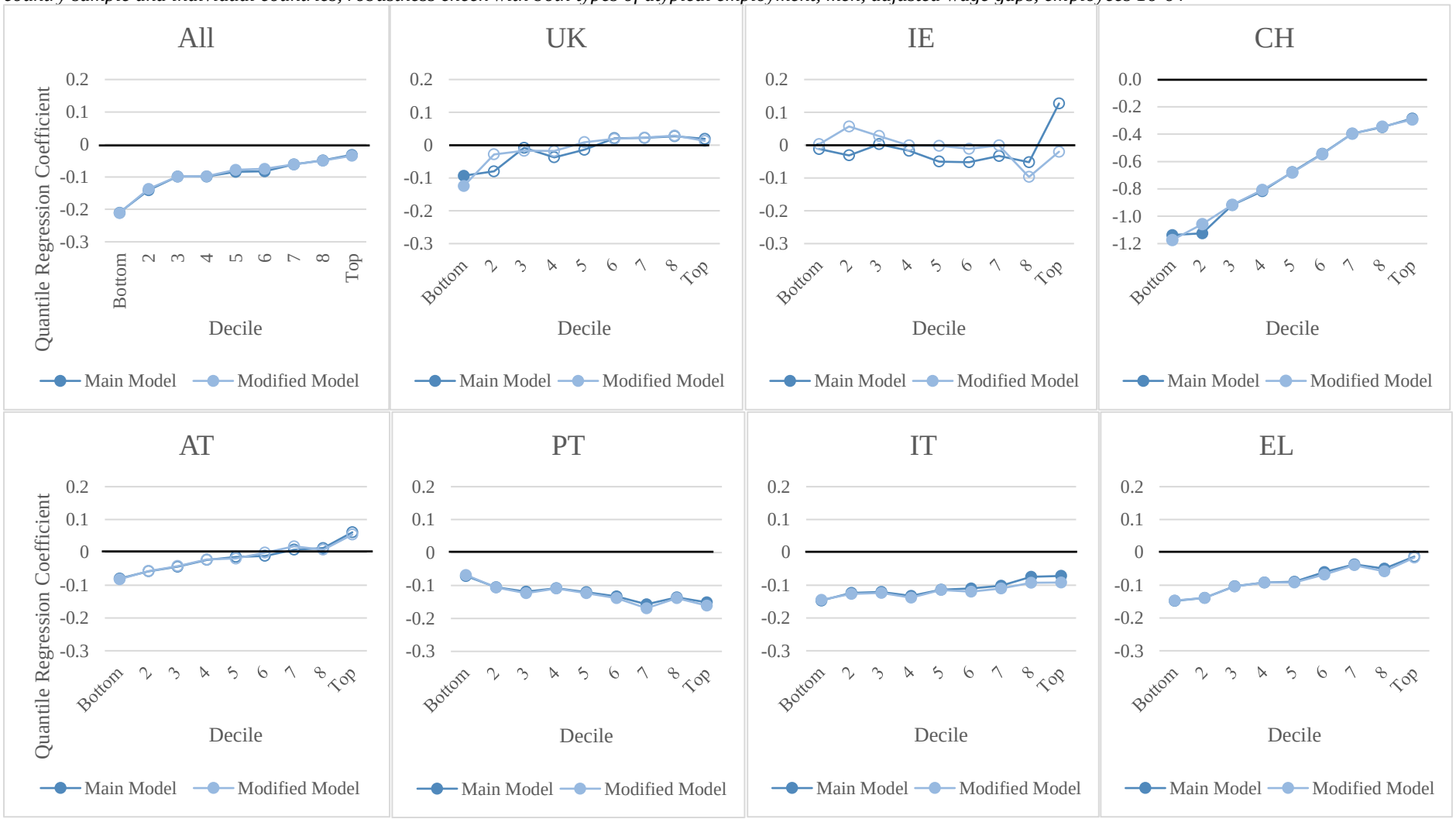
Note: Hollow dots indicate statistical insignificance. Filled dots indicate significance at 5%. Results for employees aged 16-64. Adjusted coefficients include controls for age, partnership, children aged 0-5, children aged 6-17, education, years in work, unemployment in past 12 months, industry, firm size and occupation (ISEI).

Figure A4: Regression coefficients on part-time employment (self-defined and hours-based) in quantile regressions on log gross hourly wages at every wage decile, pooled country sample and individual countries, women, adjusted wage gaps, employees 16-64



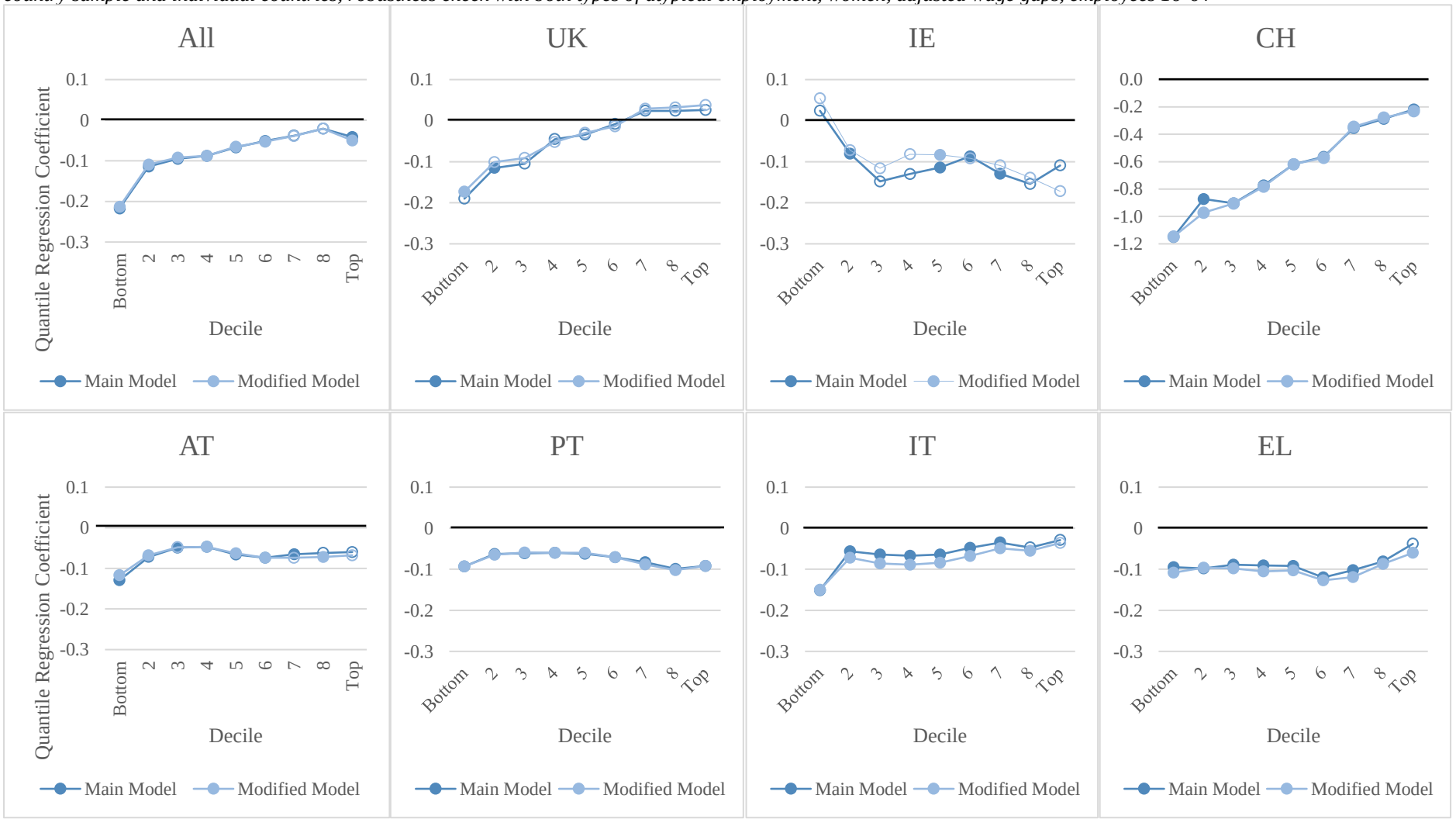
Note: Hollow dots indicate statistical insignificance. Filled dots indicate significance at 5%. Results for employees aged 16-64. Adjusted coefficients include controls for age, partnership, children aged 0-5, children aged 6-17, education, years in work, unemployment in past 12 months, industry, firm size and occupation (ISEI).

Figure A5: Regression coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, pooled country sample and individual countries, robustness check with both types of atypical employment, men, adjusted wage gaps, employees 16-64



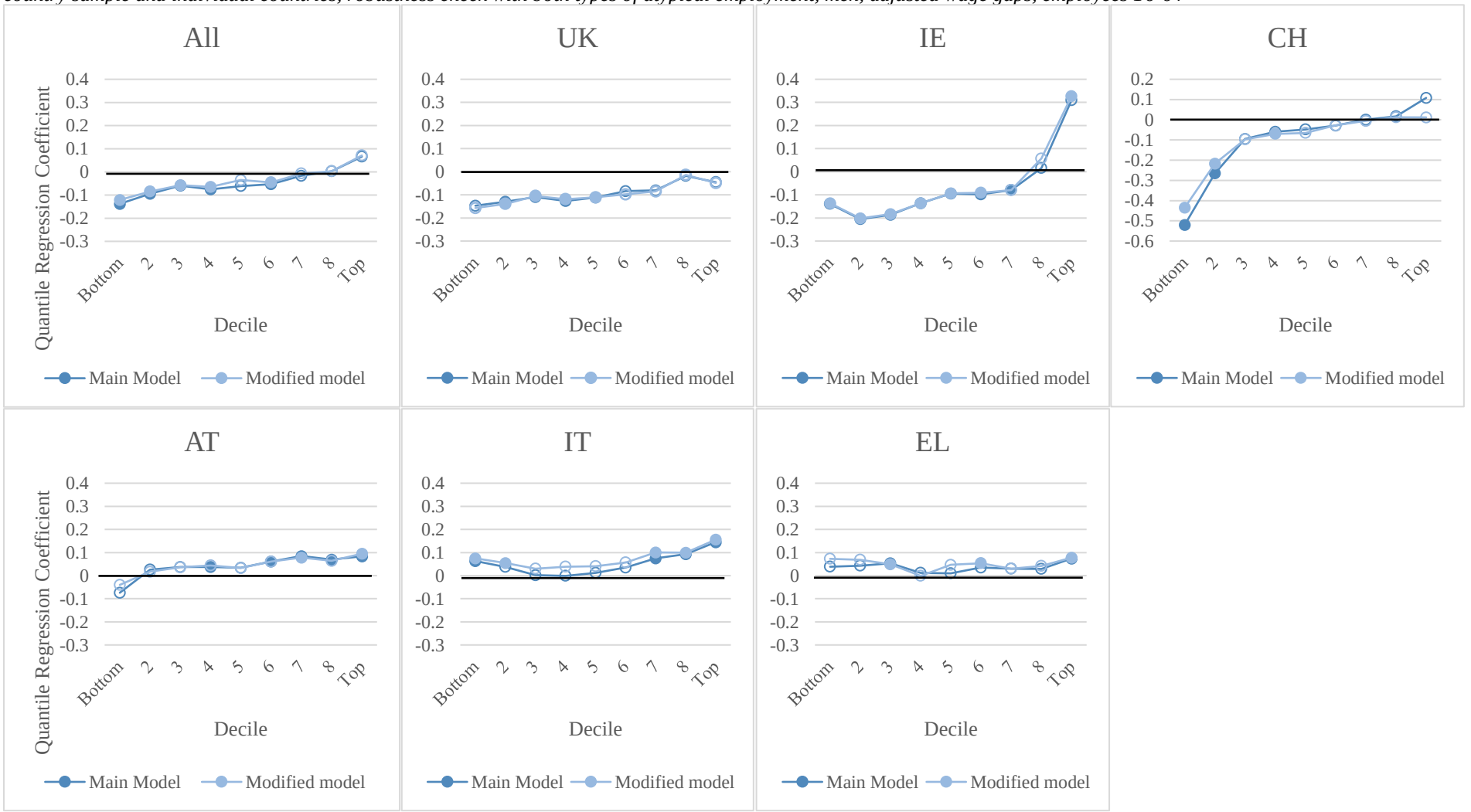
Note: Hollow dots indicate statistical insignificance. Filled dots indicate significance at 5%. Results for employees aged 16-64. Adjusted coefficients include controls for age, partnership, children aged 0-5, children aged 6-17, education, years in work, unemployment in past 12 months, industry, firm size and occupation (ISEI).

Figure A6: Regression coefficients on temporary employment relative to permanent employment in quantile regressions on log gross hourly wages at every wage decile, pooled country sample and individual countries, robustness check with both types of atypical employment, women, adjusted wage gaps, employees 16-64



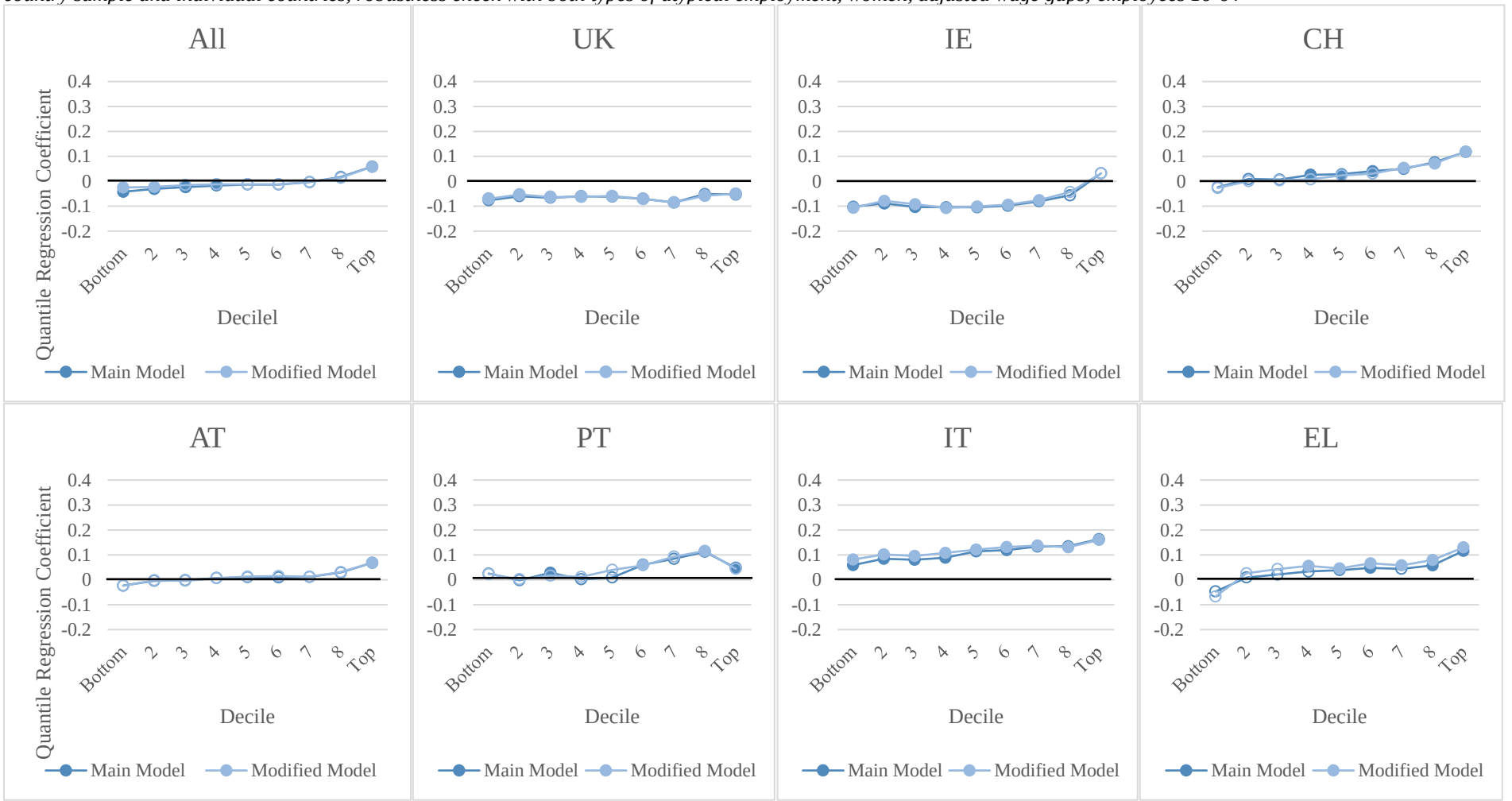
Note: Hollow dots indicate statistical insignificance. Filled dots indicate significance at 5%. Results for employees aged 16-64. Adjusted coefficients include controls for age, partnership, children aged 0-5, children aged 6-17, education, years in work, unemployment in past 12 months, industry, firm size and occupation (ISEI).

Figure A7: Regression coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, pooled country sample and individual countries, robustness check with both types of atypical employment, men, adjusted wage gaps, employees 16-64



Note: Hollow dots indicate statistical insignificance. Filled dots indicate significance at 5%. Results for employees aged 16-64. Adjusted coefficients include controls for age, partnership, children aged 0-5, children aged 6-17, education, years in work, unemployment in past 12 months, industry, firm size and occupation (ISEI).

Figure A8: Regression coefficients on part-time employment relative to full-time employment in quantile regressions on log gross hourly wages at every wage decile, pooled country sample and individual countries, robustness check with both types of atypical employment, women, adjusted wage gaps, employees 16-64



Note: Hollow dots indicate statistical insignificance. Filled dots indicate significance at 5%. Results for employees aged 16-64. Adjusted coefficients include controls for age, partnership, children aged 0-5, children aged 6-17, education, years in work, unemployment in past 12 months, industry, firm size and occupation (ISEI).

Bridge for some, trap for others? Career phase variation in the long-term wage growth of temporary workers

Leonie Westhoff

Abstract

A large literature has investigated whether temporary employment is a "bridge" to labour market integration or a "trap" within the secondary labour market. This article adds to this scholarship by illuminating heterogeneity in career trajectories of temporary workers. Specifically, it examines career phase variation in the long-term wage growth of temporary and permanent employees. Using data from the German Socio-Economic Panel (1995-2018), wage curves of temporary and permanent employees in the early, mid- and late career are constructed. All temporary workers face an initial wage penalty relative to permanent employees. However, the steep wage growth of early-career temporary workers leads to eventual wage convergence relative to permanent workers. In contrast, temporary employment in the late and, in particular, mid-career is associated with long-term wage divergence from permanent employees. Career phase variation in wage growth trajectories can be partially attributed to differences in the subsequent labour market career of temporary workers.

1 Introduction

Temporary employment and its socio-economic consequences have become the subject of an increasing amount of scholarship in recent years. Research has demonstrated that such employment – characterized by a non-permanent contract – tends to be associated with labour market disadvantages, such as wage penalties and inferior working conditions (Eurofound, 2012; Dias da Silva and Turrini, 2014). Yet the fact that there are disadvantages associated with temporary employment – with important negative consequences for individual welfare – does not tell us anything about the longer-term labour market trajectories of temporary workers. Indeed, it is possible that temporary employment functions as a bridge to longer-term labour market integration, so that the initial disadvantages associated with it are eventually compensated. However, temporary employment may also lead to permanent entrapment in an inferior labour market position.

Though studies estimating the long-run wage consequences of temporary employment are scanter than those looking at its immediate consequences, an increasing body of literature examines this issue. Some studies focus only on labour market entrants, motivated by the fact that temporary employment is particularly common among younger people (Kalleberg, 2000; Baranowska and Gebel, 2010). These studies tend to find that, though there are initial wage disadvantages associated with temporary employment at labour market entry, such disadvantage tends to disappear within a few years (McGinnity, Mertens and Gundert, 2005; Gebel, 2010; De Lange, Wolbers and Ultee, 2013). However, some scholars find persistent wage gaps for specific groups or countries (Pavlopoulos, 2013). When studies focus on the general labour market, not only on labour market entrants, the results are somewhat more mixed. Whereas some authors identify wage penalties associated with temporary employment that are not compensated over time (Fuller and Stecy-Hildebrandt, 2014), others find less

evidence of such lasting wage disadvantages (Booth, Francesconi and Frank, 2002; Gash and McGinnity, 2007).

This scholarship raises the question: does the career phase in which one enters temporary employment influence the impact of such employment on longer-run wage growth? This is what this paper seeks to investigate. To do so, it distinguishes between three career phases - the early (age 17-30), mid- (age 31-45) and late career (age 46-54) - and examines differences in ten-year wage growth trajectories between temporary and permanent workers. By investigating career phase variation in the long-term wage growth consequences of temporary employment, the paper offers an insight into the heterogeneity of labour market pathways associated with temporary employment and the factors driving it. Taking such heterogeneity into account is essential not only for deepening research insights into temporary employment, but also for developing policy interventions that address the labour market situation of temporary workers.

The trajectory of individual life courses and employment careers in the context of increasing globalization – including the flexibilization of labour markets and contracts – has been the subject of scholarly research (Buchholz *et al.*, 2009). Nevertheless, to date, there is very limited evidence on the specific question of career phase variation in longer-term wage growth patterns associated with temporary work, relative to permanent employment. As regards wage growth trajectories, only one study for Australia exists (Mooi-Reci and Wooden, 2017), which finds that for prime-age men, temporary employment serves as a barrier to career progression and is associated with widening wage penalties across time, while this is not the case for temporary workers at other stages in their career. In addition, some studies examine the longer-term labour market pathways associated with temporary employment through sequence analysis. While McVicar *et al.* (2019) find that the career phase has no substantially significant effect on entering a "trap" or "bridge" path after temporary employment in Australia, Fuller and Stecy-

Hildebrandt (2015) show that in Canada, younger workers are considerably more likely to experience temporary employment as a bridge to a more stable labour market career than older workers. Within the European context, there is some research (Muffels and Luijkx, 2006) showing that the likelihood of moving from a temporary into a permanent job increases only until age 23 and then falls, suggesting that labour market integration after a temporary contract may be more likely for workers in the beginning of their labour market career. However, a sustained examination of long-run wage trajectories of temporary and permanent employees by the career phase in which the temporary employment spell takes place is missing from the literature. This is the central contribution of this article to existing scholarship.

To investigate the research question, the paper examines a large European economy, Germany. While the German economy is traditionally regarded as being rather rigidly regulated and characterized by stable employment relationships, in recent decades, calls for increased labour market flexibility became more prominent (Giesecke and Groß, 2003). Since the 1980s, temporary contracts have been progressively deregulated (Keller and Seifert, 2013). The Hartz reforms, progressively implemented between 2003 and 2005, introduced a comprehensive set of measures to restructure the labour market, including the deregulation of temporary work (Immel, 2021). Currently, the German labour market is characterized by partial deregulation, where there is high employment protection for workers on permanent contract, but less so for temporary workers (Gebel, 2010). This has created incentives for firms hire workers on temporary contracts, as financial risks associated with them are lower (Mertens, Gash and McGinnity, 2007). However, research shows that for workers in Germany, temporary contracts are associated with various risks, including lower wages and employment stability relative to permanent workers (Keller and Seifert, 2013). This paper adds to the literature on temporary employment in Germany (e.g. Hagen, 2002; Gash and McGinnity, 2007; Gebel, 2009, 2010;

Giesecke, 2009; Reichelt, 2014) by specifically examining long-run wage growth consequences of temporary employment, and career phase variation within it.

2 Why should we expect career phase variation in the long-run wage growth of temporary workers?

An average wage penalty between temporary and permanent workers has been found in an abundance of studies (e.g. Blanchard and Landier, 2002; Hagen, 2002; Giesecke, 2009; Dias da Silva and Turrini, 2014; Kahn, 2016). However, whether temporary workers' wages catch up to those of permanent workers in the long term, or whether wage growth is permanently stunted, is less conclusively established. One theoretical perspective argues that temporary employment is part of an inferior, secondary labour market with fewer opportunities for career progression (Doeringer and Piore, 1971) and thus wage development – the "trap scenario". In contrast, an alternative perspective posits that temporary jobs provide a stepping stone for labour market integration and further career development – the "bridge scenario". Whether temporary employment is indeed a bridge or a trap will depend on the underlying theoretical mechanisms, which are now discussed in turn.

In the first place, composition effects may play a role. Previous research has shown that temporary workers differ from permanent workers with regard to several characteristics. For instance, temporary workers tend to be lower-educated than permanent workers (Baranowska and Gebel, 2010; Gebel and Giesecke, 2011), and temporary work is common in particular sectors and occupations (Baranowska and Gebel, 2010; Eichhorst and Marx, 2015). Such differences may influence the wage trajectories of temporary employees relative to permanent workers. As previously stated, the key interest of this paper lies in examining career phase variation in the wage growth trajectories of temporary workers relative to those on a permanent

contract. It is not established within the literature whether the composition of temporary workers relative to permanent workers differs by career phase. However, if such systematic variation does exist, it could account for observed career phase variation in the wage growth trajectories of temporary and permanent workers.

Beyond compositional effects, there are several theoretical mechanisms which may explain wage growth trajectories of temporary and permanent workers. Concretely, three potential mechanisms could explain either continued divergence or eventual convergence between temporary and permanent workers' wages. These include human capital development, signalling effects and screening.

Two theoretical mechanisms may account for long-term inferior wage growth of temporary workers relative to permanent workers. First, opportunities for *human capital development* may be lacking for temporary employees. Temporary work is on average more repetitive and lower-skilled than permanent work and may entail limited contact to permanent employees and thus employment networks and offers (Fuller and Stecy-Hildebrandt, 2015). Under the labour market segmentation perspective, employers use temporary workers as a buffer stock to react to market volatility without dismissing the core workforce (Booth, Francesconi and Frank, 2002). Employers therefore have limited incentives to invest in skills development for temporary employees, given their impermanent attachment to the firm, so that temporary workers have little access to training opportunities (Arulampalam and Booth, 1998; O'Connell and Byrne, 2012; Niebuhr and Buch, 2018). Likewise, temporary employees may be reluctant to invest in firm-specific training, which may not be useful in a future job (Mooi-Reci and Wooden, 2017). This lack of opportunities for training may hinder progression into higher-wage, potentially permanent jobs, leading to entrapment in temporary employment (Barbieri, 2009; Gebel, 2010). Second, wage growth for temporary employees relative to permanent

employees may be inferior due to *signalling effects*. Temporary employment can induce stigmatizing signals, as employers may perceive workers in such jobs to be less productive or skilled (Blossfeld, Mills and Bernardi, 2006; Gebel, 2010). If this is the case, future employers may be deterred from hiring them and workers may end up in a series of instable temporary jobs (McVicar *et al.*, 2019).

Both the human capital development and signalling mechanisms suggest that temporary employment will be associated with an instable subsequent labour market consisting of periods of recurring temporary employment, unemployment or low-quality permanent jobs associated with economic precariousness (Gash and McGinnity, 2007; Fuller and Stecy-Hildebrandt, 2014). Indeed, several studies have found that temporary employment increases the risk of subsequent temporary employment or unemployment (e.g. Giesecke and Groß, 2003; Barbieri and Scherer, 2009). Temporary contracts may lead to a "precarious job carousel" (Barbieri and Scherer, 2009) of repeated spells in atypical employment and non-employment, accordingly associated with shallower wage growth. Such frequent career interruptions may also entail the depreciation of acquired human capital and therefore decreases in productivity (Gebel, 2013), with additional negative effects on wage growth. Hence, the initial wage disadvantage associated with temporary employment is reinforced by an inferior subsequent labour market trajectory relative to permanent workers, so that wage disadvantages are expected to accumulate. In this scenario, temporary employment is associated with long-term divergence in wage growth between temporary and permanent employees.

However, temporary employment may also be a bridge into the labour market and lead to longer term wage convergence between temporary and permanent workers. In this case, the main theoretical mechanism at work is the use of temporary contracts for *screening processes*. Employers observe the productivity of workers imperfectly and the allocation of workers to

jobs is driven by screening and learning about match quality (Faccini, 2014). Temporary contracts are a way for employers to reduce the potential cost of a new hire, as dismissal is less costly (Ibid.). Under this scenario, temporary contracts are used as a form of probationary period and, long-term, stable employment may follow. In turn, this should lead to eventual wage convergence between temporary and permanent workers - as the information asymmetry between employer and employee is reduced and meaningful labour market relationships are formed, potentially lower initial labour market earnings of temporary workers should be compensated over time (Mooi-Reci and Wooden, 2017). Hence, where temporary contracts are used for the purpose of screening, they should not lead to long-term divergences in wage growth between temporary and permanent workers.

To sum up, temporary employment may be associated with either long-term divergence from the wages of permanent workers (the trap scenario), or eventual convergence (the bridge scenario). The main pathway through which these scenarios can be explained is the subsequent labour market career of temporary and permanent workers. In the trap scenario, temporary employment is associated with a high degree of instability in the subsequent career, leading to lower wage growth. In contrast, in the bridge scenario, temporary employment is associated with a transition to high-quality, long-term employment and eventual wage convergence with permanent workers. Previous research has shown that the long-term wage gaps associated with temporary employment can be at least partially accounted for by the quality of the subsequent labour market career (Fuller and Stecy-Hildebrandt, 2014), which supports this theory. The central research question examined in this paper is whether this "bridge or trap" wage effect of temporary employment applies differently to temporary employees depending on the career phase they are in. Each of the three mechanisms discussed is expected to apply differently to temporary workers depending on their career phase.

In the case of early-career workers, the bridge scenario is likely to apply, with temporary contracts being predominantly used for the purpose of screening. For employers, reliable indicators of workers' productivity such as job experience play an important role in determining job allocation and entry into the primary labour market segment (Blossfeld, Mills and Bernardi, 2006). Young people often lack such signals, so that their skills are difficult to recognize for employers (Gebel, 2010). Hence, employers may offer them a temporary contract as an extended probationary period, to reduce the risks caused by limited information (Bukodi *et al.*, 2008; Fuller and Stecy-Hildebrandt, 2015). The contract may then be turned into a permanent one if performance is good, leading to long-term labour market integration and wage catch up relative to permanent workers (Ibid.).

In contrast, the mechanisms associated with entrapment – lower human capital accumulation and negative signals – likely do not apply to young workers. Younger and less experienced workers presumably have the largest deficit in work experience, and temporary employment may allow them to develop their human and social capital (Fuller and Stecy-Hildebrandt, 2015). Moreover, for younger workers, such positions may be an opportunity to gather experience in different career fields and under relatively flexible circumstances before fully committing to a labour market career (McVicar *et al.*, 2019). In this context, the lack of opportunity to acquire (firm-specific) human capital is likely not as disadvantageous as for other workers. In addition, workers in the early career are expected to have more fragmented labour market careers and should not suffer significant stigma from being in a temporary contract (Mooi-Reci and Wooden, 2017).

Compared to workers in the early career, mid-career workers are more likely to experience the trap scenario associated with temporary employment, due to the dominance of the human

capital accumulation and signalling mechanisms. Workers in their mid-career or later already have a record of their labour market career, so that productivity signals are much more established. Employers therefore have a reduced incentive to use temporary contracts to evaluate productivity. Rather, older temporary workers are more likely to be used as a "buffer stock" workforce for meeting fluctuating demand and supply within a firm (Gebel and Giesecke, 2011), in turn associated with a lack of opportunities for human capital accumulation, as set out above. The lack of opportunities for accumulation of (firm-specific) human capital is likely to be a significant impediment to the subsequent labour market career of mid-career workers.

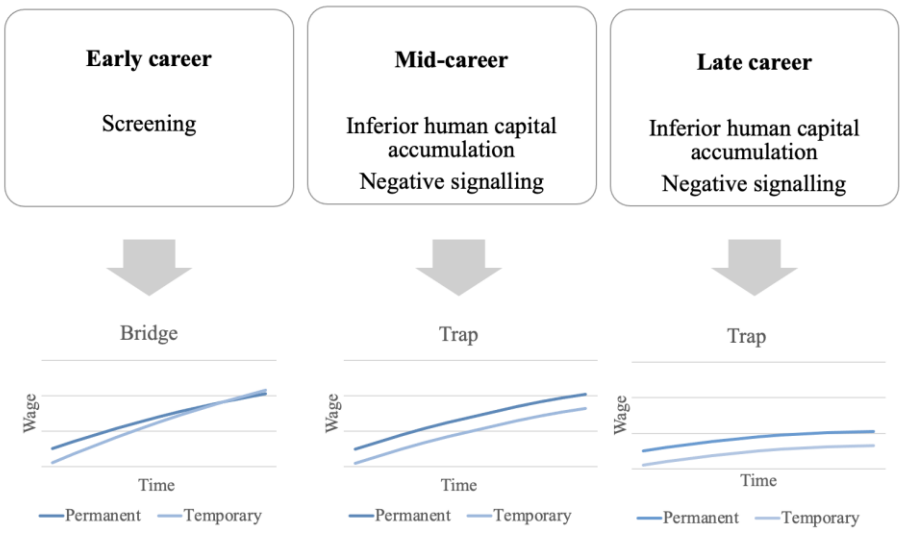
In addition, the stigma associated with temporary employment is likely more pronounced. Temporary employment is much more common among young people (Giesecke and Groß, 2003, 2009). As described by Mooi-Reci and Wooden (2017), employers' evaluation of previous temporary employment is not only related to their preferences and worker characteristics, but also the social context in which individuals are nested. The risk of temporary employment leading to employer stigma and therefore wage scarring is higher for older workers, for whom temporary employment diverges from the norm (Fuller and Stecy-Hildebrandt, 2015). In particular, temporary employment in the mid-career is much more likely to raise employer concerns about productivity and labour market commitment (Ibid.).

Finally, similar to workers in the mid-career, temporary employment is also more likely to be associated with entrapment and inferior wage growth for late-career workers. In principle, the theoretical mechanisms described will apply in similar ways to late-career workers as they do to mid-career workers. However, the extent of disadvantage may be larger for mid-career workers than for late-career workers. For late-career workers, temporary employment could be used as a bridge into eventual retirement (McVicar *et al.*, 2019). Relative to prime-age workers,

it may therefore be seen as less of a negative signal. Moreover, the extent of wage growth as such is likely to differ for late-career workers. Wages tend to increase over the life cycle, but towards the end of the working period, there is a tendency towards wage reduction (Weiss, 1986). Hence, in addition to the reduced stigma, there may be smaller differences in wage growth between temporary and permanent workers in the late career because late career workers will not experience much wage growth in the first place.

To summarize, the extent to which temporary employment is associated with a bridge into the labour market or entrapment in the secondary labour market segment, and therefore differential wage growth to permanent employment, is expected to differ by the career phase of temporary workers. The main theoretical expectations are summarized in Figure 1 (leaving out the role of compositional effects). For early career workers, temporary employment may predominantly be associated with screening by employers and subsequent long-term, permanent labour market integration. In contrast, for workers in their later labour market career – and particularly in the mid-career – temporary employment is expected to lead to long-term wage divergence relative to permanent workers. This is because for these workers, temporary workers will be associated with an instable labour market career due to negative stigma and lower human capital accumulation associated with it. In the late career, the expectations are similar, but effects may be less pronounced, due to generally shallower wage growth and reduced stigma associated with temporary employment.

Figure 1: Summary of mechanisms and predicted effects on wage growth of temporary workers relative to permanent workers



3 Data and variables

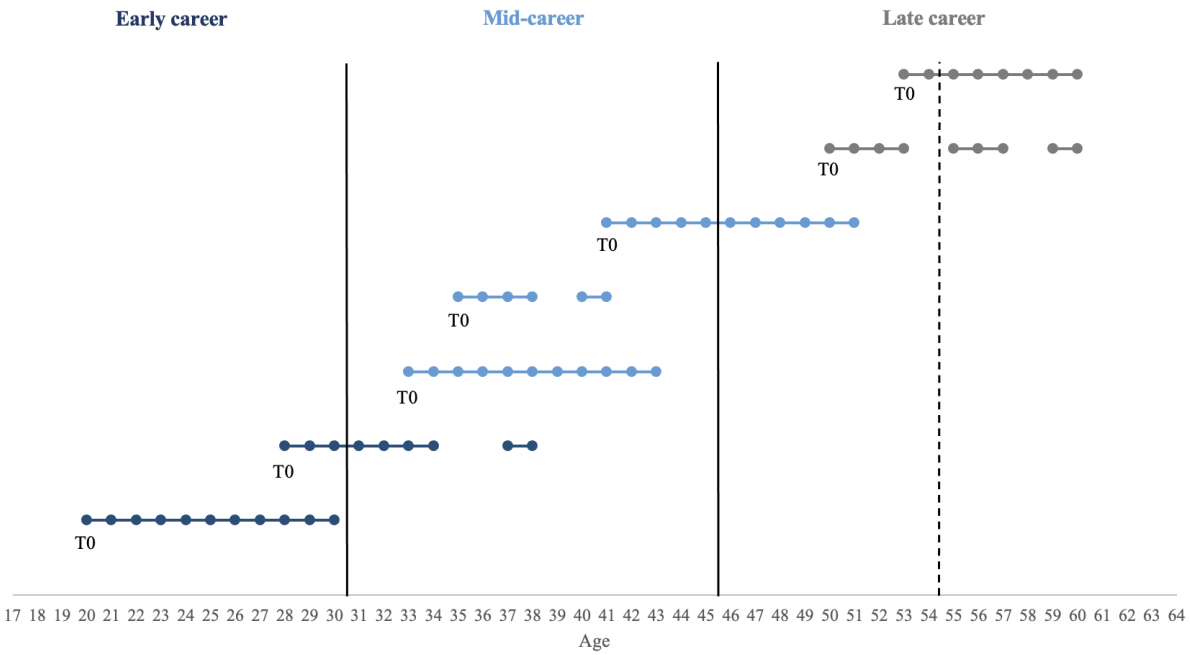
To investigate the research question outlined, this paper makes use of data from the German Socio-Economic Panel (SOEP) (DIW, 2021). The SOEP is an extensive panel dataset covering private households in Germany, which started in 1984 (including East Germany from 1990) and covers around 15,000 households and 30,000 individuals yearly. It provides longitudinal data that enables the tracking of individual labour market careers, including the measurement of individual income and employment status. Data from 1995-2018 is used. Prior to this date, information on temporary employment was not consistently observed within the data, leading to very large missingness on this variable. In addition, weighting and sample design information is provided, which is taken into account in all analyses presented.[1]

[1] To construct the dataset and variables, documentation from the SOEP and paneldata.org was used (SOEP, 2021).

The structure of the data employed is illustrated in Figure 2, showing some examples of hypothetical respondents. The analysis focuses on employees aged 17-64[2] and excludes apprentices. Each respondent in the dataset is included from the first year that they are observed in the dataset as working (T0). Overall, individual labour market careers are tracked for 10 years from this first year of observation (T0). The time period is restricted to allow for a sufficient number of observations in each time period (minimum 6,000). Moreover, only individuals who were aged between 54 or younger at T0 are included, so that respondents can in principle be observed for a period of ten years from the initial period of observation[3]. While this analytical approach implies that individuals are not observed from labour market entry and, therefore, their whole career path cannot be tracked, the advantage is that a comprehensive picture of career pathways across the entire population of workers can be provided (Fuller and Stecy-Hildebrandt, 2014). As the method of analysis employed does not require a continuous run of observations for individuals, all observed years with full information are included within the sample. The final analytical sample size is then 154,322 person-year observations, from 33,832 individuals[4].

[2] There are no respondents aged 16 in the analytical sample.
[3] As a robustness check, Table A5 in the Appendix shows the main regression results for an extended sample of employees aged 17-60 during the first year of observation. The results do not change substantially.
[4] Table A1 in the Appendix provides the analytical sample size by time period.

Figure 2: Illustration of data structure through hypothetical respondents



Note: Gaps in observation represent years with missing observations due to the respondent not being employed for that period or due to missing values for variables in the sample.

The key variable explored in the analysis is temporary employment, defined as being employed in a non-permanent contract[5]. Temporary employment in the SOEP is measured in yearly intervals, at the time of interview. Temporary employment is measured during the first year of observation for each individual (T0). In this way, wage trajectories from the initial spell in temporary or permanent employment can be measured.

The analysis focuses on the differences in wage growth between temporary and permanent workers at different career stages. Three career phases are identified: the early career (age 17-30), mid-career (age 31-45) and late career (46-54). Career phases are identified by the age bracket of respondents during the first year of observation (T0), when contractual status (temporary or permanent) is observed. As is the case for temporary employment, for all respondents, career phase is fixed at this first year of observation (T0). Figure 1 shows the

[5] Information on the length of the temporary contract is not available.

distribution of initial temporary employment status by career phase. As one would expect, temporary employment is most prominent in the early career, and becomes less frequent with age. However, there remains a significant proportion of employees in temporary contracts even at later ages, illustrating that it is important to investigate the consequences of temporary employment for this group.

Table 1: Distribution of temporary employment by career phase at T0, SOEP 1995-2018

Career phase	**Temporary employment (%)**	**Permanent employment (%)**
Early career	22.9	77.1
Mid-career	12.2	87.8
Late career	8.1	91.9

The dependent variable employed in the analysis is hourly wages, which is defined as gross monthly labour income divided by monthly (actual) working hours. Following SOEP guidance, the variable is defined for those who have earned at least one euro and worked at least one hour and is adjusted for outlier values by setting values smaller than the first percentile and values greater than 3 times the 99th percentile equal to the respective values (SOEP, 2021). In addition, hourly wages are adjusted for inflation (reference year 2015). In the analysis, the log of hourly wages is used.

In addition to these variables, the analysis includes a range of controls to account for factors that may affect wage growth trajectories of permanent and temporary variables. These variables are summarized in Table 2.

Table 2: Summary of control and mediating variables

Type of variable	**Variable**
Time-invariant control variables	Year of first observation as working Gender Time spent in unemployment before T0 Time spent in employment before T0
Time-variant control variables	Living in East Germany Living with a partner Number of dependent children in the household Education Industry Firm size Part-time work Civil service ISEI
Mediating variables	Ratio of years spent in temporary employment after T0 Ratio of years spent in unemployment after T0 Ratio of years spent in employment after T0

First, several time-invariant control variables are included. All models include a fixed effect for the initial year of observation. In addition, the models control for gender (dummy for female). Finally, the theoretical framework set out that wage growth trajectories may be influenced by the composition of temporary and permanent workers, including their labour market experience prior to observation. To take this into account, the model includes measures of the time spent in unemployment and employment before the observation period (i.e. before T0). These variables are provided by the SOEP and derived from retrospective biographical questionnaires and activity calendars.

A range of time-varying control variables are also included. These are living in East Germany and family characteristics, including living with a partner and the number of dependent children living in the household. The model also controls for education (following the CASMIN classification, with categories elementary, elementary with basic vocational, intermediate and

upper secondary without vocational, intermediate and upper secondary with vocational, lower tertiary and upper tertiary). The analysis further incorporates variables for the job characteristics of individuals that may have an effect on wage growth. These include industry (categories extractive services, manufacturing and agriculture; trade, accommodation and food services, communication; professional services; public and other services[6]), working for a small firm, part-time work and being a civil servant. Moreover, occupational status is included in the form of the International Socio-Economic Index (ISEI), derived from four-digit 1988 ISCO codes (De Graaf, Treiman and Ganzeboom, 1992). Table A2 in the Appendix provides a summary of the distribution of all variables in the initial sample, that is, at T0.

Finally, the theoretical framework set out that differences in wage growth trajectories may be accounted for through variation in the subsequent labour market career after the initial spell in temporary or permanent employment, depending on whether temporary employment is a bridge (via the screening mechanisms) or a trap (via the negative signalling and human capital accumulation mechanisms). These mechanisms cannot be explicitly tested with the data available. However, it is possible to examine the importance of the subsequent labour market career and therefore, indirectly, the importance of the bridge and trap effects. To examine whether the subsequent labour market career mediates the relationship between initial temporary employment and wage growth, additional models are run, which include several mediating variables capturing the subsequent career trajectory after the initial year of observation. A first extended model adds a measure of additional temporary employment after the initial employment spell observed, measured as the ratio of observed working years after T0 that are spent in temporary employment. Moreover, an additional model accounts for further

[6] Based on NACE Rev. 1 (1995-2017) and Rev. 2 (2018). The categorization is as follows: extractive services, manufacturing and agriculture – NACE A-F; Trade, accommodation and food services – NACE G-I; professional services – NACE J-K (Rev. 1) or J-N (Rev. 2); public services – NACE L-N (Rev. 1) or O-Q (Rev. 2); other services – NACE O-Q (Rev 1) or R-U (Rev. 2).

subsequent employment patterns, including the ratio of time spent in unemployment and in employment after the first year of observation.

To model the impact of temporary employment on long-run wage growth at different career phases, growth curve models on log hourly wages are fitted. Growth curve models are a form of multilevel model where individual time periods (level 1) are nested within individuals (level 2). They are a useful technique for longitudinal studies of career trajectories as complete career lines can be analysed (Kalleberg and Mouw, 2018). In the context of the research question, they allow for examining not only initial wage differences between temporary and permanent workers, but also the trajectory of wage curves over time. While the different theoretical pathways laid out in the previous section cannot be explicitly tested with the data available, the analysis provides an illustration of wage growth consequences of temporary employment at different career phases and discusses potential explanations of this.

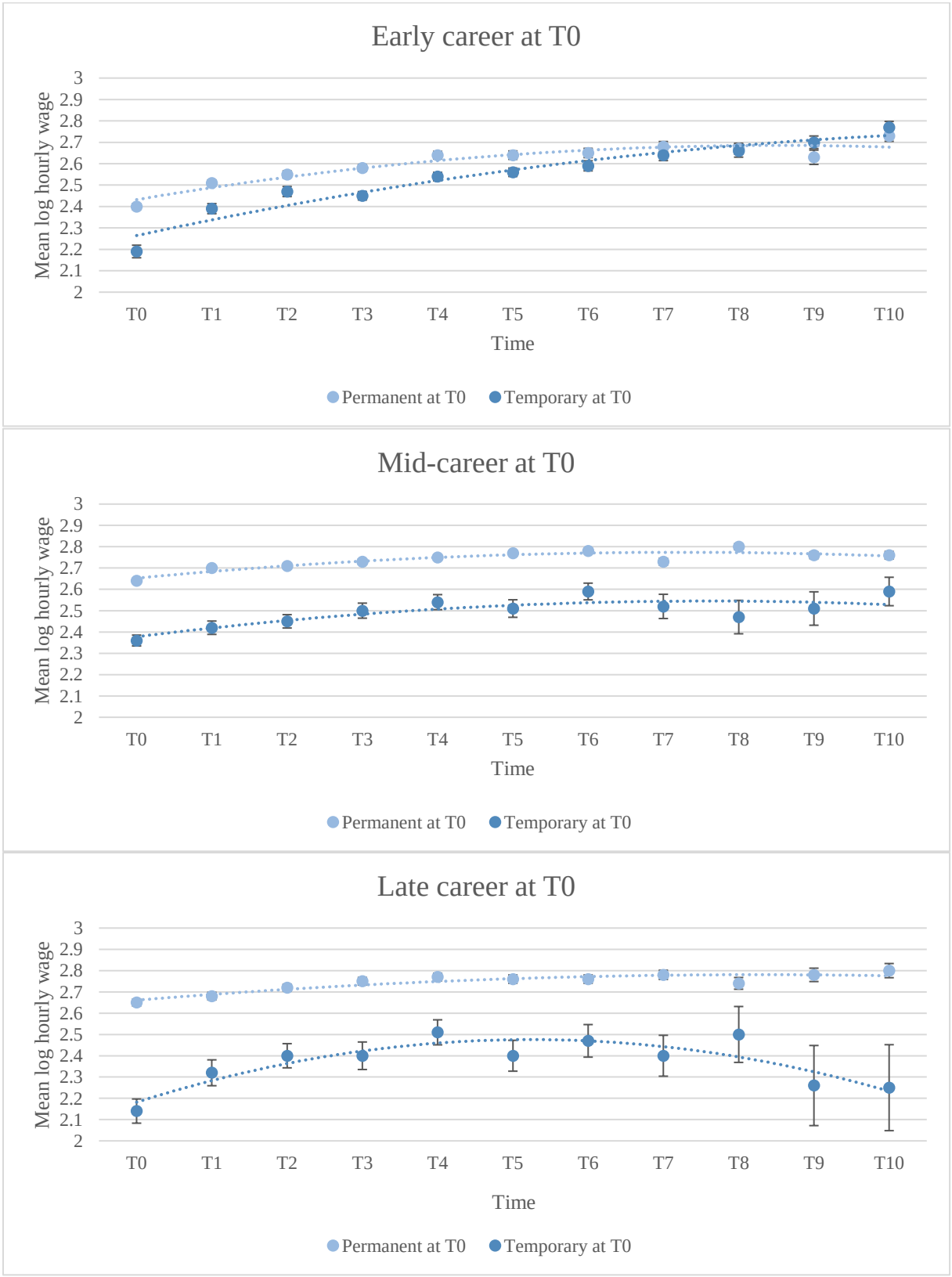
At this stage, it should be noted that the preceding labour market trajectories of temporary and permanent workers may play a confounding role in the analysis. Ideally, for an analysis of career phase variation in wage growth of temporary and permanent workers, data on the labour market career since labour market entry would be available to track entire career and wage trajectories. However, in the SOEP data, individuals are only observed from the year they enter the panel, which may be at various ages. This means that particularly for mid- and late-career workers, only limited information on their labour market career prior to observation is available. If the previous labour market trajectories of temporary and permanent workers at different career stages are fundamentally different, then this may influence the subsequent wage trajectories that are observed.

In order to account for the potential confounding influence of the previous labour market career, the analysis controls for time spent in unemployment and in employment prior to observation, as set out above. Nevertheless, further information on the previous labour market career, particularly time spent in temporary employment prior to observation, is not included in the data and therefore cannot be accounted for in the analysis. Hence, a selection problem related to different previous labour market trajectories of temporary and permanent workers at different career phases may remain. This should be kept in mind when interpreting the results shown in the following section.

4 Results

To address the research questions, some descriptive statistics are first shown. Figure 3 shows the mean log hourly wages of individuals from the initial observed spell in temporary or permanent employment (T0) to 10 years after the fact, separately by the career phase in which individuals are first observed. These initial descriptive statistics provide first evidence that career phase variation in the impact of temporary employment on subsequent wage growth does exist, consistent with the theoretical expectation previously set out (as visualized in Figure 2). All temporary employees face wage penalties relative to permanent workers initially. However, there are differences in both the initial wage gaps observed and subsequent wage growth across career phases. Workers who are in a temporary contract early in their career (from age 17-30), face smaller penalties and, most importantly, their wages appear to converge with those of permanent employees. In contrast, persistent wage penalties over the 10-year time window are observed between temporary and permanent employees that are observed later in their career. That is, as previously set out, the “bridge” function of temporary employment appears to be a more prominent trajectory for early career temporary employees.

Figure 3: Mean hourly wages of individuals by temporary employment status and career phase at T0, weighted values, 95% confidence intervals included



Note: Dotted line shows trend using polynomial smoothing.

To investigate these patterns in more detail, growth curve models were run to model wage development of temporary and permanent workers from the initial spell in temporary employment up to ten years after the fact.[7] Table 3 shows the effects of the key explanatory variables employed in the growth curve model on log hourly wages (all models also include the full set of controls)[8]. The effects shown in Table 3 represent the fixed effects part of the growth curve model, which shows the average effect of the key variables on growth trajectories. In addition to this, the model also includes a random effects component, which captures the variance of individual trajectories around these average effects (Curran, Obeidat and Losardo, 2010). The growth curve model includes a random intercept at individual level. Moreover, all models include a random slope for time, to account for variability in the rate of wage growth across individuals. The full models including all random effects are shown in the Appendix, Table A4.

Model 1 in Table 3 shows a simple model including only the time trend for wages, time being measured as years since the initial observation period (T0). As one would expect, wages grow with each year, though the rate of growth slows with time, as indicated by the negative coefficient on the measure of time squared. In Model 2, the two main covariates of interest, temporary employment (at T0) and the career phase in which one is observed in temporary employment are included in the model. These models show that, on average, individuals who experience temporary employment at the start of the observation period do have lower wages. Moreover, wages are higher in the mid-career compared to the early career, but lower in the

[7] In some analyses, researchers exclude the initial period of observation from the analytical sample, essentially lagging the variable on temporary employment (e.g. Mooi-Reci and Wooden, 2017). A robustness check lagging initial temporary employment by one year is shown in the Appendix, Table A7. The results do not change substantially.

[8] It may also be of interest to run the models separately by gender. Though gender differences are not the focus of this paper, as an auxiliary analysis, separate models by gender are shown in the Appendix, Table A8. These appear to show that the career phase variation observed is mainly driven by women. However, the sample sizes in these separate models are quite small in later years, particularly so for male temporary workers. Hence, these results should be interpreted with caution.

late career (bearing in mind all control variables are included). When examining the growth trajectories associated with these characteristics by interacting the variables with time (Model 3), the model shows that on average, individuals who start out in temporary employment, despite the initial wage gap, have a steeper rate of wage growth than those in permanent employment. That is, wages catch up with those of permanent workers – however, given the initial wage gap of 15.3% and a catch-up of 1.1 percentage points per year, wage differences between temporary and permanent employees are persistent across time for a number of years, albeit decreasing in scale. As regard the effects of the career phase, wage growth is steepest in the early career and declines with age.

Table 3: Growth curve models – Effect of initial temporary employment and career phase on wage growth

Y = Log hourly wages	M1	M2	M3	M4	M5	M6	M7
Time	0.022**	0.023**	0.032**	0.032**	0.031**	0.032**	0.026**
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Time * Time	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Temporary employment (T0)		-0.114**	-0.153**	-0.145**	-0.164**	-0.141**	-0.135**
		(0.009)	(0.010)	(0.013)	(0.014)	(0.014)	(0.014)
Career phase (ref = 18-30)							
31-45		0.035**	0.078**	0.080**	0.071**	0.071**	0.070**
		(0.010)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
46-60		-0.039*	0.017	0.026	0.020	0.020	0.021
		(0.017)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Temporary employment (T0) *Time			0.011**	0.010**	0.016**	0.015**	0.015**
			(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Career phase * Time							
31-45 * Time			-0.012**	-0.012**	-0.010**	-0.010**	-0.010**
			(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
46-60 * Time			-0.019**	-0.019**	-0.017**	-0.018**	-0.018**
			(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Career phase * Temporary employment (T0)							
31-45 * Temporary employment (T0)				0.001	0.044*	0.034	0.028
				(0.019)	(0.022)	(0.022)	(0.022)
46-60 * Temporary employment (T0)				-0.083**	-0.060^	-0.068*	-0.071*
				(0.028)	(0.031)	(0.031)	(0.031)
Temporary employment (T0) * Career phase * Time							
Temporary employment (T0) * 31-45 * Time					-0.014**	-0.013**	-0.011**
					(0.004)	(0.004)	(0.004)
Temporary employment (T0) * 46-60 * Time					-0.007	-0.006	-0.002
					(0.008)	(0.008)	(0.007)
Additional temporary employment after T0						-0.061**	-0.044**
						(0.011)	(0.011)
Additional unemployment after T0							-0.296**
							(0.032)
Additional employment after T0							0.038**
							(0.005)
Observations	154,322	154,322	154,322	154,322	154,322	154,322	154,322
Number of individuals	33,832	33,832	33,832	33,832	33,832	33,832	33,832

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the year of the first observation and a random slope for time. Models also include controls for gender, migration background, living with a partner, dependent children in the household, living in East Germany, education, years in unemployment before T0, years in work before T0, industry, firm size, civil service, part-time work and ISEI.

The models that are of greatest interest are the subsequent Models 4 and, particularly, 5. In Model 4, an interaction between initial temporary employment and career phase is added to the growth curve model. This shows that the average level of disadvantage associated with

temporary employment relative to permanent employment is 8.3 percentage points larger in the late career relative to the early career, while there are no significant differences between mid-career and early-career workers. Model 5 adds a final three-way interaction between temporary employment, career phase and time, so that career phase variation in the rate of wage growth of permanent and temporary employees can be investigated.[9] Mid-career temporary workers face a smaller initial wage penalty compared to permanent employees than early career temporary workers. However, there is a significant and negative coefficient on the interaction between temporary employment, being in the mid-career and time. Whereas the negative wage gap between early career temporary and permanent workers is reduced by 1.6 percentage points each year, this catch-up factor is 1.4 percentage points smaller for mid-career temporary workers. In other words, relative to early-career temporary workers, the wages of mid-career temporary workers catch up to permanent workers at a significantly slower rate. This appears to confirm the theoretical expectation set out earlier: for mid-career temporary workers, the long-term wage consequences of temporary employment are more negative than for those at other career stages, likely due to the particular stigmatizing effect associated with being in temporary employment at that stage. In contrast, there is no significant difference in the rate of wage growth between late-career and early-career temporary employees.

In Models 6 and 7, further mediating variables are added to the model to investigate in how far the subsequent employment trajectories of temporary workers account for career phase variation in wage growth. In Model 6, a variable for the ratio of subsequent (observed) working years after T0 spent in temporary employment is added. As one would expect, subsequent temporary employment has a statistically significant negative effect on wages. While there is a

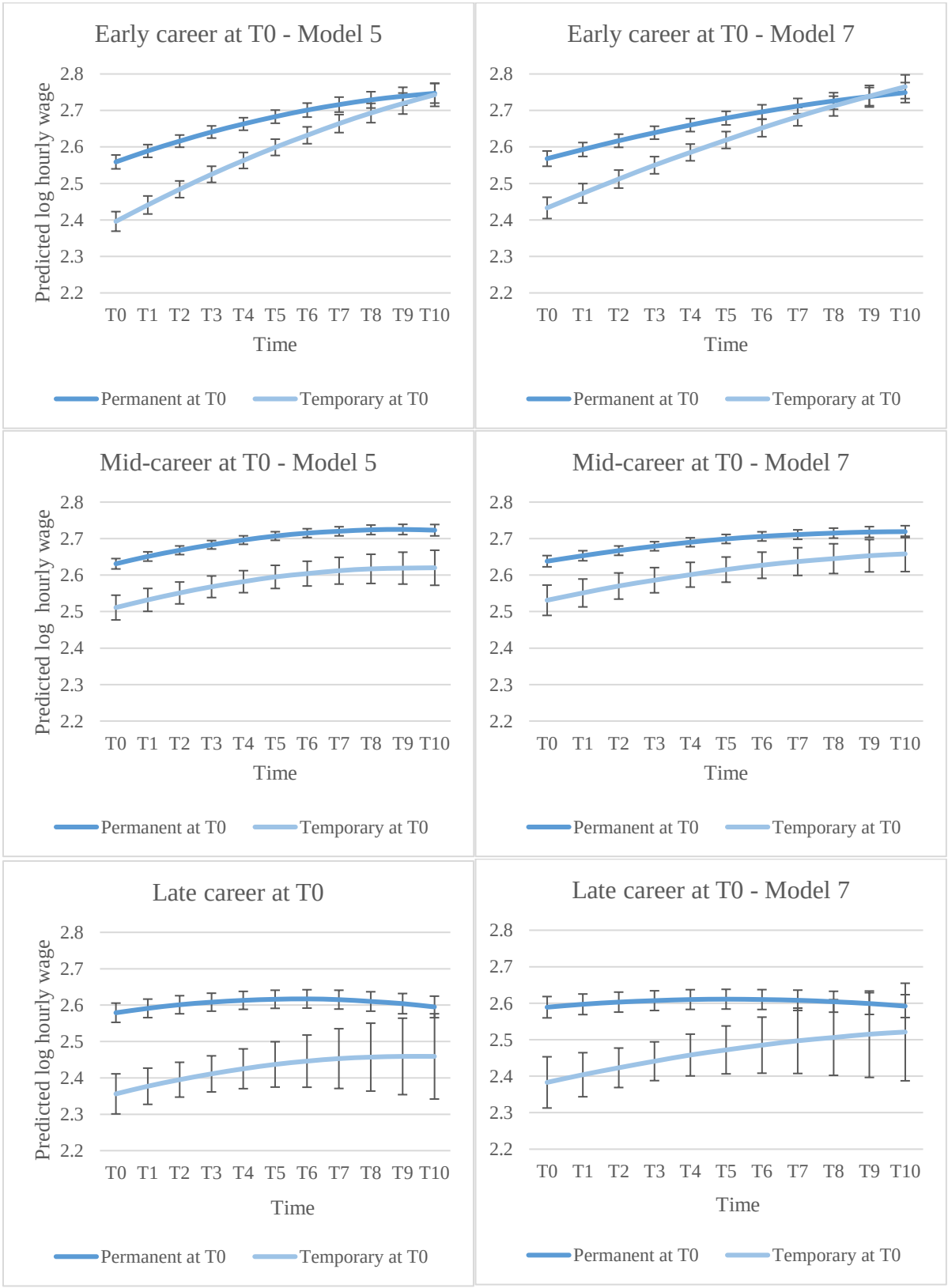
[9] As a robustness check, a model was examined adding a quadratic effect of time in interaction with the key variables (Appendix, Table A6 and Figure A2). However, the quadratic terms are largely insignificant and do not change the main results of the model. For the purpose of parsimony in modeling, the main analysis therefore does not include the additional quadratic terms.

small reduction in the scale of the difference in wage growth between early-career and mid-career temporary employees, significant career phase variation in the effect of initial temporary employment on wage growth trajectories remains. Model 7 adds further information on employment trajectories after the initial observation period – the ratio of time spent in unemployment and in employment. When accounting for these potential mediating variables, the size of the difference in wage growth between early career and mid-career temporary workers is further reduced. That is, in accordance with the theory set out, the difference in wage growth trajectories of mid-career workers appears to be attributable, to some extent, to their inferior subsequent employment trajectories in the form of temporary employment, employment and unemployment histories. For mid-career workers, temporary employment does not appear to be a bridge into a stable long-term labour market career.

To further illustrate the key results of the analysis, Figure 4 shows the estimated average log hourly wages of temporary and permanent workers in different career phases stages from the main model (Model 5) and the model with additional mediating variables (Model 7)[10]. At all career stages, temporary workers experience an initial wage gap relative to permanent workers. However, early career temporary workers have a much steeper wage trajectory than permanent workers, meaning that wages converge after a few years. Though the wage penalties experienced prior to convergence represent a loss in welfare that should not be discounted, this does imply that for early career workers, temporary employment is largely a bridge into the labour market and does not carry long-term wage disadvantage. Similarly, there is some catch-up of wages of late-career temporary workers to those of late-career permanent workers, albeit at a slower rate. In the late career, temporary employment is likely seen as a form of transition into retirement for some workers and thus does not have a negative signalling effect.

[10] Figure A1 in the Appendix additionally shows the estimated average log hourly wages for the intermediate model, M6.

Figure 4: Estimated average log hourly wages by temporary employment status and career phase at T0, left panel model without mediators, right panel model with mediators



Note: 95% Confidence Intervals included. Models include a fixed effect for the year of the first observation and a random slope for time. Models also include controls for gender, migration background, living with a partner, dependent children in the household, living in East Germany, education, years in unemployment before T0, years in work before T0, industry, firm size, civil service, part-time work and ISEI.

In contrast, while there is some wage catch-up for temporary workers in the mid-career, the slope of their wage trajectory is only marginally steeper than for permanent workers. As a result, the wage penalties associated with temporary employment are much more persistent across time, indicating that temporary employment leads to permanent labour market scarring. As set out in the theoretical section, temporary employment in the mid-career runs counter to social norms for workers in this career phase and may carry significant negative stigma with it, as well as impeding the development of human capital for temporary employees. The patterns observed are consistent with this theory.

The right-hand side of Figure 4 shows equivalent predicted values for Model 7, where additional information on the subsequent employment trajectories after T0 – the ratio of time spent in temporary employment, unemployment and employment – is accounted for in the model. Figure 4 illustrates that the differences in the steepness of growth trajectories between temporary workers in different career phases remain significant but decrease substantially when including these variables. Holding constant subsequent employment trajectories, the wages of temporary and permanent employees converge more quickly at all career stages. In particular, the wage growth trajectories of mid-career temporary and permanent employees converge eventually, rather than persisting across time. That is, mid-career temporary employees experience permanent wage scarring partly because their subsequent labour market career is marked by different outcomes with regard to the stability of the subsequent labour market career.

Nevertheless, a significant difference in wage growth trajectories remains even after including the variables capturing the subsequent labour market career in the model, particularly in the short term. One possible explanation for this is that the model cannot include all facets of the subsequent labour market career in detail. For instance,

information on subsequent temporary employment is only available on a yearly, rather than monthly, basis.

Furthermore, preceding labour market trajectories of permanent and temporary workers may play a role. As was discussed in the previous section, workers who start out in temporary employment at different career phases may have had a different prior labour market career compared to permanent workers. In this sense, the career phases are not independent. The descriptive statistics in the Appendix (Table A3) provide some initial insight into the characteristics of temporary and permanent workers at different career stages. At all career stages, temporary workers have spent more time in unemployment and less time in work than permanent workers. There are also other compositional differences. In the early career, temporary workers have higher average occupational status than permanent workers and are more likely to have an upper tertiary education. In contrast, the advantage in occupational status does not exist for mid-career temporary workers and reverses for late-career temporary workers. Similarly, in the mid-career, the difference in the proportion of individuals with an upper tertiary education between temporary and permanent workers is not as pronounced as in the early career, and in the late career, it is permanent workers who are more likely to have an upper tertiary education.

This descriptive information suggests that there are indeed differences in previous labour market trajectories of permanent and temporary workers, as well as compositional differences between temporary and permanent workers at different career stages. In particular, the data indicates that the previous labour market careers of temporary workers are marked by more unemployment and less time spent in employment than those of permanent workers. Moreover, it appears that at later career stages, temporary workers

are more negatively selected in terms of characteristics such as occupation and education than in the early career. While the model controlled for these differences as much as possible, it is conceivable that remaining career phase variation in wage growth of temporary workers can be attributed to further unobserved variation which cannot be fully accounted for in the analysis. In particular, the previous labour market career, including previous spells in temporary employment, likely plays a significant role, but is not observed in detail.

5 Conclusion

This paper has investigated long-run wage effects of temporary employment, and in particular, career phase variation therein. Two opposing theoretical scenarios were set out. On the one hand, temporary employment may be a trap and lead to long-term inferior wage growth of temporary workers relative to permanent employees. The main mechanisms behind this effect are negative signals and inferior human capital accumulation associated with temporary employment, in turn associated with an instable labour market career after the initial spell in temporary employment. On the other hand, temporary employment may also be a bridge into the labour market and lead to a successful permanent labour market career. This is expected if temporary employment is mainly used as a screening tool by employers. In this case, any initial wage gaps between temporary and permanent workers should disappear over time, leading to long-term wage convergence.

Crucially, these mechanisms may apply differently to workers depending on the career stage they are in. In particular, for workers in the early career, temporary employment is more likely to be a bridge into the labour market, as the screening mechanisms is expected

to dominate. In contrast, for mid- and late-career workers, the use of temporary contracts for screening is expected to be less common, with negative signalling and inferior human capital development opportunities dominant. These effects may be particularly pronounced for mid-career workers, for whom the negative signal associated with temporary employment is likely strongest. Hence, wage convergence with permanent workers is expected for early career temporary workers, but less so for mid- and late career workers.

To investigate these claims, the paper made use of a large longitudinal dataset, the German Socio-Economic Panel. Using this data, growth curve models were fitted, following individuals for a period of 10 years from the initial spell in temporary (or permanent) employment. The results of the growth curve models largely support the expectations laid out in the theoretical framework presented. That is, while temporary employment is associated with initial wage penalties for all workers, the subsequent wage growth trajectories do vary significantly with the career phase of workers. Early career temporary workers have significantly steeper wage growth trajectories than their permanent counterparts, meaning that their wages converge within a few years. In contrast, wage catch-up is less pronounced for older temporary workers. In particular, mid-career temporary workers have only very slightly steeper wage trajectories than permanent mid-career workers, so that there are much more persistent scarring effects of temporary employment on their wages. For late career workers, more persistent wage scarring effects of temporary employment can similarly be observed. In this case, the difference in wage growth can mainly be attributed to a very large initial wage penalty associated with temporary employment, which cannot be compensated for with somewhat steeper subsequent wage growth relative to permanent employees.

These results confirm the expectation set out – that temporary employment is mainly a bridge for early career workers but is more likely to entrap mid- and late-career workers. These effects are expected to be driven by differences in the subsequent labour market career. To investigate this more concretely, the models were extended to add mediating variables capturing the subsequent employment trajectory of workers after the initial spell in temporary employment. This did reduce career-phase variation in wage trajectories. That is, the long-term wage scarring associated with temporary employment for mid and late-career workers can partially be accounted for by instability in their subsequent labour marker career. Importantly, the wage growth was accounted for not only by subsequent time spent in temporary employment, but also other measures of labour market success, including time spent in unemployment and employment. Indeed, this paper shows that, at least when examining one important dimension of employment quality, wages, the transition from a temporary to a permanent contract is not the only factor of interest. Rather, the employment career of temporary workers, including spells in unemployment and employment should be examined in detail (Fuller and Stecy-Hildebrandt, 2015).

Nevertheless, significant differences in wage trajectories between temporary workers in different career phases remained even after accounting for these measures. Thus, there is room for further investigating the factors that influence the wage growth trajectories of temporary workers, particularly in the mid-career. One limitation of this paper is that only limited information on the labour market career prior to observation could be included in the analysis. It is possible that selection into temporary employment based on previous labour market experience may be driving the remaining significant career phase variation observed in this analysis. To further investigate this possibility, richer data on the entire labour market biography – including spells in temporary employment since labour market entry – would be required.

Moreover, another limitation of this paper is that it does not explicitly address gender differences in the observed effects. While such gender differences are beyond the scope of this paper - and analysis would be difficult to conduct given smaller sample sizes within sub-groups in the SOEP – they are a significant issue for future research. Given that the labour market careers of men and women are known to differ significantly over the life course, it is conceivable that the patterns set out may differ by gender. This task if left to future research.

Overall, this paper has illustrated that economic consequences of temporary employment diverge across the population of temporary workers. Temporary employment does not have universally negative long-lasting labour market consequences. Indeed, for early career workers, the initial wage disadvantages associated with such employment – though materially significant – disappear with time. In contrast, for the smaller but nevertheless significant group of mid- and late career temporary workers, significant wage scarring is observed. This illustrates that the nature of temporary employment, as well as its implications, are heterogeneous based on the labour market position of temporary employees. In future, such variation should be taken into account by both researchers and policymakers.

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Appendix

Table A1: *Summary of analytical sample size by time period*

Time	N
T0	24,406
T1	20,803
T2	18,209
T3	16,763
T4	15,014
T5	13,950
T6	12,044
T7	10,699
T8	8,811
T9	7,157
T10	6,466
T11	5,814
T12	5,322
T13	4,610
T14	4,073
T15	3,550

Table A2: Composition of the analytical sample, respondents at time T0

Variable	**Distribution**
Main variables	
Temporary employment (%)	14.34
Career phase	
18-30 (%)	28.93
31-45 (%)	48.31
46-60 (%)	22.76
Time-independent control variables	
Year of first observation	
1995 (%)	30.81
1996 (%)	1.63
1997 (%)	1.48
1998 (%)	4.73
1999 (%)	0.83
2000 (%)	14.49
2001 (%)	1.26
2002 (%)	1.23
2003 (%)	0.77
2004 (%)	0.96
2005 (%)	0.45
2006 (%)	3.11
2007 (%)	1.35
2008 (%)	0.66
2009 (%)	0.72
2010 (%)	4.52
2011 (%)	8.86
2012 (%)	4.92
2013 (%)	4.87
2014 (%)	1.2
2015 (%)	2.16
2016 (%)	0.65
2017 (%)	7.24
2018 (%)	1.09
Female (%)	47.61
Migrant (%)	21.7
Unemployment experience before T0 (mean)	0.53
Work experience before T0 (mean)	13.68
Time-dependent control variables	
Living in Eastern Germany (%)	19.27
Living with partner (%)	70.18
Number of children in household (mean)	0.75
Education	

Elementary (%)	9.53
Elementary with basic vocational (%)	26.48
Intermediate and upper secondary without vocational (%)	6.19
Intermediate and upper secondary with vocational (%)	37.77
Lower tertiary (%)	7.22
Upper tertiary (%)	12.81
Industry	
Extractive services, manufacturing and agriculture (%)	36.25
Trade, accommodation and food services, communication (%)	21.85
Professional services (%)	11.45
Public and other services (%)	30.45
Small firm (%)	24.76
Part-time	23.18
Civil servant (%)	25.24
ISEI (mean)	43.67

Table A3: Composition of the sample at T0 by temporary employment status and career phase

Variable	Early career		Mid-career		Late career	
	Permanent	**Temporary**	**Permanent**	**Temporary**	**Permanent**	**Temporary**
Time-independent control variables						
Female (%)	47.85	50.05	45.49	54.63	47.9	59.22
Migrant (%)	24.08	28.14	20.68	31.05	16.57	21.59
Unemployment experience before T0 (mean)	0.27	0.54	0.45	1.5	0.5	2.55
Work experience before T0 (mean)	4.59	2.54	14.43	10.14	25.7	21.55
Time-dependent control variables						
Living in Eastern Germany (%)	18.4	21.95	17.19	25.62	20.27	36.6
Living with partner (%)	54.13	46.26	78.08	70.51	70.51	78.84
Number of children in household (mean)	0.38	0.4	1.11	1.16	0.43	0.52
Education						
Elementary (%)	8.5	11.5	8.46	13.41	11.05	10.15
Elementary with basic vocational (%)	19.91	11.81	27.15	21.39	37	40.22
Intermediate and upper secondary without vocational (%)	10.57	19.53	3.37	5.73	3.42	2.93
Intermediate and upper secondary with vocational (%)	47.19	29.2	39.36	28.85	30.22	32.03
Lower tertiary (%)	6.12	5.7	8.2	5.68	7.44	5.95
Upper tertiary (%)	7.7	22.26	13.46	29.94	10.87	8.73
Industry						
Extractive services, manufacturing and agriculture (%)	38.37	24.53	39.27	23.12	36.35	23.94
Trade, accommodation and food services, communication (%)	24.51	24.05	20.7	19.07	21.35	22.9
Professional services (%)	12.76	11.2	11.84	10.52	9.95	7.72
Public and other services (%)	24.37	40.22	28.19	47.28	32.36	45.44
Small firm (%)	30.18	16.64	24.64	25.69	21.71	22.68
Part-time	18.86	32.07	24.02	34.08	21.79	29.43
Civil servant (%)	17.55	32.57	23.86	37.35	29.52	36.86
ISEI (mean)	42	45.4	44.46	44.5	43.5	38.2

Table A4: Growth curve models – Effect of initial temporary employment and career phase on wage growth, including full control effects

Y = Log hourly wages	M1	M2	M3	M4	M5	M6	M7
Fixed effects							
Time	0.022**	0.023**	0.032**	0.032**	0.031**	0.032**	0.026**
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Time * Time	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Temporary employment (T0)		-0.114**	-0.153**	-0.145**	-0.164**	-0.141**	-0.135**
		(0.009)	(0.010)	(0.013)	(0.014)	(0.014)	(0.014)
Career phase (ref = 18-30)							
31-45		0.035**	0.078**	0.080**	0.071**	0.071**	0.070**
		(0.010)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
46-60		-0.039*	0.017	0.026	0.020	0.020	0.021
		(0.017)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Temporary employment (T0) *Time			0.011**	0.010**	0.016**	0.015**	0.015**
			(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Career phase * Time							
31-45 * Time			-0.012**	-0.012**	-0.010**	-0.010**	-0.010**
			(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
46-60 * Time			-0.019**	-0.019**	-0.017**	-0.018**	-0.018**
			(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Career phase * Temporary employment (T0)							
31-45 * Temporary employment (T0)				0.001	0.044*	0.034	0.028
				(0.019)	(0.022)	(0.022)	(0.022)
46-60 * Temporary employment (T0)				-0.083**	-0.060^	-0.068*	-0.071*
				(0.028)	(0.031)	(0.031)	(0.031)
Temporary employment (T0) * Career phase * Time							
Temporary employment (T0) * 31-45 * Time					-0.014**	-0.013**	-0.011**
					(0.004)	(0.004)	(0.004)
Temporary employment (T0) * 46-60 * Time					-0.007	-0.006	-0.002
					(0.008)	(0.008)	(0.007)

Additional temporary employment after T0						-0.061**	-0.044**
						(0.011)	(0.011)
Additional unemployment after T0							-0.296**
							(0.032)
Additional employment after T0							0.038**
							(0.005)
Female	-0.170**	-0.170**	-0.170**	-0.170**	-0.170**	-0.170**	-0.171**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Migrant	-0.041**	-0.039**	-0.040**	-0.039**	-0.039**	-0.038**	-0.036**
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Living with partner	0.037**	0.032**	0.029**	0.029**	0.029**	0.028**	0.026**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Number of children in household	0.020**	0.015**	0.010**	0.010**	0.010**	0.010**	0.010**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Living in East Germany	-0.281**	-0.274**	-0.273**	-0.272**	-0.272**	-0.271**	-0.264**
	(0.010)	(0.009)	(0.010)	(0.010)	(0.010)	(0.009)	(0.009)
Education (ref = Elementary)							
Elementary and vocational	0.147**	0.147**	0.144**	0.145**	0.145**	0.145**	0.143**
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.014)
Intermediate and upper secondary without vocational	0.135**	0.136**	0.145**	0.146**	0.146**	0.144**	0.138**
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
Intermediate and upper secondary with vocational	0.245**	0.239**	0.236**	0.237**	0.237**	0.237**	0.234**
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Lower tertiary	0.438**	0.430**	0.425**	0.426**	0.426**	0.426**	0.421**
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Upper tertiary	0.500**	0.498**	0.495**	0.495**	0.495**	0.495**	0.490**
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Unemployment experience before T0	-0.040**	-0.038**	-0.037**	-0.037**	-0.037**	-0.037**	-0.032**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Work experience before T0	0.011**	0.010**	0.010**	0.010**	0.010**	0.010**	0.010**
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Industry (ref = Extractive services, manufacturing, construction)							
Trade, accommodation and food services, communication	-0.086**	-0.086**	-0.086**	-0.086**	-0.086**	-0.086**	-0.085**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)

Professional services	-0.011	-0.010	-0.010	-0.010	-0.010	-0.010	-0.009
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Public and other services	-0.054**	-0.052**	-0.051**	-0.051**	-0.051**	-0.050**	-0.050**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Small firm	-0.078**	-0.080**	-0.080**	-0.080**	-0.080**	-0.081**	-0.080**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Public sector	0.031**	0.033**	0.034**	0.034**	0.034**	0.035**	0.034**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Part-time work	0.025**	0.023**	0.025**	0.025**	0.025**	0.025**	0.028**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
ISEI	0.004**	0.004**	0.004**	0.004**	0.004**	0.004**	0.004**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Random effects							
Variance at individual level	0.126**	0.122**	0.122**	0.122**	0.122**	0.121**	0.12**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Slope variance	0.001**	0.002**	0.001**	0.001**	0.001**	0.001**	0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Slope-individual correlation	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Residual variance	0.046**	0.046**	0.046**	0.046**	0.046**	0.046**	0.046**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	2.229**	2.246**	2.226**	2.223**	2.227**	2.229**	2.222**
	(0.019)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Observations	154,322	154,322	154,322	154,322	154,322	154,322	154,322
Number of individuals	33,832	33,832	33,832	33,832	33,832	33,832	33,832

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the year of the first observation and a random slope for time.

Figure A1: Predicted log hourly wages by temporary employment status and career phase at T0, SOEP 1995-2018, full model including a control for additional temporary employment after T0

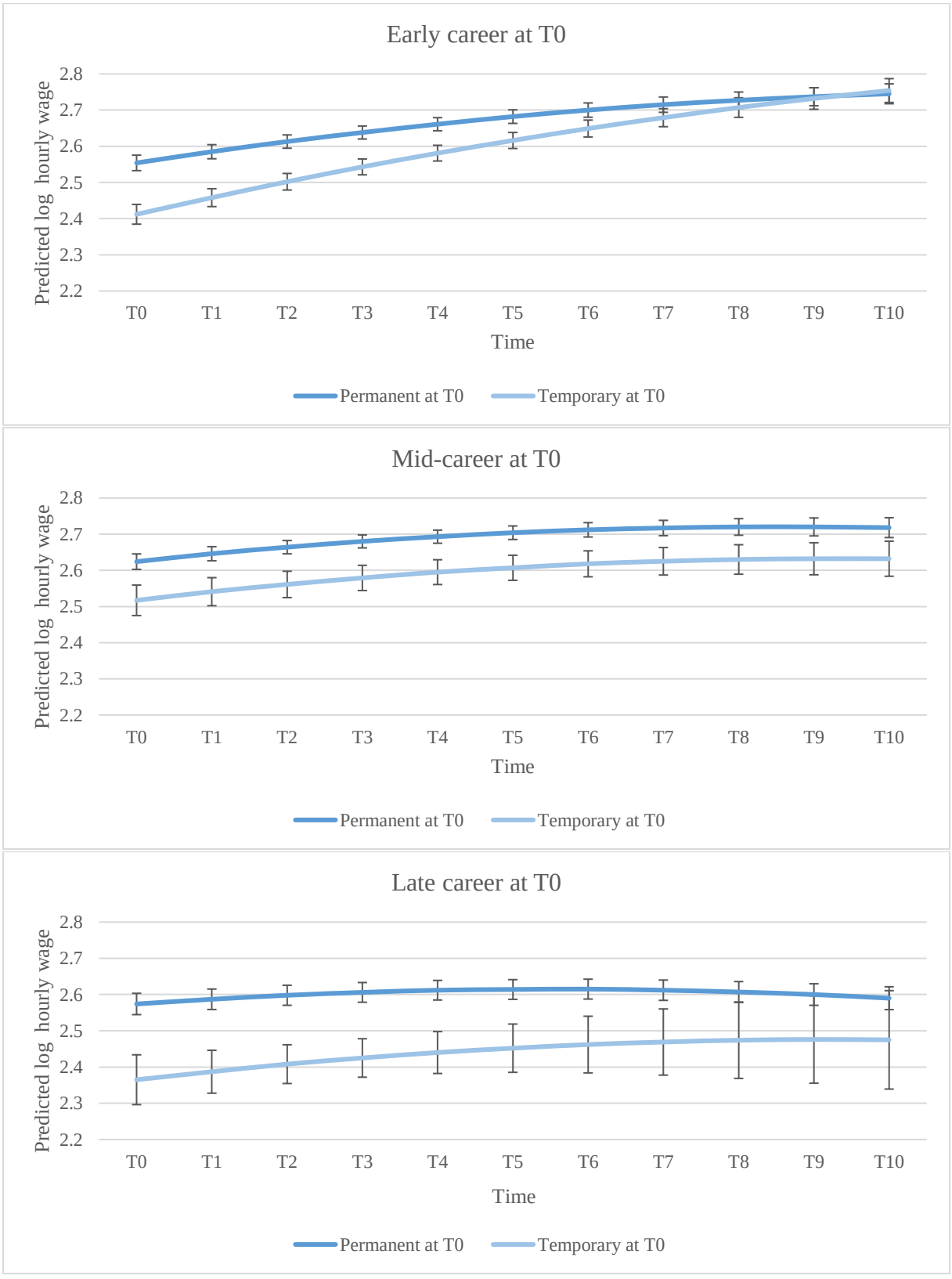


Table A5: Growth curve models – Effect of initial temporary employment and career phase on wage growth, extended sample with employees aged 17-60 at T0

	M5	M6	M7
Fixed effects			
Time	0.031**	0.032**	0.026**
	(0.002)	(0.002)	(0.002)
Time * Time	-0.001**	-0.001**	-0.001**
	(0.000)	(0.000)	(0.000)
Temporary employment (T0)	-0.168**	-0.145**	-0.139**
	(0.014)	(0.014)	(0.014)
Career phase (ref = 18-30)			
31-45	0.084**	0.083**	0.082**
	(0.011)	(0.011)	(0.011)
46-60	0.026	0.026	0.027
	(0.017)	(0.017)	(0.017)
Temporary employment (T0) *Time	0.016**	0.015**	0.015**
	(0.002)	(0.002)	(0.002)
Career phase * Time			
31-45 * Time	-0.009**	-0.010**	-0.010**
	(0.002)	(0.002)	(0.002)
46-60 * Time	-0.016**	-0.017**	-0.017**
	(0.002)	(0.002)	(0.002)
Career phase * Temporary employment (T0)			
31-45 * Temporary employment (T0)	0.042^	0.032	0.027
	(0.022)	(0.022)	(0.022)
46-60 * Temporary employment (T0)	-0.058*	-0.069*	-0.074**
	(0.027)	(0.027)	(0.027)
Temporary employment (T0) * Career phase * Time			
Temporary employment (T0) * 31-45 * Time	-0.014**	-0.013**	-0.010**
	(0.004)	(0.004)	(0.004)
Temporary employment (T0) * 46-60 * Time	-0.004	-0.002	0.002
	(0.007)	(0.007)	(0.007)
Additional temporary employment after T0		-0.063**	-0.046**
		(0.011)	(0.011)
Additional unemployment after T0			-0.292**
			(0.032)
Additional employment after T0			0.036**
			(0.005)
Female	-0.174**	-0.174**	-0.176**
	(0.006)	(0.006)	(0.006)
Migrant	-0.039**	-0.038**	-0.037**
	(0.009)	(0.009)	(0.009)
Living with partner	0.027**	0.027**	0.025**
	(0.005)	(0.005)	(0.005)
Number of children in household	0.011**	0.011**	0.011**
	(0.002)	(0.002)	(0.002)
Living in East Germany	-0.275**	-0.273**	-0.267**
	(0.009)	(0.009)	(0.009)
Education (ref = Elementary)			
Elementary and vocational	0.141**	0.141**	0.140**

	(0.013)	(0.013)	(0.013)
Intermediate and upper secondary without vocational	0.144**	0.142**	0.136**
	(0.018)	(0.018)	(0.018)
Intermediate and upper secondary with vocational	0.232**	0.232**	0.229**
	(0.014)	(0.014)	(0.014)
Lower tertiary	0.418**	0.418**	0.414**
	(0.017)	(0.017)	(0.017)
Upper tertiary	0.488**	0.488**	0.483**
	(0.017)	(0.017)	(0.017)
Unemployment experience before T0	-0.036**	-0.036**	-0.031**
	(0.003)	(0.003)	(0.003)
Work experience before T0	0.009**	0.009**	0.009**
	(0.001)	(0.001)	(0.001)
Industry (ref = Extractive services, manufacturing, construction)			
Trade, accommodation and food services, communication	-0.085**	-0.086**	-0.085**
	(0.007)	(0.007)	(0.007)
Professional services	-0.009	-0.009	-0.008
	(0.008)	(0.008)	(0.008)
Public and other services	-0.049**	-0.048**	-0.048**
	(0.007)	(0.007)	(0.007)
Small firm	-0.081**	-0.083**	-0.081**
	(0.006)	(0.006)	(0.006)
Public sector	0.035**	0.036**	0.035**
	(0.006)	(0.006)	(0.006)
Part-time work	0.022**	0.021**	0.025**
	(0.008)	(0.008)	(0.008)
ISEI	0.004**	0.004**	0.004**
	(0.000)	(0.000)	(0.000)
Random effects			
Variance at individual level	0.122**	0.122**	0.121**
	(0.004)	(0.004)	(0.004)
Slope variance	0.001**	0.001**	0.001**
	(0.000)	(0.000)	(0.000)
Slope-individual correlation	-0.005**	-0.005**	-0.005**
	(0.000)	(0.000)	(0.000)
Residual variance	0.047**	0.047**	0.047**
	(0.001)	(0.001)	(0.001)
Constant	2.233**	2.234**	2.227**
	(0.019)	(0.019)	(0.019)
Observations	162,804	162,804	162,804
Number of individuals	36,463	36,463	36,463

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the year of the first observation and a random slope for time.

Table A6: Growth curve models – Effect of initial temporary employment and career phase on wage growth with added quadratic term interaction

Y = Log hourly wages	M1
Fixed effects	
Time	0.031**
	(0.003)
Time * Time	-0.001**
	(0.000)
Temporary employment (T0)	-0.185**
	(0.016)
Career phase (ref = 18-30)	
31-45	0.074**
	(0.012)
46-60	0.021
	(0.018)
Temporary employment (T0) *Time	0.029**
	(0.006)
Career phase * Time	
31-45 * Time	-0.012**
	(0.003)
46-60 * Time	-0.020**
	(0.004)
Career phase * Temporary employment (T0)	
31-45 * Temporary employment (T0)	0.056*
	(0.025)
46-60 * Temporary employment (T0)	-0.071*
	(0.036)
Temporary employment (T0) * Career phase * Time	
Temporary employment (T0) * 31-45 * Time	-0.019*
	(0.009)
Temporary employment (T0) * 46-60 * Time	0.013
	(0.015)
Temporary employment (T0) * Time * Time	-0.001*
	(0.001)
Career phase * Time * Time	
31-45 * Time * Time	0.000
	(0.000)
46-60 * Time * Time	0.000
	(0.000)
Temporary employment (T0) * Career phase * Time * Time	
Temporary employment (T0) * 31-45 * Time * Time	0.000
	(0.001)
Temporary employment (T0) * 46-60 * Time * Time	-0.003^
	(0.002)
Female	-0.170**
	(0.007)
Migrant	-0.040**
	(0.009)
Living with partner	0.029**
	(0.005)
Number of children in household	0.010**

	(0.002)
Living in East Germany	-0.272**
	(0.009)
Education (ref = Elementary)	
Elementary and vocational	0.144**
	(0.015)
Intermediate and upper secondary without vocational	0.148**
	(0.019)
Intermediate and upper secondary with vocational	0.237**
	(0.015)
Lower tertiary	0.426**
	(0.018)
Upper tertiary	0.495**
	(0.018)
Unemployment experience before T0	-0.036**
	(0.003)
Work experience before T0	0.010**
	(0.001)
Industry (ref = Extractive services, manufacturing, construction)	
Trade, accommodation and food services, communication	-0.085**
	(0.007)
Professional services	-0.010
	(0.008)
Public and other services	-0.051**
	(0.008)
Small firm	-0.080**
	(0.006)
Public sector	0.034**
	(0.006)
Part-time work	0.025**
	(0.008)
ISEI	0.004**
	(0.000)
Random effects	
Variance at individual level	0.122**
	(0.004)
Slope variance	0.001**
	(0.000)
Slope-individual correlation	-0.005**
	(0.001)
Residual variance	0.046**
	(0.001)
Constant	2.248**
	(0.028)
Observations	154,322
Number of individuals	33,832

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the year of the first observation and a random slope for time.

Figure A2: Predicted log hourly wages by temporary employment status and career phase at T0, SOEP 1995-2018, full model including a quadratic term for time in all interactions

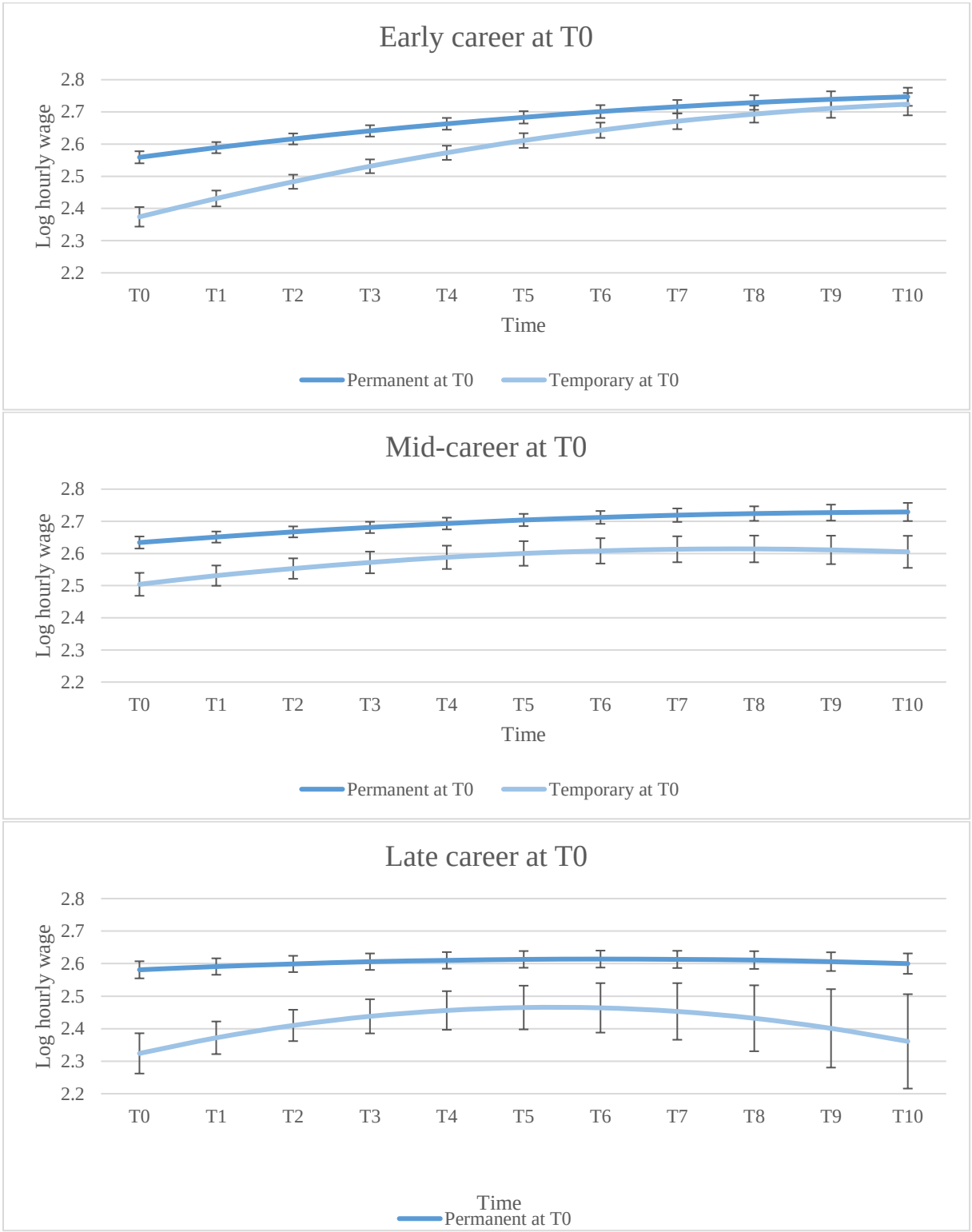


Table A7: Robustness check - Growth curve models – Effect of initial temporary employment and career phase on wage growth, initial temporary employment lagged by one year

	M5	M6	M7
Fixed effects			
Time	0.028**	0.028**	0.028**
	(0.002)	(0.002)	(0.002)
Time * Time	-0.001**	-0.001**	-0.001**
	(0.000)	(0.000)	(0.000)
Temporary employment (T0)	-0.157**	-0.082**	-0.064**
	(0.015)	(0.015)	(0.016)
Career phase (ref = 18-30)			
31-45	0.067**	0.063**	0.059**
	(0.013)	(0.013)	(0.013)
46-60	0.021	0.019	0.019
	(0.020)	(0.020)	(0.020)
Temporary employment (T0) *Time	0.014**	0.009**	0.008**
	(0.003)	(0.003)	(0.002)
Career phase * Time			
31-45 * Time	-0.009**	-0.009**	-0.009**
	(0.002)	(0.002)	(0.002)
46-60 * Time	-0.016**	-0.016**	-0.017**
	(0.002)	(0.002)	(0.002)
Career phase * Temporary employment (T0)			
31-45 * Temporary employment (T0)	0.033	0.023	0.006
	(0.026)	(0.026)	(0.026)
46-60 * Temporary employment (T0)	-0.036	-0.042	-0.043
	(0.037)	(0.038)	(0.038)
Temporary employment (T0) * Career phase * Time			
Temporary employment (T0) * 31-45 * Time	-0.012**	-0.012**	-0.008*
	(0.004)	(0.004)	(0.004)
Temporary employment (T0) * 46-60 * Time	-0.010	-0.010	-0.007

	(0.009)	(0.009)	(0.008)
Additional temporary employment after T0		-0.142**	-0.097**
		(0.012)	(0.012)
Additional unemployment after T0			-0.418**
			(0.035)
Additional employment after T0			0.111**
			(0.016)
Female	-0.175**	-0.175**	-0.178**
	(0.007)	(0.007)	(0.007)
Migrant	-0.043**	-0.040**	-0.037**
	(0.010)	(0.010)	(0.009)
Living with partner	0.026**	0.025**	0.020**
	(0.006)	(0.006)	(0.006)
Number of children in household	0.012**	0.012**	0.013**
	(0.002)	(0.002)	(0.002)
Living in East Germany	-0.275**	-0.271**	-0.258**
	(0.010)	(0.010)	(0.010)
Education (ref = Elementary)			
Elementary and vocational	0.140**	0.138**	0.133**
	(0.016)	(0.016)	(0.016)
Intermediate and upper secondary without vocational	0.170**	0.167**	0.155**
	(0.021)	(0.021)	(0.021)
Intermediate and upper secondary with vocational	0.234**	0.230**	0.223**
	(0.017)	(0.017)	(0.017)
Lower tertiary	0.427**	0.424**	0.413**
	(0.020)	(0.019)	(0.019)
Upper tertiary	0.496**	0.495**	0.483**
	(0.020)	(0.020)	(0.019)
Unemployment experience before T0	-0.031**	-0.031**	-0.022**
	(0.003)	(0.003)	(0.003)
Work experience before T0	0.010**	0.009**	0.009**
	(0.001)	(0.001)	(0.001)
Industry (ref = Extractive services, manufacturing, construction)			
Trade, accommodation and food services, communication	-0.083**	-0.084**	-0.083**

	(0.007)	(0.007)	(0.007)
Professional services	-0.015^	-0.015^	-0.013
	(0.008)	(0.008)	(0.008)
Public and other services	-0.052**	-0.049**	-0.049**
	(0.008)	(0.008)	(0.008)
Small firm	-0.081**	-0.084**	-0.080**
	(0.006)	(0.006)	(0.006)
Public sector	0.034**	0.037**	0.035**
	(0.006)	(0.006)	(0.006)
Part-time work	0.019*	0.020*	0.027**
	(0.009)	(0.009)	(0.008)
ISEI	0.004**	0.004**	0.004**
	(0.000)	(0.000)	(0.000)
Random effects			
Variance at individual level	0.121**	0.119**	0.119**
	(0.005)	(0.005)	(0.005)
Slope variance	0.001**	0.001**	0.001**
	(0.000)	(0.000)	(0.000)
Slope-individual correlation	-0.005**	-0.005**	-0.005**
	(0.001)	(0.001)	(0.001)
Residual variance	0.044**	0.044**	0.044**
	(0.001)	(0.001)	(0.001)
Constant	2.244**	2.257**	2.177**
	(0.022)	(0.022)	(0.025)
Observations	129,916	129,916	129,916
Number of individuals	29,422	29,422	29,422

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the year of the first observation and a random slope for time.

Table A8: Growth curve models – Effect of initial temporary employment and career phase on wage growth, by gender

	Men			Women		
	M5	M6	M7	M5	M6	M7
Fixed effects						
Time	0.032**	0.034**	0.026**	0.029**	0.030**	0.027**
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Time * Time	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Temporary employment (T0)	-0.177**	-0.150**	-0.142**	-0.158**	-0.139**	-0.135**
	(0.019)	(0.020)	(0.020)	(0.018)	(0.019)	(0.019)
Career phase (ref = 18-30)						
31-45	0.136**	0.136**	0.137**	0.042*	0.041*	0.039*
	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	(0.017)
46-60	0.127**	0.129**	0.133**	-0.029	-0.029	-0.030
	(0.028)	(0.028)	(0.028)	(0.025)	(0.025)	(0.025)
Temporary employment (T0) *Time	0.011**	0.010**	0.011**	0.021**	0.020**	0.020**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Career phase * Time						
31-45 * Time	-0.012**	-0.012**	-0.012**	-0.008**	-0.008**	-0.009**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
46-60 * Time	-0.021**	-0.021**	-0.021**	-0.013**	-0.013**	-0.014**
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Career phase * Temporary employment (T0)						
31-45 * Temporary employment (T0)	0.028	0.015	0.009	0.058^	0.051	0.046
	(0.030)	(0.030)	(0.030)	(0.031)	(0.031)	(0.031)
46-60 * Temporary employment (T0)	-0.098^	-0.105*	-0.108*	-0.023	-0.032	-0.034
	(0.052)	(0.053)	(0.053)	(0.037)	(0.037)	(0.037)
Temporary employment (T0) * Career phase * Time						
Temporary employment (T0) * 31-45 * Time	-0.006	-0.005	-0.002	-0.022**	-0.021**	-0.018**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Temporary employment (T0) * 46-60 * Time	-0.010	-0.009	-0.004	-0.009	-0.007	-0.003
	(0.016)	(0.016)	(0.015)	(0.007)	(0.007)	(0.007)

Additional temporary employment after T0	-0.071**	-0.053**		-0.054**	-0.038*	
	(0.013)	(0.013)		(0.016)	(0.016)	
Additional unemployment after T0		-0.318**			-0.276**	
		(0.049)			(0.042)	
Additional employment after T0		0.044**			0.028**	
		(0.006)			(0.007)	
Migrant	-0.046**	-0.045**	-0.043**	-0.032**	-0.032**	-0.030**
	(0.013)	(0.013)	(0.012)	(0.011)	(0.011)	(0.011)
Living with partner	0.035**	0.034**	0.033**	0.016*	0.015*	0.012^
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Number of children in household	0.017**	0.017**	0.017**	-0.007^	-0.007^	-0.006
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
Living in East Germany	-0.299**	-0.297**	-0.291**	-0.240**	-0.238**	-0.231**
	(0.014)	(0.014)	(0.013)	(0.012)	(0.012)	(0.012)
Education (ref = Elementary)						
Elementary and vocational	0.136**	0.137**	0.135**	0.132**	0.132**	0.130**
	(0.018)	(0.018)	(0.018)	(0.022)	(0.022)	(0.022)
Intermediate and upper secondary without vocational	0.120**	0.119**	0.111**	0.151**	0.148**	0.143**
	(0.028)	(0.028)	(0.027)	(0.027)	(0.027)	(0.027)
Intermediate and upper secondary with vocational	0.209**	0.209**	0.204**	0.246**	0.245**	0.243**
	(0.020)	(0.020)	(0.019)	(0.021)	(0.021)	(0.021)
Lower tertiary	0.405**	0.405**	0.398**	0.407**	0.406**	0.403**
	(0.024)	(0.024)	(0.024)	(0.025)	(0.025)	(0.025)
Upper tertiary	0.472**	0.472**	0.464**	0.487**	0.487**	0.483**
	(0.025)	(0.025)	(0.024)	(0.026)	(0.026)	(0.026)
Unemployment experience before T0	-0.047**	-0.047**	-0.043**	-0.029**	-0.029**	-0.024**
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)
Work experience before T0	0.007**	0.007**	0.006**	0.011**	0.011**	0.011**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Industry (ref = Extractive services, manufacturing, construction)						
Trade, accommodation and food services, communication	-0.074**	-0.074**	-0.074**	-0.088**	-0.088**	-0.087**
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)

Professional services	0.008	0.008	0.010	-0.016	-0.016	-0.015
	(0.011)	(0.011)	(0.011)	(0.013)	(0.013)	(0.013)
Public and other services	-0.072**	-0.072**	-0.071**	-0.027*	-0.025*	-0.025*
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Small firm	-0.085**	-0.086**	-0.085**	-0.075**	-0.077**	-0.075**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Public sector	0.001	0.002	0.001	0.062**	0.063**	0.062**
	(0.010)	(0.010)	(0.009)	(0.008)	(0.008)	(0.008)
Part-time work	0.026	0.026	0.031	0.033**	0.033**	0.036**
	(0.022)	(0.022)	(0.022)	(0.008)	(0.008)	(0.008)
ISEI	0.003**	0.003**	0.003**	0.005**	0.005**	0.005**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Random effects						
Variance at individual level	0.113	0.113	0.111	0.126	0.125	0.125
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)
Slope variance	0.001	0.001	0.001	0.002	0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Slope-individual correlation	-0.003	-0.003	-0.004	-0.006	-0.006	-0.006
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Residual variance	0.036	0.036	0.037	0.058	0.058	0.058
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Constant	2.286**	2.287**	2.280**	2.019**	2.020**	2.014**
	(0.027)	(0.027)	(0.026)	(0.027)	(0.027)	(0.027)
Observations	77,220	77,220	77,220	77,102	77,102	77,102
Number of individuals	16,589	16,589	16,589	17,243	17,243	17,243

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the year of the first observation and a random slope for time.

Does atypical employment come in couples? Evidence from European countries

Leonie Westhoff

Abstract

The literature on atypical employment has largely focused on the individual level. This paper provides a novel account of the dynamics of atypical employment, specifically part-time and temporary employment, within couples. Analysing a sample of 29 European countries using 2016 EU-SILC data, it investigates whether partner atypical employment status influences individuals' own likelihood of being atypically employed, and whether partner resources can account for these effects. The results show that temporary employment does come in couples, in that partner temporary employment increases the likelihood of own temporary employment. A significant portion of this result is driven by individuals with partners in temporary employment themselves possessing characteristics that predispose them to being temporarily employed, whereas partner resources play little role. These results are largely consistent across Europe. Accumulation of part-time employment is also observed, albeit at a smaller scale. However, it occurs at the two extremes of the income distribution only, among very low-earning and very high-earning couples. In contrast, in the middle of the income distribution, there is no or even a negative association between partner and own part-time employment, which is more consistent with classic household specialization patterns. An association between partner and own part-time employment is only found in a minority of European countries, most systematically in Western Europe, but also in some Southern and Eastern European countries.

1 Introduction

A growing body of research examines the determinants and socio-economic consequences of atypical employment, that is employment diverging from full-time, permanent employment where workers are employed on a contractual basis by an employer (Hipp, Bernhardt and Allmendinger, 2015). Atypical work is complex; workers have diverse socio-economic characteristics and work in a range of jobs (de Jong *et al.*, 2009; Eichhorst and Marx, 2015; Nightingale, 2019). Generally, there are disadvantages associated with atypical work, including inferior working conditions and reduced training opportunities (Eurofound, 2012) and wage penalties (Blanchard and Landier, 2002; Giesecke, 2009; Matteazzi, Pailhé and Solaz, 2014; Kahn, 2016).

Research on atypical employment has typically focused on the individual level, paying less attention to the couple or household dimension. Yet the lives of partners are linked via marriage and family relationships, which may influence employment decisions and career success (Blossfeld and Buchholz, 2009). The literature on household joblessness demonstrates that household factors matter for welfare. In many Western countries, jobs have increasingly become concentrated in certain households, with important implications for the likelihood of living in poverty and material deprivation (Ultee, Dessens and Jansen, 1988; Gregg, Scutella and Wadsworth, 2009; de Graaf-Zijl and Nolan, 2011). However, it is equally important to examine whether certain *types* of jobs are concentrated in households and couples (Horemans, 2016). Given the material disadvantages associated with atypical work, if partners in atypical employment couple up, this may affect the couples' ability to pool risks and insulate against poverty (Corluy and Vandenbroucke, 2013; Biegert and Ebbinghaus, 2022). This paper examines whether atypical employment is indeed concentrated in couples focusing on two types of atypical work, temporary and part-time employment.

A body of sociological literature examines the effects of partner resources on the labour market career, including labour force participation and occupational attainment (e.g. Bernasco, De Graaf and Ultee, 1998; Róbert and Bukodi, 2002; Brynin and Francesconi, 2004; Verbakel and De Graaf, 2008). Often focusing on women, this literature demonstrates that husbands' income reduces labour market activity (Henz and Sundström, 2001) and higher partner resources increase the likelihood of part-time and fixed-term work (Henz and Sundström, 2001; Verbakel and de Graaf, 2009; Kanji, 2011; Dieckhoff *et al.*, 2015). However, it does not specifically examine how partner employment status influences atypical employment.

This paper builds on two recent studies showing that partner temporary employment increases the likelihood of own temporary employment in the Netherlands (De Lange, Wolbers and Ultee, 2013) and in six European countries (Grotti and Scherer, 2014). No such investigation is available for part-time employment. The contribution of this article to this emerging literature is a first detailed and comprehensive account of the influence of partner atypical employment on own atypical employment, which compares two distinct forms of atypical employment, temporary and part-time employment[1]. Given the growing evidence that types of atypical employment are heterogeneous, such a comparative view is substantively important (Giesecke, 2009; Westhoff, 2022), and facilitates an understanding of the potential mechanisms driving accumulation of atypical employment in couples. Gender differences in the associations observed are not the core focus of the article; however, gender differences in theoretical expectations are discussed where relevant and analyses are conducted separately by gender.

A secondary contribution of the paper is that it examines a large sample of 29 European countries. The aim of the article is to provide a detailed and comprehensive account of the

[1] As a result of data limitations, the categories of dependent self-employment and temporary agency work cannot be examined separately.

association between partner and own atypical employment across this sample of countries. Establishing these empirical regularities, and the extent of country commonalities therein, is an important first step towards shining light on this relatively understudied research question. However, while country variation in the patterns observed is discussed, the paper does not seek to formally investigate the causes of such variation. This task is left to future scholarship.

2 The relationship between partner atypical employment and own atypical employment

Given that couples pool resources and make joint decisions regarding their labour supply, the household can have an important influence on social stratification and inequality. Research has increasingly investigated the influence of partner characteristics on the labour market career, focusing in particular on employment and occupational attainment. In this context, atypical employment can be seen as a form of reduced labour market connection through an impermanent labour market attachment or reduced working hours.[2] Through several mechanisms, one's own propensity to work in atypical employment may be influenced by the partner's atypical employment status. However, these mechanisms may differ by the type of atypical employment examined.

Temporary and part-time employment: different forms of atypicality

At the outset, some theoretical considerations as regards distinctions between temporary and part-time employment should be made. Though both can be considered a form of looser labour market connection, these two employment relationships are distinct in several important ways.

[2] Such a looser labour market connection could be a choice in some cases but may equally be a result of constraints placed on labour market participants. This complex question cannot reliably be disentangled in a correlational analysis.

These differences may influence the potential association between partner and own atypical employment and the underlying mechanisms driving it.

To begin with, temporary and part-time employment are associated with labour market disadvantage to different extents. Temporary employment is disproportionately located in a secondary labour market with lower labour market bargaining power and inferior working conditions and employment protection (Barbieri, 2009). While part-time workers may still face some institutional disadvantages such as lower unionization (O'Dorchai, Plasman and Rycx, 2007), part-time work is much more established in labour markets and associated with similar employment rights as full-time employment (Hakim, 1989; Giesecke, 2009). Accordingly, the labour market disadvantage associated with temporary employment is larger than for part-time work, as demonstrated by research showing that part-time wage penalties are smaller than those associated with temporary employment (Bardasi and Gornick, 2008; Giesecke, 2009; Kahn, 2016). Indeed, part-time employees at the top of the wage distribution do not face wage disadvantages (Westhoff, 2022).

Moreover, these differences are reflected in the socio-economic make-up of atypical workers. Temporary workers tend to be younger and negatively selected with regard to education and labour market experience (Barbieri, 2009; Gebel and Giesecke, 2009; Baranowska and Gebel, 2010). In contrast, the likelihood of part-time employment is less influenced by previous labour market experience (Giesecke, 2009). Moreover, a gendered dimension is apparent: for women, household factors such as children strongly influence the likelihood of part-time work, which is not the case for men (Ibid.). Overall, it is apparent that part-time and temporary employment differ with regard to both the characteristics of the workforce and the extent of labour market disadvantage associated with them, which will affect the potential association between partner and own temporary employment.

The accumulation scenario: mechanisms driving a positive association between own and partner atypical employment

Several theoretical mechanisms may drive a positive association between own and partner atypical employment. First, labour market outcomes between spouses may be interlinked due to *shared restrictions* (Bernasco, De Graaf and Ultee, 1998). For instance, partners will be equally affected by local labour market conditions, which could impact their ability to obtain standard, as opposed to atypical, employment (Grotti and Scherer, 2014). Moreover, partners share household-level factors, such as children. Workers with such non-market responsibilities may prefer a looser labour market connection, particularly a reduced number of working hours (McGinnity and McManus, 2007). Caring responsibilities for elderly relatives can have similar effects (Keck and Saraceno, 2010). However, while these factors affect both partners equally in theory, the effects of household structure are likely gendered. Care work is predominantly taken up by women in all European countries, though the extent of this gender division varies by national policy configuration and normative models (Ciccia and Bleijenbergh, 2014). Hence, caring responsibilities may particularly influence women's propensity for part-time work, and the presence of such responsibilities may result in women in particular taking up part-time work, rather than an accumulation of such work within (heterosexual) couples.

Second, the accumulation of atypical employment in couples may be driven by *homogamy within couples*, that is, individuals with similar labour market characteristics marrying each other (Blossfeld, 2009). Human capital is an indication of a prospective partner's potential lifetime earnings; partners recognize this in each other, and may also be attracted by less tangible aspects, such as skills, motivations and social and cultural capital (Brynin and Francesconi, 2004). During partnership formation, partners engage in assortative mating with regard to many characteristics, including family background, occupation, education and others (Bernasco, De Graaf and Ultee, 1998; Henz and Sundström, 2001; Blossfeld, 2009). This

process implies the pooling of economic and sociocultural characteristics, so that social inequality is enhanced through partnership decisions (Blossfeld, 2009). One consequence is the accumulation of atypical employment within couples. Individual-level characteristics, such as education and age, affect the propensity of being in atypical employment (Bardasi and Gornick, 2008; Eichhorst and Marx, 2015). As being atypically employed depends on individual resources, and resources are matched within couples, a positive association between atypical employment of partners occurs as a by-product (Bernasco, De Graaf and Ultee, 1998).

Finally, atypical employment may accumulate in couples because *partner resources* affect labour market success. An individual's social capital may be stimulated by their partner's social and cultural resources, for instance through the partner providing contacts, giving advice and transmitting cultural knowledge (Bernardi, 1999; Verbakel and De Graaf, 2008). Individuals in atypical employment are more likely to lack such social and cultural capital (De Lange, Wolbers and Ultee, 2013), in turn decreasing their partners' chances for career success and obtaining standard employment. Moreover, the effect of partner resources may be enhanced by a process of cross stimulation (Brynin and Francesconi, 2004). While each spouse has their own career goals, they raise or lower them depending on the success of the partner, aiming to match their level of achievement (Bernasco, De Graaf and Ultee, 1998).

The two mechanisms just set out - homogamy and the effect of inferior partner resources – are expected to apply particularly to the case of temporary work. As set out above, temporary workers tend to be negatively selected and temporary work is associated with substantial labour market disadvantage. Through homogamy and inferior partner resources, an accumulation of labour market disadvantage and temporary work within couples is likely. In contrast, the disadvantage associated with part-time work is smaller and patterns of allocation of part-time work within (heterosexual) couples tend to be strongly gendered, depending less on labour

market characteristics of individuals. Part-time work in couples is therefore less likely to accumulate through the matching of labour market resources within couples or the inferior resources of partners in part-time work.

The compensation scenario: mechanisms driving a negative association between own and partner atypical employment

While there are several reasons to expect a positive relationship between partner and own atypical employment, other mechanisms may counteract this association. Arguments in this vein go back to household production theory after Becker (1993). The basic approach to family labour supply extends the consumption-leisure choice problem to include two decisions (Blundell and Macurdy, 1999). Labour supply is structured by pooling resources and maximizing utility within marriage, which is achieved by specialization in the distribution of paid and unpaid work (Bernardi, 1999). Efficiency is achieved when the resources of household members are allocated to activities relative to their comparative efficiencies. This results in a pronounced division of labour among partners - the person with a greater comparative advantage in the labour market will specialize there (Becker, 1993). A partner with higher labour market success reduces the incentive to remain in work, as the less successful partner can afford to withdraw from the labour market (Verbakel and De Graaf, 2008; Verbakel and de Graaf, 2009).

Importantly, this disincentive effect does not only influence labour market participation. For partners who stay in the labour market, it may also effect the amount of effort invested in paid work, such as opting for a looser labour market connection, in the form of atypical employment, or striving for higher occupational success (Becker, 1993; Bernardi, 1999; Róbert and Bukodi, 2002). Conversely, when one partner is less successful in the labour market, household income

decreases and the other partner is incentivized to invest more time and resources in their career, decreasing their likelihood of being in atypical employment. Hence, labour market resources of the partner, in the form of earnings, human capital and occupation, are expected to have a *compensatory effect*: Having a more successful partner with higher career resources should increase the likelihood of being atypically employed. This implies that atypical employment will not be concentrated in couples.

Patterns of household specialization in couples are likely gendered. Conventionally, the theory was applied to women in particular. According to Becker, men have stronger market specific human capital endowments, though later work has emphasized the role of household bargaining and gender norms (Dieckhoff *et al.*, 2015). In recent decades, female educational attainment and labour force participation have increased, as has the cost of not participating in market work, potentially reducing such gender inequalities (Róbert and Bukodi, 2002). Moreover, highly educated women have become more likely to form relationships and women are more likely to partner with men with lower levels of education, potentially becoming the status dominant partners in unions (Chudnovskaya and Kashyap, 2019). Nevertheless, even where women have an educational advantage over their partner, they do not have a corresponding income advantage (Ibid.). One may argue that the domestic division of labour has not fundamentally changed (Brynin and Schupp, 2000; Shafer, 2011). Given the persisting gender inequalities within labour markets and couples, it is likely that gendered differences in effects will be observed.

It is expected that the compensation scenario set out applies mainly to the case of part-time work. As previously detailed, patterns of part-time work in couples are strongly gendered and often determined by household factors for women. In this context, it appears likely that the allocation of part-time work within a couples is driven by household specialization, with

women much more likely to take up part-time work, especially where the partner's labour market resources are high. Hence, a significant positive relation between partner and own part-time employment should not be observed.

3 Data, variables and methods

To answer the research questions laid out, cross-sectional EU-SILC 2016[3] data is used. EU-SILC is a comparative dataset containing harmonized European data, including a rich range of variables that allow for the investigation of effects at the partner and household level. 29 European countries[4] are included in the analysis overall. Hence, the data allows for a balanced analysis of patterns across European countries. All data are weighted to account for sampling design[5]. The target population examined in the study are working age (16-64) partnered employees[6].

The main dependent variables are the two types of atypical employment, temporary employment and part-time employment. Temporary employment is defined as having a non-permanent contract. The measure of part-time employment is based on individuals self-defining as working part-time. An hours-based definition of working less than 30 hours per week (van Bastelaer, Lemaître and Marianna, 1997) is used as a robustness check, with no substantial differences in results (Appendix, Table A11). Table 1 shows the share of atypical employment by country and gender. Shares of temporary employment are generally highest in Southern

[3] The use of the 2016 release of EU-SILC specifically allows for integrating information on care responsibilities (beyond children) as part of the control variables. Pooling waves of EU-SILC to increase sample sizes is unfortunately not possible as linked observations cannot be identified across waves (Iacovou and Levy, 2012).

[4] These include Austria, Belgium, Bulgaria, Switzerland, Cyprus, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Italy, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovenia, Slovakia, UK. Iceland is excluded due to small sample sizes.

[5] To prepare the dataset, documentation by GESIS (GESIS, 2016) and Goedemé (2019b) was used.

[6] Running the analysis on a reduced sample of employees aged 25-64 does not substantially change the results.

European and Western European countries and lowest in Eastern Europe, though there are exceptions such as Poland, where temporary employment is very prominent. Part-time employment is much more common for women than men and generally most prevalent in Western and Northern European countries. Countries where the respective share of atypical employment is below 2% for either gender are excluded from the regressions to avoid a low number of observations driving the results in a setting where atypical employment is marginal. This means that Estonia and Latvia are excluded from regressions on temporary employment, and Czech Republic, Romania, Serbia and Slovakia from regressions on part-time employment. In addition, in several countries – Denmark, Finland, Norway, Netherlands and Sweden – information on partner temporary employment is only available for very few respondents, as the collection of information is largely based on register data, with only "selected respondents" providing a full interview. Therefore, these countries are also excluded from regressions on temporary employment.

Table 1: Share of atypical employment, employees 16-64, weighted sample

Country	Temporary		Part-time	
	Men	Women	Men	Women
Austria (AT)	6.3	8	5.9	46.2
Belgium (BE)	8.5	11.2	10.7	45.3
Germany (DE)	13.9	14.9	10.1	49.5
France (FR)	14.4	17.9	6.1	28.4
Luxembourg (LU)	10.4	8.8	3.7	38.5
Netherlands (NL)	15.3	16.6	17.5	73.4
Cyprus (CY)	8.9	15.9	6.1	9.7
Greece (EL)	18.2	21	6.7	14.3
Spain (ES)	26.6	28.3	6.4	24.9
Italy (IT)	14.3	16.2	6.7	28
Malta (MT)	6.5	9.9	3.5	12.4
Portugal (PT)	18.6	20.1	2.4	7.5
Denmark (DK)	6.3	9.4	6.7	17.3
Finland (FI)	10.4	16.2	6.4	12.3
Norway (NO)	6.4	7.8	4.1	16.7
Sweden (SE)	11.5	15.8	9.3	32.1
Switzerland (CH)	10.3	9.6	10.2	46.7
Ireland (IE)	9.2	10.3	16.2	37.3
United Kingdom (UK)	4.4	4.5	10.3	35
Bulgaria (BG)	5	5.2	2.3	3.8
Czech Republic (CZ)	11	14.8	**1.1**	**5.1**
Hungary (HU)	10.2	12	2.5	4.9
Poland (PL)	28.5	29.6	2.8	8.2
Romania (RO)	3	2.6	**0.5**	**0.6**
Serbia (RS)	21.3	21.2	**1.8**	**2.6**
Slovenia (SI)	12.2	13.9	2.7	8.1
Slovakia (SK)	11.4	13.7	**1.4**	**4.6**
Estonia (EE)	**1.3**	**1.8**	3.9	12.7
Lithuania (LT)	3.7	2.5	4.2	6.9
Latvia (LV)	**0.9**	**0.3**	3.1	6.7
Average	11	12.7	5.8	21.1

The key interest of the paper lies in whether the atypical employment status of the partner influences own atypical employment. EU-SILC provides a household grid including a partner ID for all partnered individuals within the dataset, so that information on partners' characteristics can be derived from the data. The key independent variable is a multi-category variable on partner employment status. This includes the categories self-employment, permanent employment, temporary employment and non-employment for regressions on temporary employment, and the categories self-employment, full-time employment, part-time employment and non-employment for regressions on part-time employment[7].

[7]As a robustness check (Appendix, Tables A7/A8) regressions were also run on a more detailed variable with categories self-employment, permanent full-time employment, permanent part-time employment, temporary full-time employment, temporary part-time employment and non-employment. Results are substantially similar.

The analysis also accounts for various factors that may explain a relationship between own and partner atypical employment. To capture shared household characteristics, dummy variables for own children (aged 0-5 or 6-17) and an individual requiring care (due to old age or illness) in the household are included. Ideally, the analysis would also account for shared local restrictions based on regional data. However, in EU-SILC, data on regions is only provided at the rudimentary NUTS-1 level (in many countries encompassing the entire country) and is missing for four countries (Germany, Netherlands, Serbia, Portugal). Therefore, data on local labour market or other characteristics cannot be included.

Finally, the theoretical framework highlighted the potential influence of partner resources on employment status. Several variables capture the partner's financial and social resources, in both an absolute and relative measure. Indicators for education include an absolute measure of the partner's level of education (categories primary and lower secondary education, upper secondary education, post-secondary non-tertiary education and tertiary education) and a relative measure indicating whether partner education is higher than own education. For the indicator of partner occupational status, the International Socio-Economic Index of occupational status (ISEI) (De Graaf, Treiman and Ganzeboom, 1992) is used, divided into thirds based on the national ISEI distribution. Again, this includes an absolute measure (bottom third, middle third, upper third) and a relative measure indicating when partner ISEI is higher than own ISEI[8]. Finally, partner's earnings are calculated as gross earnings in the reference year and divided into quintiles of the distribution (categories first quintile, second quintile, third quintile, fourth quintile, fifth quintile)[9]. Relative measures of earnings are not used given that there may be reverse causality between own earnings in the past year and atypical employment.

[8] Where the partner is currently not in employment, the ISEI refers to the last main job.
[9] I would like to thank Tim Goedemé for the provision of code to generate variables on annual earnings in EU-SILC.

In addition, a number of controls are included at individual level. These include age (categories 16-24, 26-40, 41-55 and 56-64), education (categories primary and lower secondary education, upper secondary education, post-secondary non-tertiary education and tertiary education), foreign birth, years spent in paid work and unemployment in the past 12 months. Job-level variables include industry (extractive services, construction, trade, accommodation and food services, professional services, public services and other services[10]), the firm having 10 employees or less and own ISEI, based on the third in the ISEI distribution the individual is placed in[11]. All models are run separately by gender. Tables A1 and A2 in the Appendix show the distribution of variables included in the analysis by atypical employment status and gender.

The analysis proceeds in two stages. In a first step, general patterns across European countries are examined using pooled models of all countries. Logistic regressions with either temporary or part-time employment as dependent variable are used to determine the likelihood of being atypically employed dependent on partner employment status and other characteristics. In addition, all models include country fixed effects to control for differences across countries.

In a second step, the analysis is refined further to determine whether there are commonalities across European countries in the patterns identified. To this end, the country fixed effects are interacted with the key explanatory variable. This approach allows for examining heterogeneity across countries in effects while avoiding the small-n problems associated with multi-level modelling applied to models with a relatively small number of countries (Möhring, 2012). As

[10] The categorization is based on NACE Rev. 2: Extractive services – NACE A-E; Construction – NACE F; Trade, accommodation and food services – NACE G-I; professional services – NACE J-N; public services – NACE O-Q; other services – NACE R-U

[11] There may also be some overlap between temporary and part-time employment. A robustness check additionally controlling for the respective other type of atypical employment does not show substantially different results (Appendix, Table A12/A13).

a robustness check, the regressions are also run for all countries separately (Appendix, Figure A1/A2). The results are generally in line with those from the pooled model.

In line with the two previous contributions examining a similar research question (De Lange, Wolbers and Ultee, 2013; Grotti and Scherer, 2014), this analysis employs cross-sectional data. This allows for establishing a detailed, thorough account of the association between partner and own atypical employment across a large sample of European countries, a phenomenon that is understudied in previous literature. While the analysis cannot claim to uncover any causal links, a careful descriptive analysis is an important first step in establishing empirical regularities.

However, it should be noted that with the given sample, two selection problems may arise. First, the analysis focuses on individuals in (dependent) employment, excluding individuals who are unemployed or inactive. As a robustness check, a multinomial logistic regression was carried out (Appendix, Table A5/A6), modelling the effect of partner atypical employment not only on own atypical relative to standard employment, but also unemployment and inactivity. The results of this more complex analysis are not substantially different to those presented in the main body of this paper. For ease of interpretation, the discussion focuses on the simpler logistic regressions. Second, given the research question, the sample includes only partnered individuals. Within the research context examined, statistical methods for selection correction (e.g. Heckman, 1979) can arguably not be applied, given the lack of suitable instruments. As such, some risk of selection bias remains. Nevertheless, as stressed by Grotti and Scherer (2014), the exclusion of singles from the sample likely leads to an underestimation of the partner effect, rather than an overestimation. In this sense, the issue of bias arising from limiting the sample to couples should be limited.

4 Regression results: the concentration of atypical employment in couples

Are different types of atypical employment concentrated in couples?

Tables 2 and 3 show descriptive statistics on the proportion of atypically employed individuals by partner employment status for the pooled sample of European countries. Among individuals with a partner in temporary employment, the share of temporarily employed is much higher than for other individuals in the sample, pointing to a possible concentration of temporary employment in couples. Similarly, the percentage of employees working part-time is higher among those with a partner working part-time. However, the relative difference in shares is less pronounced than for temporary employment.

Table 2: Temporary employment by partner employment status, employees 16-64, pooled sample

Partner employment status	Temporary employment (%)	
	Men	Women
Self-employed	7	9.8
Employee Permanent	5.6	8.8
Employee Temporary	26	36.9
Non-employed	10.8	13.6

Note: Estonia, Latvia, Iceland, Sweden, Denmark, Norway, Finland and the Netherlands are excluded from the pooled sample.

Table 3: Part-time employment by partner employment status, employees 16-64, pooled sample

Partner employment status	Part-time employment (%)	
	Men	Women
Self-employed	4.9	35.6
Employee Full-time	3.9	33
Employee Part-time	8.8	53.5
Non-employed	5.3	32.9

Note: Romania, Serbia, Iceland, Slovakia and Czech Republic are excluded from the pooled sample.

As described, logistic regressions are used to further explore these results. Models begin with a base model including only partner employment status, and then progressively add individual characteristics, household characteristics, and partner resources, in either the absolute or relative measure. In this way, the extent to which individual, household and partner characteristics account for the unadjusted association observed can be examined. Results are reported as Average Marginal Effects (AME) to facilitate comparability across models (Mood, 2010). Table 4[12] shows the results of regressions on temporary employment for the pooled European sample, separately for men and women[13]. In the base model (M0), relative to the partner being permanently employed, having a partner in temporary employment increases the probability of own temporary employment for both men (AME 14.6%) and women (AME 19.7%). Having a non-employed partner also increases the probability of own temporary employment.

The AMEs of partner temporary employment are significantly reduced – by 37% to 9.2% for men and by 36.6% to 12.5% for women – once individual characteristics are accounted for (M1). This indicates that composition effects play a significant role: individuals with partners in temporary employment themselves have characteristics predisposing them to temporary employment. However, this analysis cannot clearly disentangle whether this composition effect results from homogamy or partner resources, as individual characteristics are only observed after partnership formation. Either way, however, temporary employment is concentrated in couples partly because individuals with partners in temporary employment exhibit characteristics predisposing them to being temporarily employed themselves, whether acquired prior to or after partnership formation. The addition of household characteristics (M2) and

[12] The full regression results are shown in the Appendix, Table A3/A4. For completeness, these models also include the results when partner resources are added successively to the model.

[13] Regressions are weighted so that each country counts equally. As a robustness check, the Appendix shows regressions for temporary (Table A9) and part-time employment (Table A10) with weighting according to population size, with similar results.

absolute or relative partner resources (M3/M4) only marginally changes the AMEs of partner temporary employment. Children reduce the likelihood of temporary employment, as does the partner having a higher occupational status, providing some indication that higher partner social capital may enable individuals to obtain permanent employment, as previously theorized. However, overall partner resources play a marginal role.

The results match the findings of De Lange, Wolbers and Ultee (2013) and Grotti and Scherer (2014), who also find a persisting effect of partner temporary employment on own temporary employment after accounting for compositional effects, shared restrictions and partner effects. Unobserved characteristics of partners, such as ability, as well as their influence on the partner's labour supply, may explain this persisting association. Moreover, local labour market conditions may play a significant role (Gregg, Scutella and Wadsworth, 2009; Horemans, 2016). If partners live in regions with higher rates of temporary employment or systems of low employment protection legislation encouraging employers to hire on a temporary basis (Biegert, 2019), this could increase the likelihood of temporary employment for both partners. In their previous analysis, Grotti and Scherer (2014) found that local conditions play little role in explaining the concentration of temporary employment in couples. However, their analysis of six Western European countries accounts for local factors only in the form of rudimentary NUTS-1 regional indicators, which likely do not cover all regional heterogeneity.

Table 4: Results of logistic regressions on temporary employment, average marginal effects, employees 16-64, pooled sample of European countries

	Men					Women				
VARIABLES	M0	M1	M2	M3	M4	M0	M1	M2	M3	M4
Partner's employment status (ref = Employee - Permanent)										
Self-employed	0.007	0.011	0.011	0.010	0.010	-0.001	0.008	0.009	0.009	0.009
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Employee - Temporary	0.146**	0.092**	0.090**	0.089**	0.089**	0.197**	0.125**	0.123**	0.122**	0.122**
	(0.011)	(0.009)	(0.009)	(0.009)	(0.009)	(0.015)	(0.012)	(0.012)	(0.012)	(0.012)
Not in employment	0.042**	0.024**	0.025**	0.031**	0.024**	0.027**	0.020**	0.019**	0.026**	0.018**
	(0.005)	(0.004)	(0.004)	(0.007)	(0.004)	(0.006)	(0.006)	(0.006)	(0.009)	(0.006)
Own children age 1-5 in household			-0.006	-0.006	-0.006			-0.021**	-0.021**	-0.021**
			(0.005)	(0.005)	(0.005)			(0.005)	(0.005)	(0.005)
Own children age 6-17 in household			-0.008*	-0.008*	-0.008*			-0.007	-0.007^	-0.007^
			(0.004)	(0.004)	(0.004)			(0.004)	(0.004)	(0.004)
Person with care need (old age/illness) in household			-0.004	-0.004	-0.004			-0.009	-0.008	-0.009
			(0.007)	(0.007)	(0.007)			(0.009)	(0.009)	(0.009)
Partner's education (ref = Primary and lower secondary)										
Upper secondary				-0.004					-0.004	
				(0.006)					(0.006)	
Post-secondary non-tertiary				-0.022*					-0.031*	
				(0.010)					(0.013)	
Tertiary				-0.007					0.002	
				(0.007)					(0.007)	
Partner's ISEI (ref = lower third)										
Middle third				-0.012**					-0.001	
				(0.005)					(0.005)	
Upper third				-0.003					-0.014*	
				(0.005)					(0.006)	
Partner's earnings (ref = first quintile)										
Second quintile				0.002					0.007	
				(0.007)					(0.011)	
Third quintile				0.012^					0.014	
				(0.006)					(0.009)	
Fourth quintile				0.004					0.011	
				(0.007)					(0.009)	
Fifth quintile				0.014^					0.012	
				(0.008)					(0.009)	
Partner's education higher than own					-0.006					-0.007
					(0.005)					(0.006)
Partner's ISEI higher than own					-0.009^					-0.008
					(0.005)					(0.005)
Observations	47,163	47,163	47,163	47,163	47,163	44,449	44,449	44,449	44,449	44,449

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on temporary relative to permanent employment. Estonia, Latvia, Iceland, Sweden, Denmark, Norway, Finland and the Netherlands are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models except M0. Country fixed effects included in all models.

Table 5 shows analogous models for part-time employment. Contrary to the theoretical expectation, the partner being employed part-time (relative to full-time) is associated with a higher probability of own part-time employment. However, the scale of the effect is smaller than for temporary employment. In the base model (M0), the AME on partner part-time employment is 2.8% for men and markedly larger for women, at 9.4%. The effect of partner part-time employment remains statistically significant and substantially similar in size once own characteristics (M1), shared household restrictions (M2) and partner resources (M3/M4) are added to the model. Nevertheless, household characteristics and partner resources do affect the likelihood of part-time employment, particularly for women. Caring responsibilities and children (for women) increase the likelihood of part-time employment, as do high partner earnings. For women, the partner having a relatively higher occupational status also has a significant positive effect on own part-time employment. Hence, in contrast to the case of temporary employment, the partner having high social and financial resources *increases* the likelihood of part-time employment.

Overall, partner part-time employment and resources influence the propensity of part-time work more strongly for women than for men. The results match those of previous research finding that superior partner resources increase women's propensity to work part-time (Henz and Sundström, 2001; Verbakel and de Graaf, 2009; Kanji, 2011). As set out earlier, part-time work is predominantly taken up by women, particularly in the context of domestic caring responsibilities. Within the context of this gendered division of labour, women's propensity to take up part-time work appears to be more strongly driven by partner context than that of men. Nevertheless, partner characteristics cannot explain the accumulation of part-time work in couples for either gender.

Table 5: Results of logistic regressions on part-time employment, average marginal effects, employees 16-64, pooled sample of European countries

	Men					Women				
VARIABLES	M0	M1	M2	M3	M4	M0	M1	M3	M4	M6
Partner's employment status (ref = Employee Full-time)										
Self-employed	0.008	0.011	0.011	0.016*	0.012^	0.048**	0.040**	0.036**	0.053**	0.037**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Employee - Part-time	0.028**	0.028**	0.029**	0.041**	0.030**	0.094**	0.090**	0.092**	0.124**	0.095**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.016)	(0.016)	(0.015)	(0.016)	(0.015)
Not in employment	0.011**	0.006	0.006	0.019**	0.008^	0.020^	-0.027**	-0.017^	0.020	-0.015
	(0.004)	(0.004)	(0.004)	(0.007)	(0.004)	(0.010)	(0.009)	(0.009)	(0.014)	(0.009)
Own children age 1-5 in household			-0.007	-0.007	-0.007			0.150**	0.149**	0.150**
			(0.005)	(0.005)	(0.005)			(0.008)	(0.008)	(0.008)
Own children age 6-17 in household			-0.004	-0.004	-0.004			0.109**	0.106**	0.109**
			(0.004)	(0.004)	(0.004)			(0.006)	(0.006)	(0.006)
Person with care need (old age/illness) in household			0.016*	0.017*	0.017*			0.045**	0.049**	0.046**
			(0.007)	(0.007)	(0.007)			(0.014)	(0.014)	(0.015)
Partner's education (ref = Primary and lower secondary)										
Upper secondary				-0.004					-0.010	
				(0.005)					(0.009)	
Post-secondary non-tertiary				-0.003					-0.006	
				(0.009)					(0.019)	
Tertiary				0.010					-0.001	
				(0.007)					(0.011)	
Partner's ISEI (ref = lower third)										
Middle third				-0.003					0.007	
				-0.004					-0.008	
Upper third				0.005					0.012	
				-0.005					-0.009	
Partner's earnings (ref = first quintile)										
Second quintile				-0.006					-0.030	
				(0.006)					(0.018)	
Third quintile				0.001					0.002	
				(0.006)					(0.016)	
Fourth quintile				0.011					0.016	
				(0.007)					(0.016)	
Fifth quintile				0.026**					0.066**	
				(0.009)					(0.016)	
Partner's education higher than own					0.007					0.010
					(0.004)					(0.008)
Partner's ISEI higher than own					0.006					0.024**
					(0.004)					(0.008)
Observations	49,664	49,664	49,664	49,664	49,664	47,042	47,042	47,042	47,042	47,042

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on part-time relative to full-time employment. Romania, Serbia, Iceland, Slovakia and Czech Republic are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models except M0. Country fixed effects included in all models.

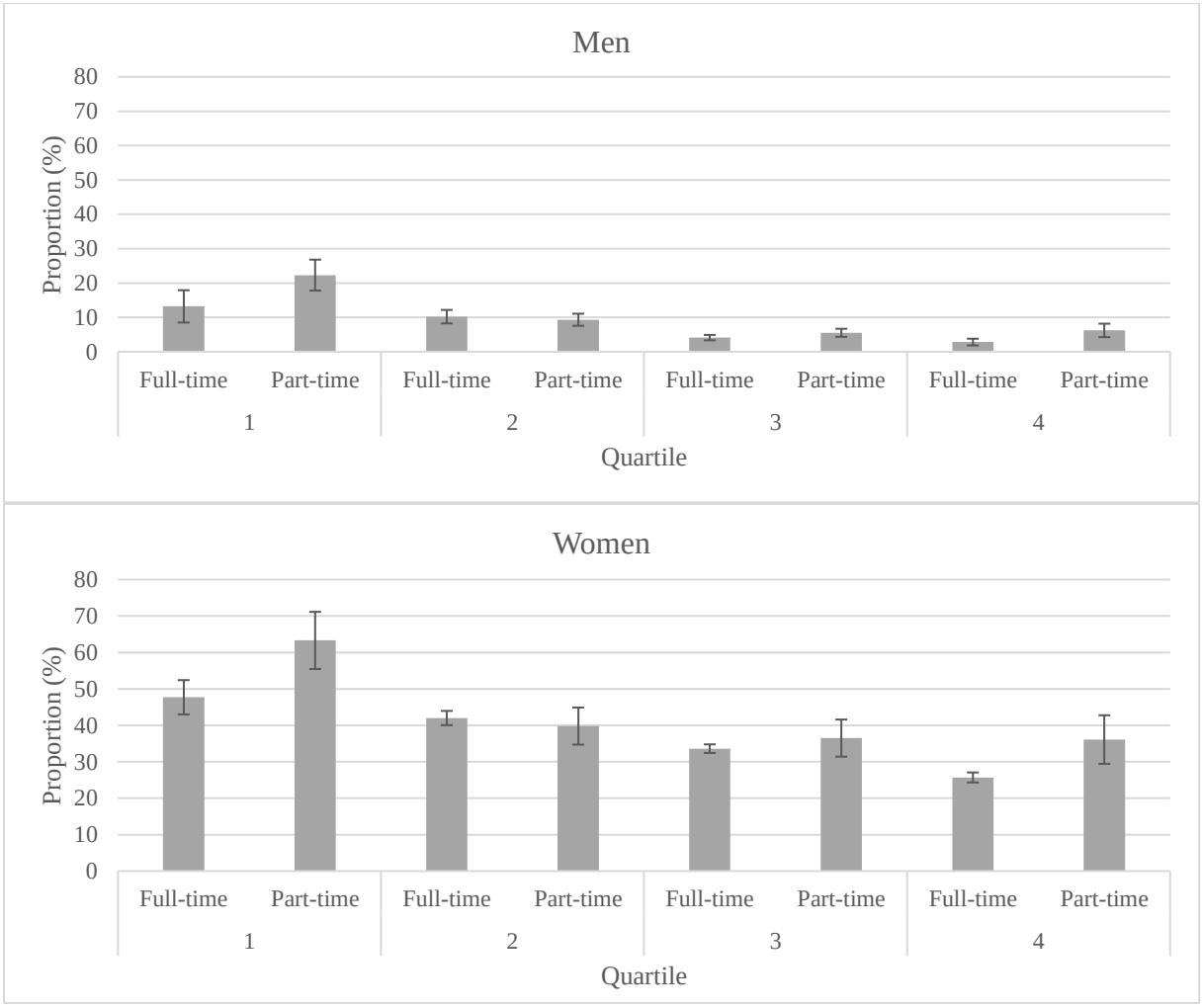
Contrary to expectation, there is evidence for accumulation of part-time work within couples. Yet the patterns of part-time accumulation observed are not entirely consistent with the classical accumulation scenario as set out in the theoretical section. Rather than decreasing the probability of part-time employment, higher partner resources increase it, particularly for women. In addition, when accounting for partner earnings in the model, the effect of partner part-time employment on own employment increases for both genders, suggesting that dual part-time work is more likely where partner financial resources are similar. These patterns are consistent with the household specialization scenario, rather than the accumulation of part-time work in couples.

As has been observed in the literature on part-time employment, is it increasingly a dualized form of work (Nicolaisen, Kavli and Steen Hensen, 2019). Part-time work includes both highly-skilled, high-waged employment and jobs within the secondary labour market associated with low pay, inferior working conditions and substantial labour market disadvantage (Tilly, 1992). Part-time workers at the bottom of the income distribution are likely situated in lower-quality, secondary part-time jobs associated with substantial labour market disadvantage, whereas this is not the case for part-time workers at the top of the income distribution (Westhoff, 2022). It is conceivable that the accumulation of part-time work within couples depends on the type of part-time work they find themselves in.

To explore this further, an auxiliary analysis was conducted running the regression analysis depending on the quartile of the national joint income distribution couples are situated in. Figure 1 shows the predicted probability of own part-time employment by partner employment status and the couple's position in the national income distribution, based on Model 3, excluding partner earnings (the full results are shown in the Appendix, Table A14). A striking pattern emerges: Accumulation of part-time work is observed at the extremes of the income

distribution, but not in the middle. Though the absolute likelihood of part-time work is much higher for women, this pattern is observed for both genders. An equivalent analysis for temporary employment showed no such difference in patterns across the income distribution (Appendix, Table A15).

Figure 1: Predicted probability of part-time employment by partner employment status and couple's placement in the national income distribution, employees 16-64, pooled sample of European countries, upper panel men, lower panel women



Note: Predicted probabilities calculated based on model 3, separately depending on couple's position in the national distribution of working age couples' income. Quartile 1 is the bottom quartile of the national distribution of working age couples' income. Quartile 4 is the top quartile of the national distribution of working age couples' income. 95% Confidence Intervals included.

On the one hand, within low-earning couples – those in the bottom quartile of the couple income distribution - having a partner who is employed part-time substantially increases the likelihood of own part-time work. On the other hand, though the overall probability of part-time work

decreases with income, accumulation of part-time work is also observed in high-earning couples in the top quartile. The regression results (Appendix, Table A14) also show that at the bottom of the income distribution, the partner's education and ISEI largely do not affect the likelihood of part-time work, while higher partner education and ISEI increase the likelihood of part-time work for high-earning couples. This lends support to the conclusion that accumulation of part-time work at the bottom and top of the income distribution is driven by different mechanisms. For low-paid part-time workers, disproportionately located in secondary part-time jobs, dual part-time work is likely driven by similar mechanisms as the accumulation of temporary employment observed and can be interpreted as an expression of labour market disadvantage. In comparison, high-earning part-time couples may take-up part time work when they can afford to do so, with both partners sharing domestic and labour market work. In this case, part-time work is facilitated when partners have higher occupational status and earnings. Given the small share of part-time work at the top of the income distribution, this is likely a small and highly selected share of the overall population.

In contrast, in the second and third quartile of the income distribution, having a partner who works part-time does not affect the likelihood of own part-time work. Hence, couples with a middling income show patterns that are, if anything, more consistent with the household specialization scenario set out in the theoretical framework, where part-time work does not accumulate in couples. These results illustrate that part-time work is a highly heterogeneous form of work, and patterns of part-time work in couples reflect this.

Does atypical employment come in couples across different European countries?

As a supplementary analysis, models with country-partner employment interactions were run to explore in how far the European pattern is common across national contexts. Figure 2 shows

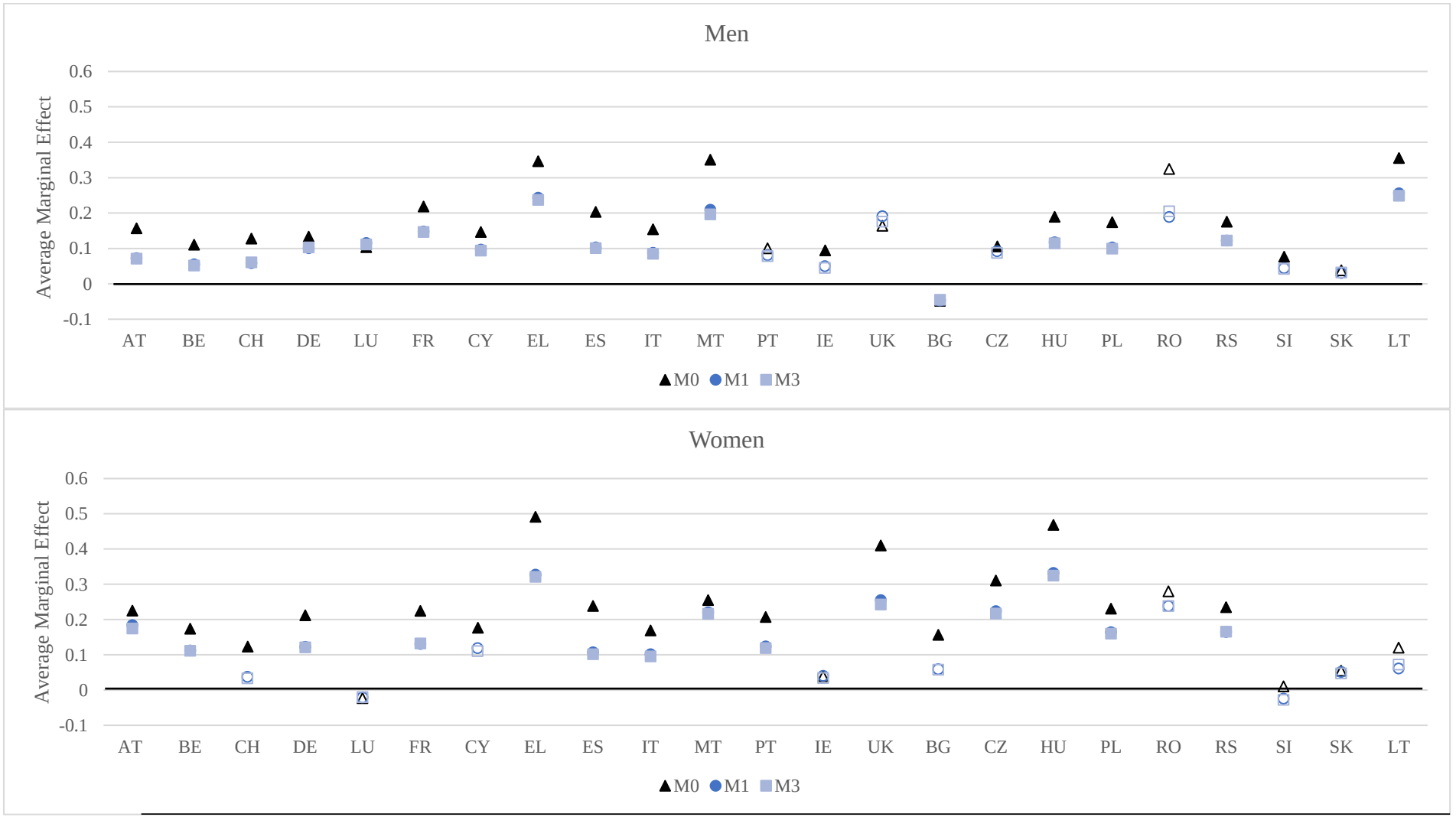
the AME of the partner being in temporary (relative to permanent) employment on own temporary employment across countries, for the unadjusted model (M0), the model controlling only for own characteristics (M1) and the full model (M3). When not adjusting for individual characteristics, partner temporary employment is significantly associated with own temporary employment in almost all countries, for both genders. These effects largely remain significant once accounting for individual characteristics (M1) and household characteristics and partner resources (M3).

The most systematic deviation from this common pattern is seen in some Eastern European countries (Bulgaria, Czech Republic, Romania, Slovenia, Slovakia, Lithuania) where the association is statistically insignificant (for one or both genders) or negative (for men in Bulgaria only). In Eastern Europe, temporary employment expanded later than elsewhere in Europe during the post-socialist transition, and it remains a marginal form of employment in several Eastern European countries (Gebel, 2008). This may explain the insignificant association. Nevertheless, there are other Eastern European countries where temporary employment is prominent and there are large and significant associations between partner and own temporary employment, such as Hungary and Poland. Apart from Eastern European countries, effects tend to be positive and significant in almost all countries.

Overall, the common European pattern does hold up across national contexts. While there is some variation in the effect size of partner temporary employment, there appears to be no systematic country pattern. On the one hand, large effects of partner temporary employment are observed in some Southern European countries, particularly Greece. This may be a result of the higher incidence of temporary employment and strongly dualized labour market structures in Southern Europe, and matches the results of previous research (Grotti and Scherer, 2014). On the other hand, there are also large effect sizes for women in the UK, where temporary

employment is rare. Given the relatively small proportion of temporarily employed individuals in the UK, the finding may be driven by a high selectivity.

Figure 2: AME of partner temporary employment on own temporary employment, upper panel men, lower panel women, employees 16-64

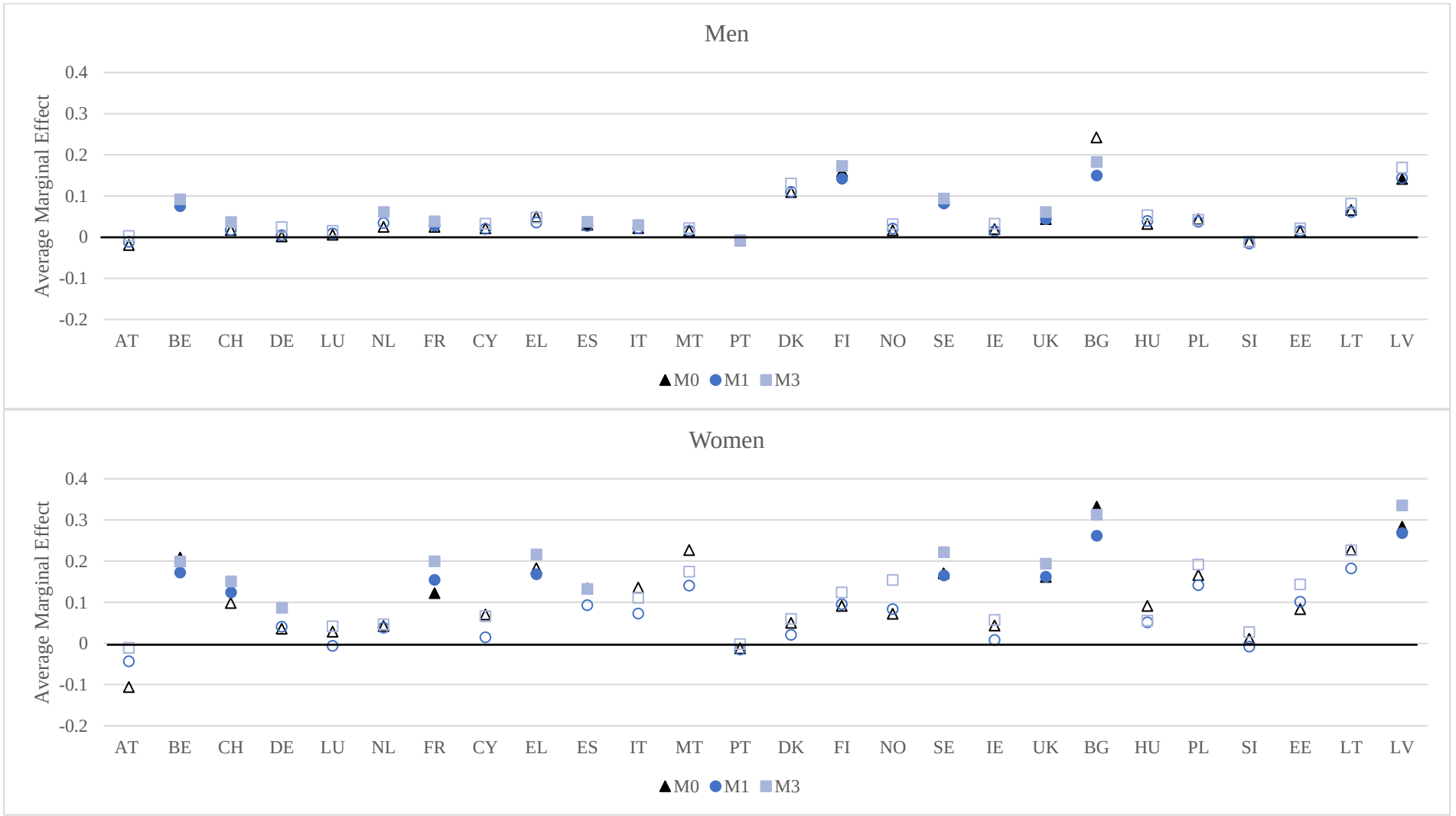


Note: Graphs shows average marginal effects on partner temporary employment relative to partner being in permanent employment. Hollow dots indicate insignificance at significance level 5%. Additional variables included in the model are age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI, young children in household, old children in household, caring responsibility due to old age/illness for someone in the household for M1, as well as partner's education, ISEI and earnings for M3. To aid the reading of graphs, countries are grouped according to their institutional characteristics (Esping-Andersen, 1990).

Analogous to Figure 2, Figure 3 shows the AME of the partner being a part-time employee, relative to them being a full-time employee, on own part-time employment for all countries. Compared to temporary employment, there is more country variation in the patterns, and a larger number of countries where no significant association between partner and own part-time employment is found.

For both men and women, the unadjusted model shows a significant positive effect of partner part-time employment on own part-time employment in only a handful of countries – Belgium, Spain, the UK and Latvia, as well as France and Bulgaria for women only, and Finland and Sweden for men only. Interestingly, the effect of partner part-time employment becomes significant in more countries when controlling for individual characteristics (M1) and, particularly, household characteristics and partner resources (M3). This is especially the case in Western European countries - including Switzerland, France, Germany and the Netherlands – but also elsewhere. One outlier is Portugal, where for men, partner part-time employment significantly decreases the probability of own part-time work.

Figure 3: AME of partner part-time employment on own part-time employment, upper panel men, lower panel women, employees 16-64



Note: Graphs show average marginal effects on partner part-time employment relative to partner being in full-time employment. Hollow dots indicate insignificance at significance level 5%. Additional variables included in the model are age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI, young children in household, old children in household, caring responsibility due to old age/illness for someone in the household for M1, as well as partner's education, ISEI and earnings (M3). To aid the reading of graphs, countries are grouped according to their institutional characteristics (Esping-Andersen, 1990).

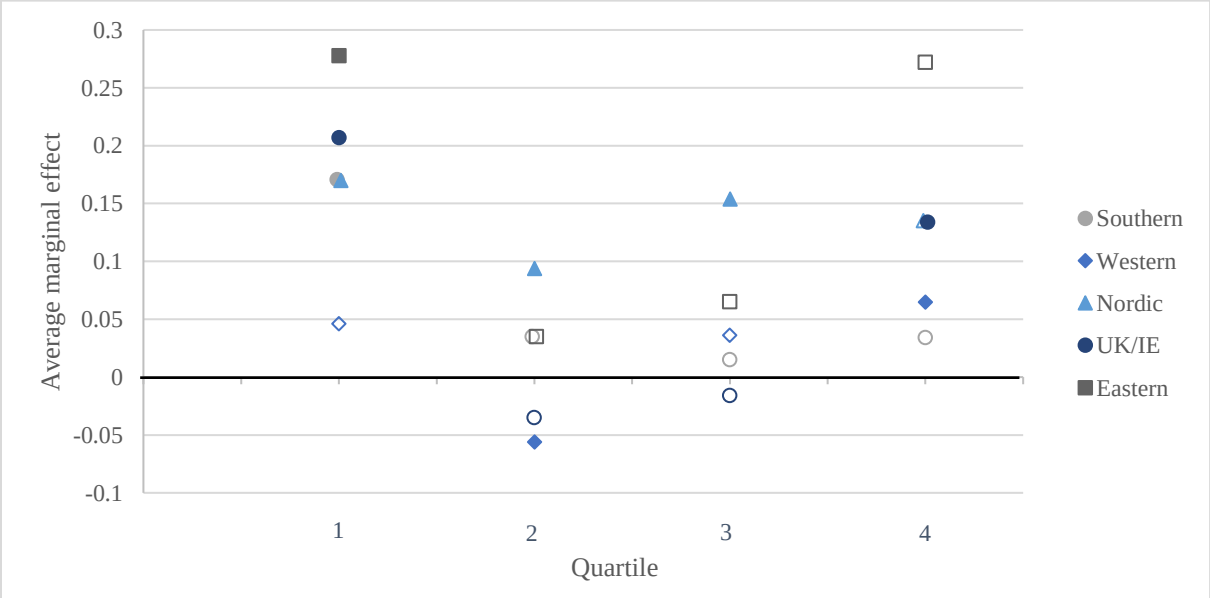
Generally, the most systematic pattern of association between own and partner part-time employment is found in Western European countries, including Belgium, Switzerland, Germany, the Netherlands and France. In Western European countries, part-time work tends to be well-established and well-protected (Nicolaisen, Kavli and Steen Hensen, 2019), and as shown in the descriptive statistics, these countries are where shares of part-time employment are largest across Europe. This is also the case for some other countries where positive associations are found, including select Nordic countries (Sweden, Finland) and the UK. In countries where part-time employment is a more prominent labour market phenomenon, accumulation of part-time employment may be more likely to be observed. It is also interesting to note that in some of the countries in this group, the accumulation of part-time work is only found once household characteristics and partner resources are controlled for. This suggests that dual part-time work is more likely when partner resources are similar – that is to say, when household specialization is less advantageous, as one partner is not significantly more successful in the labour market.

However, a positive association between own and partner part-time employment is also found in two Eastern European countries (Bulgaria and Latvia), as well as in several Southern European countries (Greece, Spain and Italy). In Southern and Eastern European countries, shares of part-time work are lower and involuntary part-time work is considerably more common than in Western and Northern Europe (Nicolaisen, Kavli and Steen Hensen, 2019). The pooled analysis showed that dual part-time work occurs not only among high-earning couples, but also within low-earning couples, where it is more likely to be associated with substantial disadvantages. It is conceivable that this phenomenon is more prominent in Southern and Eastern European countries, where part-time work is a more marginalized employment relationship than elsewhere. In contrast, the accumulation of part-time employment within higher-earning couples, which was also found in the pooled sample, may be more likely to

occur in a context where part-time work is well-established within labour markets, and thus less likely to be associated with inferior working conditions and incomes, as is the case in Western European countries.

To explore this pattern further, the models presented earlier, looking at effects across the income distribution, were enriched with an interaction between partner employment status and the country cluster. Figure 4 presents the results of this analysis, showing the average marginal effect of partner part-time employment on own part-time employment by couples' position in the income distribution and the country cluster (models are pooled for men and women to increase sample sizes). Country clusters are defined based on geographical location as well as institutional similarities (Esping-Andersen, 1990; Soskice and Hall, 2001).

Figure 4: Average marginal effect of partner part-time employment on own part-time employment by couple's position in the income distribution and country cluster



Note: Average marginal effects based on model 1, separately depending on couple's position in the national distribution of working age couples' income. Quartile 1 is the bottom quartile of the national distribution of working age couples' income. Quartile 4 is the top quartile of the national distribution of working age couples' income. The Southern country cluster includes Cyprus, Spain, Greece, Italy, Malta and Portugal. The Western cluster includes Austria, Belgium, Switzerland, Germany, France, Luxembourg and the Netherlands. The Nordic Cluster includes Denmark, Finland, Sweden and Norway. The Eastern European cluster includes Bulgaria, Hungary, Poland, Slovenia, Estonia, Lithuania and Latvia. 95% Confidence Intervals included.

As can be seen, there is some difference along the couple income distribution by country cluster. Specifically, in Southern and Eastern European countries, a positive association between partner and own part-time employment is only found within low-earning couples in the bottom quartile of the income distribution. In contrast, in Western European countries, there is no or even a negative association within the lower half of the income distribution, with accumulation of part-time employment only found within high-earning couples in the top quartile of the income distribution. The Nordic countries and the UK and Ireland – treated separately due to their distinct labour market regimes – are intermediate cases where a positive association between partner and own part-time employment is found both at the bottom and the top of the income distribution. The Appendix (Figure A3) shows an equivalent analysis for temporary employment. While there are differences in the size of effects, a significant association between own and partner temporary employment is generally apparent across the income distribution across clusters.

This additional analysis, while exploratory in nature, therefore does offer some support for the intuition formulated. In countries where part-time work is a marginalized form of employment, as is the case in Southern and Eastern Europe, accumulation of part-time work in couples occurs at the bottom of the income distribution and is likely associated with labour market disadvantage. In contrast, in Western Europe, where part-time work is more institutionalized and protected, it occurs within high-earning couples, who can likely afford a dual part-time division of labour.

5 Conclusion

This paper has provided a detailed account of the relationship between partner and own atypical employment. Two competing theoretical scenarios were set out: an accumulation scenario,

where partners reinforce each other's labour market outcomes and atypical employment is concentrated in couples; and a compensation scenario, where partners engage in household specialization and atypical employment is not concentrated in couples. The association between partner and own atypical employment was examined looking at a sample of 29 European countries, using EU-SILC 2016 data.

The results for temporary employment show strong support for the accumulation scenario, as partner temporary employment substantially increases the likelihood of own temporary employment. This association is partially driven by composition effects: individuals with partners in temporary employment have characteristics that predispose them to such employment. In general, this pattern was consistent across European countries, with country variation observed rather idiosyncratic. The persistent effect of partner temporary employment suggests that there are factors driving the accumulation of temporary employment in couples unaccounted for in the analysis. One potential explanation is that local labour market conditions significantly influence the likelihood of temporary employment. If so, addressing such regional disparities may be an important policy priority, given the known disadvantages associated with temporary employment.

As regards part-time employment, the empirical analysis similarly found evidence for an association between partner and own part-time employment, although the size of the effect is smaller than for temporary employment. However, contrasting with the accumulation scenario, higher partner resources in the form of occupation and earnings increase the likelihood of part-time employment, particularly for women. Further investigation showed evidence for polarization in the accumulation of part-time employment, which occurs only within low-earning and high-earning couples. In contrast, couples in the middle of the income distribution show working patterns consistent with household specialization theory. Hence, on the one hand,

part-time work accumulates in low-earning couples, who are likely in lower-quality jobs in the secondary labour market sector, and for whom such accumulation may be associated with considerable labour market disadvantage. On the other hand, there also appears to be a dual part-time scenario feasible for high-earning couples with high resources.

Moreover, the observed accumulation of part-time employment in couples was found most systematically in Northern and Western European countries, where part-time work is an established and generally well-protected labour market phenomenon. Nevertheless, there are also several Southern and Eastern European countries where a positive relationship between own and partner part-time employment was found. An auxiliary analysis showed that in these countries, where part-time work is less common and frequently involuntary, accumulation of part-time work occurs mainly among low-earning couples. In contrast, in Western European countries, a positive association between partner and own part-time employment is found only among high-earning couples. The Nordic countries and the UK and Ireland were intermediate cases, with positive associations found at the bottom and top of the couple income distribution.

There are several avenues to further extend this research. First, this article has provided a comprehensive and detailed account of the association between own and partner atypical employment across a large number of countries and provided some exploratory discussion of country differences in patterns. However, a formal investigation of the country-specific patterns found is left to future research. In particular, patterns found with regard to part-time employment warrant further in-depth analysis using country-specific data. Second, due to the use of cross-sectional data, the analysis could not precisely untangle the effects of individual characteristics from those of partner resources, as the period before partnership formation is unobserved. Using long-range panel data to track individuals' labour market careers and patterns of atypical employment before and from partnership formation would be a potential

extension of this paper. In this context, disaggregated national longitudinal data could also consider regional information to explore whether local conditions account for the concentration of temporary employment, in particular, in couples.

Overall, these results underline that rather than focusing only on factors at the individual level, future research on atypical employment should take into account couples. Couple dynamics may play an important role in the determinants of atypical employment and could have significant economic and social consequences. Indeed, if the accumulation of atypical employment within couples leads to significant material disadvantages for these groups, this is an important issue for policy to address.

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Appendix

Table A1: Distribution of variables by temporary employment status, employees 16-64, weighted sample

Variable	Men		Women	
	Permanent	Temporary	Permanent	Temporary
Age				
16-24 (%)	1.8	5.2	3	8.2
26-40 (%)	31.9	47.4	345	48.9
41-55 (%)	50.6	36.9	51	36.8
56-64 (%)	15.7	10.5	11	6.1
Education				
Primary and lower secondary education (%)	15.4	25.7	12.8	18.8
Upper secondary education (%)	44	45.3	39.4	42.4
Post-secondary non-tertiary education (%)	3.4	3.1	6	4
Tertiary education (%)	37.2	25.8	41.8	34.8
Foreign birth (%)	11.3	17.7	11.3	15.9
Years in paid work (mean)	18.2	23.7	13.9	20.2
Unemployment in the past 12 months (%)	1.9	23.7	1.7	24.1
Industry				
Extractive services (%)	37.9	42.3	14.9	16.7
Construction (%)	23.4	22.3	21.5	25.1
Trade, accommodation and food services (%)	15.8	11.3	15.8	11.5
Professional services (%)	20.3	19.7	43.3	40.2
Public services and other services (%)	2.6	4.4	4.6	6.5
Small firm (%)	16.2	21.7	22.8	28.1
ISEI				
Lower third (%)	24.9	37.6	31.1	48
Middle third (%)	37.9	39.7	31.7	25.1
Upper third (%)	37.2	22.8	37.2	26.9
Own children age 0-5 in household (%)	24.3	31.4	20.7	25
Own children age 6-17 in household (%)	38.1	33.7	38.2	36.9
Person with care need in household	3.8	4.5	3.6	3.7
Partner's education				
Primary and lower secondary education (%)	13.9	19.7	15.5	21.3
Upper secondary education (%)	39.9	42.1	44.1	46.7
Post-secondary non-tertiary education (%)	6.2	4.3	3.3	2.1
Tertiary education (%)	40.1	33.8	37.2	29.8
Partner's ISEI				
Lower third (%)	35.1	47	26.2	33.3
Middle third (%)	31.1	25.3	37.2	40.2
Upper third (%)	33.8	27.7	36.7	26.6
Partner's earnings				
First quintile (%)	17.8	21	8.4	9
Second quintile (%)	12.3	14.6	4.3	7.4
Third quintile (%)	26.9	323	14.7	21.6
Fourth quintile (%)	24.2	19.1	29.7	30.6
Fifth quintile (%)	18.8	12.3	42.3	31.4
Partner's education higher than own	21.2	22.3	16.9	16
Partner's ISEI higher than own	22.7	26.1	28.6	32.6

Table A2: Distribution of variables by part-time employment status, employees 16-64, weighted sample

Variable	Men		Women	
	Full-time	**Part-time**	**Full-time**	**Part-time**
Age				
16-24 (%)	2.3	3	4.5	2.5
26-40 (%)	33.8	28	38.8	32.3
41-55 (%)	49.1	42.1	46.8	51.8
56-64 (%)	14.9	26.7	9.9	13.5
Education				
Primary and lower secondary education (%)	16.1	21.8	11.2	16.9
Upper secondary education (%)	42.2	37.5	34.9	42.3
Post-secondary non-tertiary education (%)	3.4	4.4	4.6	7.5
Tertiary education (%)	38.4	36.3	49.3	33.4
Foreign birth (%)	12.4	20.3	11.8	15
Years in paid work (mean)	24.1	23.1	20.3	19.2
Unemployment in the past 12 months (%)	3.7	8	4.2	4.5
Industry				
Extractive services (%)	37.5	20.4	15	8.3
Construction (%)	22.8	26.5	18.9	24
Trade, accommodation and food services (%)	16.7	18.9	16.2	16.2
Professional services (%)	20.4	27.9	46	45
Public services and other services (%)	2.6	6.3	4	6.6
Small firm (%)	15.8	27.5	18.5	29.8
ISEI				
Lower third (%)	25.7	41.4	27	42.3
Middle third (%)	38.4	31.4	30.4	35.1
Upper third (%)	35.8	27.2	42.6	22.7
Own children age 1-5 in household (%)	26.1	21.5	20.7	25.5
Own children age 6-17 in household (%)	37.4	32.4	34.2	44.8
Person with care need in household	4.1	5.8	3.7	4.4
Partner's education				
Primary and lower secondary education (%)	14.1	16.3	16.1	17.1
Upper secondary education (%)	38	32.7	42.5	42
Post-secondary non-tertiary education (%)	5.8	6.4	3	3.6
Tertiary education (%)	42.1	44.7	38.5	37.4
Partner's ISEI				
Lower third (%)	35.6	37.2	25.8	32.2
Middle third (%)	31.3	29.7	37.8	36.4
Upper third (%)	33.1	33.2	36.4	31.4
Partner's earnings				
First quintile (%)	17.2	16.7	8.1	7.9
Second quintile (%)	13.9	14.9	5.7	5
Third quintile (%)	28.6	29.3	16.2	15.2
Fourth quintile (%)	23.2	21.3	30	29
Fifth quintile (%)	17.1	17.8	40.1	43
Partner's education higher than own	24.4	28	13.9	24.2
Partner's ISEI higher than own	21.7	27.9	24.9	35

Table A3: Results of logistic regressions on temporary employment, average marginal effects, employees 16-64, pooled sample of European countries, full results

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Partner's employment status (ref = Employee - Permanent)														
Self-employed	0.007	0.011	0.011	0.010	0.009	0.010	0.010	-0.001	0.008	0.009	0.008	0.008	0.009	0.009
	(0.007)	(0.008)	(0.008)	(0.008)	(0.007)	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Employee - Temporary	0.146**	0.092**	0.090**	0.090**	0.089**	0.089**	0.089**	0.197**	0.125**	0.123**	0.124**	0.122**	0.122**	0.122**
	(0.011)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.015)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Not in employment	0.042**	0.024**	0.025**	0.024**	0.024**	0.031**	0.024**	0.027**	0.020**	0.019**	0.019**	0.018**	0.026**	0.018**
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.007)	(0.004)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.009)	(0.006)
Age (ref = 16-25)														
26-39		-0.026^	-0.021	-0.021	-0.020	-0.019	-0.020		-0.024*	-0.017	-0.017	-0.016	-0.016	-0.016
		(0.015)	(0.015)	(0.015)	(0.015)	(0.014)	(0.014)		(0.012)	(0.012)	(0.012)	(0.011)	(0.011)	(0.012)
40-55		-0.028^	-0.023	-0.023	-0.023	-0.022	-0.022		-0.026*	-0.024^	-0.025*	-0.024^	-0.024^	-0.023^
		(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)		(0.013)	(0.013)	(0.013)	(0.012)	(0.012)	(0.012)
56-64		0.009	0.008	0.007	0.007	0.008	0.009		-0.000	-0.004	-0.005	-0.003	-0.003	-0.002
		(0.020)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)		(0.016)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Education (ref = Primary and lower secondary)														
Upper secondary		-0.024**	-0.025**	-0.022**	-0.022**	-0.022**	-0.025**		-0.006	-0.006	-0.004	-0.004	-0.005	-0.008
		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)		(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
Post-secondary non-tertiary		-0.027*	-0.028*	-0.021	-0.021	-0.021	-0.029*		-0.031**	-0.031**	-0.026*	-0.026*	-0.026*	-0.033**
		(0.013)	(0.013)	(0.014)	(0.014)	(0.014)	(0.013)		(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Tertiary		-0.034**	-0.034**	-0.031**	-0.031**	-0.031**	-0.037**		-0.019*	-0.020*	-0.018*	-0.017*	-0.017*	-0.022*
		(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)
Foreign birth		0.026**	0.027**	0.026**	0.025**	0.025**	0.026**		0.026**	0.026**	0.026**	0.025**	0.025**	0.025**
		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)		(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Years in work		-0.003**	-0.003**	-0.003**	-0.003**	-0.003**	-0.003**		-0.005**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Unemployment in the past 12 months		0.148**	0.148**	0.148**	0.147**	0.147**	0.147**		0.187**	0.186**	0.186**	0.185**	0.185**	0.186**
		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Industry (ref = Extractive services)														
Construction		0.022**	0.022**	0.022**	0.022**	0.022**	0.022**		-0.017	-0.016	-0.016	-0.015	-0.016	-0.016
		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Trade, accommodation and food services		-0.003	-0.003	-0.003	-0.003	-0.003	-0.003		0.001	0.001	0.001	0.002	0.002	0.001
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Professional services		0.001	0.001	0.001	0.001	0.001	0.001		-0.009	-0.009	-0.009	-0.008	-0.008	-0.009
		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)		(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)

Public services	0.031**	0.031**	0.031**	0.031**	0.031**	0.031**		0.024**	0.024**	0.024**	0.025**	0.025**	0.025**			
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)			
Other services	0.054**	0.054**	0.055**	0.055**	0.055**	0.055**		0.004	0.004	0.005	0.005	0.005	0.005			
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)		(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)			
Small firm	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004		0.001	0.001	0.001	0.001	0.001	0.001			
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)			
Supervisory position	-0.038**	-0.038**	-0.038**	-0.038**	-0.038**	-0.038**		-0.040**	-0.040**	-0.040**	-0.040**	-0.040**	-0.040**			
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)			
ISEI (ref = Lower third)																
Middle third	-0.018**	-0.018**	-0.018**	-0.017**	-0.017**	-0.020**		-0.033**	-0.032**	-0.032**	-0.031**	-0.031**	-0.035**			
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)			
Upper third	-0.033**	-0.033**	-0.033**	-0.033**	-0.033**	-0.038**		-0.041**	-0.041**	-0.040**	-0.038**	-0.038**	-0.046**			
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)			
Own children age 1-5 in household		-0.006	-0.006	-0.006	-0.006	-0.006			-0.021**	-0.021**	-0.021**	-0.021**	-0.021**			
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)			
Own children age 6-17 in household		-0.008*	-0.008*	-0.008*	-0.008*	-0.008*			-0.007	-0.007	-0.007^	-0.007^	-0.007^			
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)			
Person with care need (old age/illness) in household		-0.004	-0.004	-0.004	-0.004	-0.004			-0.009	-0.009	-0.009	-0.008	-0.009			
		(0.007)	(0.007)	(0.007)	(0.007)	(0.007)			(0.009)	(0.009)	(0.009)	(0.009)	(0.009)			
Partner's education (ref = Primary and lower secondary)																
Upper secondary			-0.005	-0.003	-0.004					-0.005	-0.003	-0.004				
			(0.006)	(0.006)	(0.006)					(0.006)	(0.006)	(0.006)				
Post-secondary non-tertiary			-0.025**	-0.021*	-0.022*					-0.034**	-0.031*	-0.031*				
			(0.010)	(0.010)	(0.010)					(0.013)	(0.013)	(0.013)				
Tertiary			-0.008	-0.006	-0.007					-0.005	0.002	0.002				
			(0.007)	(0.007)	(0.007)					(0.007)	(0.007)	(0.007)				
Partner's ISEI (ref = lower third)																
Middle third				-0.012**	-0.012**						-0.001	-0.001				
				(0.005)	(0.005)						(0.005)	(0.005)				
Upper third				-0.002	-0.003						-0.014*	-0.014*				
				(0.005)	(0.005)						(0.006)	(0.006)				
Partner's earnings (ref = first quintile)																
Second quintile					0.002							0.007				
					(0.007)							(0.011)				
Third quintile					0.012^							0.014				
					(0.006)							(0.009)				
Fourth quintile					0.004							0.011				
					(0.007)							(0.009)				
Fifth quintile					0.014^							0.012				

						(0.008)							(0.009)	
Partner's education higher than own							-0.006							-0.007
							(0.005)							(0.006)
Partner's ISEI higher than own							-0.009^							-0.008
							(0.005)							(0.005)
Observations	47,163	47,163	47,163	47,163	47,163	47,163	47,163	44,449	44,449	44,449	44,449	44,449	44,449	44,449
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on temporary relative to permanent employment. Estonia, Latvia, Iceland, Sweden, Denmark, Norway, Finland and the Netherlands are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models apart from M0. Country fixed effects included in all models.

Table A4: Results of logistic regressions on part-time employment, average marginal effects, employees 16-64, pooled sample of European countries, full results

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Partner's employment status (ref = Employee - Full-time)														
Self-employed	0.008	0.011	0.011	0.012^	0.011^	0.016*	0.012^	0.048**	0.040**	0.036**	0.037**	0.039**	0.053**	0.037**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)	(0.010)	(0.010)
Employee - Part-time	0.028**	0.028**	0.029**	0.032**	0.033**	0.041**	0.030**	0.094**	0.090**	0.092**	0.093**	0.096**	0.124**	0.095**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.016)	(0.016)	(0.015)	(0.015)	(0.015)	(0.016)	(0.015)
Not in employment	0.011**	0.006	0.006	0.009*	0.010*	0.019**	0.008^	0.020^	-0.027**	-0.017^	-0.015	-0.014	0.020	-0.015
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.007)	(0.004)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.014)	(0.009)
Age (ref = 16-25)														
26-39		-0.004	-0.002	-0.004	-0.005	-0.006	-0.003		0.147**	0.082**	0.081**	0.079**	0.076**	0.080**
		(0.009)	(0.009)	(0.010)	(0.010)	(0.010)	(0.009)		(0.014)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
40-55		0.012	0.014	0.012	0.011	0.009	0.013		0.229**	0.191**	0.189**	0.187**	0.178**	0.188**
		(0.010)	(0.010)	(0.011)	(0.011)	(0.011)	(0.010)		(0.015)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
56-64		0.084**	0.081**	0.079**	0.077**	0.075**	0.081**		0.290**	0.302**	0.298**	0.295**	0.288**	0.298**
		(0.016)	(0.015)	(0.015)	(0.015)	(0.016)	(0.015)		(0.019)	(0.020)	(0.020)	(0.020)	(0.021)	(0.020)
Education (ref = Primary and lower secondary)														
Upper secondary		-0.014**	-0.014**	-0.016**	-0.016**	-0.015**	-0.012*		-0.018^	-0.021*	-0.023*	-0.023*	-0.026*	-0.019^
		(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)		(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Post-secondary non-tertiary		-0.009	-0.009	-0.012	-0.012	-0.013	-0.007		-0.017	-0.021	-0.026	-0.026	-0.029^	-0.021
		(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)		(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Tertiary		-0.009	-0.009	-0.016*	-0.016*	-0.016*	-0.005		-0.046**	-0.051**	-0.059**	-0.061**	-0.064**	-0.048**
		(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)		(0.012)	(0.011)	(0.012)	(0.012)	(0.012)	(0.013)
Foreign birth		0.011*	0.012*	0.011*	0.011*	0.012*	0.012*		-0.048**	-0.050**	-0.051**	-0.050**	-0.047**	-0.049**
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)		(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Years in work		-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**		-0.004**	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Unemployment in the past 12 months		0.034**	0.033**	0.034**	0.034**	0.034**	0.034**		0.042**	0.054**	0.055**	0.056**	0.060**	0.055**
		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Industry (ref = Extractive services)														
Construction		-0.012**	-0.012**	-0.013**	-0.013**	-0.012**	-0.012**		0.111**	0.103**	0.103**	0.101**	0.099**	0.102**
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)		(0.027)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Trade, accommodation and food services		0.024**	0.023**	0.023**	0.023**	0.023**	0.023**		0.130**	0.127**	0.127**	0.127**	0.127**	0.127**
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)		(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)

Professional services	0.033**	0.033**	0.032**	0.031**	0.031**	0.032**	0.110**	0.110**	0.109**	0.108**	0.107**	0.109**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Public services	0.052**	0.052**	0.051**	0.050**	0.050**	0.051**	0.120**	0.115**	0.115**	0.114**	0.115**	0.114**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Other services	0.080**	0.079**	0.078**	0.077**	0.077**	0.079**	0.156**	0.155**	0.154**	0.153**	0.157**	0.154**
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Small firm	0.036**	0.036**	0.036**	0.036**	0.036**	0.036**	0.099**	0.097**	0.097**	0.097**	0.098**	0.097**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Supervisory position	-0.041**	-0.040**	-0.040**	-0.040**	-0.040**	-0.040**	-0.137**	-0.136**	-0.136**	-0.136**	-0.135**	-0.136**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
ISEI (ref = Lower third)												
Middle third	-0.029**	-0.028**	-0.029**	-0.030**	-0.030**	-0.026**	-0.088**	-0.090**	-0.092**	-0.095**	-0.099**	-0.083**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)
Upper third	-0.035**	-0.034**	-0.037**	-0.039**	-0.040**	-0.031**	-0.148**	-0.149**	-0.154**	-0.158**	-0.162**	-0.133**
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)
Own children age 1-5 in household		-0.007	-0.007	-0.008^	-0.007	-0.007		0.150**	0.150**	0.151**	0.149**	0.150**
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Own children age 6-17 in household		-0.004	-0.004	-0.004	-0.004	-0.004		0.109**	0.109**	0.109**	0.106**	0.109**
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Person with care need (old age/illness) in household		0.016*	0.017*	0.017*	0.017*	0.017*		0.045**	0.047**	0.047**	0.049**	0.046**
		(0.007)	(0.007)	(0.007)	(0.007)	(0.007)		(0.014)	(0.014)	(0.014)	(0.014)	(0.015)
Partner's education (ref = Primary and lower secondary)												
Upper secondary			-0.003	-0.003	-0.004				-0.004	-0.006	-0.010	
			(0.005)	(0.005)	(0.005)				(0.009)	(0.009)	(0.009)	
Post-secondary non-tertiary			-0.002	-0.002	-0.003				0.008	0.002	-0.006	
			(0.008)	(0.009)	(0.009)				(0.018)	(0.019)	(0.019)	
Tertiary			0.018**	0.012^	0.010				0.023*	0.011	-0.001	
			(0.006)	(0.006)	(0.007)				(0.010)	(0.011)	(0.011)	
Partner's ISEI (ref = lower third)												
Middle third				0	-0.003					0.016*	0.007	
				-0.004	-0.004					-0.007	-0.008	
Upper third				0.012*	0.005					0.031**	0.012	
				-0.005	-0.005					-0.009	-0.009	
Partner's earnings (ref = first quintile)												
Second quintile					-0.006						-0.030	
					(0.006)						(0.018)	
Third quintile					0.001						0.002	
					(0.006)						(0.016)	
Fourth quintile					0.011						0.016	

						(0.007)							(0.016)	
Fifth quintile						0.026**							0.066**	
						(0.009)							(0.016)	
Partner's education higher than own							0.007							0.010
							(0.004)							(0.008)
Partner's ISEI higher than own							0.006							0.024**
							(0.004)							(0.008)
Observations	49,664	49,664	49,119	49,664	49,664	49,664	49,664	47,042	46,571	47,042	47,042	47,042	47,042	47,042
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on part-time relative to full-time employment. Romania, Serbia, Iceland, Slovakia and Czech Republic are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models apart from M0. Country fixed effects included in all models.

Table A5: Robustness check - Results of multinomial logistic regressions on employment status, temporary employment, average marginal effects, employees 16-64, pooled sample of European countries

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Y = Employee - Temporary														
Partner's employment status (ref = Employee Permanent)														
Self-employed	0.003	0.004	0.004	0.004	0.003	0.003	0.004	-0.006	-0.002	-0.001	-0.001	-0.001	-0.002	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Employee Temporary	0.131**	0.085**	0.084**	0.083**	0.083**	0.082**	0.083**	0.151**	0.103**	0.103**	0.103**	0.101**	0.098**	0.101**
	(0.011)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.013)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Not in employment	0.021**	0.013**	0.014**	0.015**	0.015**	0.020**	0.014**	-0.006	0.005	0.006	0.006	0.005	0.011	0.005
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.006)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.007)	(0.005)
Y = Employee - Permanent														
Partner's employment status (ref = Employee Permanent)														
Self-employed	-0.044**	-0.035**	-0.035**	-0.033**	-0.031**	-0.033**	-0.033**	-0.031**	-0.030**	-0.029**	-0.029**	-0.030**	-0.032**	-0.029**
	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.011)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)
Employee Temporary	-0.144**	-0.092**	-0.090**	-0.088**	-0.087**	-0.089**	-0.088**	-0.188**	-0.106**	-0.104**	-0.104**	-0.104**	-0.107**	-0.104**
	(0.012)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.014)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Not in employment	-0.163**	-0.070**	-0.067**	-0.063**	-0.063**	-0.065**	-0.064**	-0.211**	-0.099**	-0.092**	-0.093**	-0.093**	-0.082**	-0.093**
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.008)	(0.005)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.011)	(0.007)
Y = Unemployed														
Partner's employment status (ref = Employee Permanent)														
Self-employed	0.017**	0.010*	0.010*	0.010*	0.010*	0.010*	0.010*	0.003	0.003	0.003	0.003	0.003	0.002	0.003
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Employee Temporary	0.023**	-0.001	-0.001	-0.002	-0.002	-0.001	-0.002	0.031**	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.005)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
Not in employment	0.051**	0.013**	0.014**	0.012**	0.012**	0.012**	0.012**	0.056**	0.012**	0.012**	0.012**	0.012**	0.007	0.012**
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
Y = Inactive														
Partner's employment status (ref = Employee Permanent)														
Self-employed	0.024*	0.021*	0.021*	0.020*	0.019^	0.019^	0.020*	0.034**	0.030**	0.028**	0.027**	0.028**	0.031**	0.028**
	(0.011)	(0.010)	(0.009)	(0.010)	(0.010)	(0.010)	(0.009)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)

Employee Temporary	-0.010*	0.008	0.008	0.007	0.006	0.008	0.007	0.007	0.004	0.002	0.002	0.003	0.010	0.004
	(0.004)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)
Not in employment	0.091**	0.044**	0.039**	0.036**	0.036**	0.033**	0.038**	0.161**	0.082**	0.074**	0.075**	0.076**	0.065**	0.076**
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.006)	(0.003)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.009)	(0.006)
Observations	57,769	57,769	57,769	57,769	57,769	57,769	57,769	62,974	62,974	62,974	62,974	62,974	62,974	62,974
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Estonia, Latvia, Iceland, Sweden, Denmark, Norway, Finland and the Netherlands are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, manager, own ISEI included in all models apart from M0. Children and person with care need in household included from M2. Partner's education included in M3, M4 and M5. Partner's ISEI included in M4 and M5. Partner's earnings included in M6. Partner's relative education and ISEI included in M6. Country fixed effects included in all models.

Table A6: Robustness check - Results of multinomial logistic regressions on employment status, part-time employment, average marginal effects, employees 16-64, pooled sample of European countries

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Y = Employee - Part-time														
Partner's employment status (ref = Employee Full-time)														
Self-employed	0.009	0.013^	0.014*	0.015*	0.015*	0.020**	0.015*	0.036**	0.034**	0.030**	0.031**	0.032**	0.040**	0.030**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Employee Part-time	0.025**	0.026**	0.027**	0.030**	0.032**	0.039**	0.029**	0.080**	0.086**	0.087**	0.088**	0.090**	0.108**	0.089**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)	(0.014)	(0.015)	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)
Not in employment	0.004	0.001	0.001	0.004	0.006	0.016**	0.003	-0.043**	-0.045**	-0.035**	-0.033**	-0.032**	-0.008	-0.034**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.006)	(0.004)	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)	(0.013)	(0.009)
Y = Employee - Full-time														
Partner's employment status (ref = Employee Full-time)														
Self-employed	-0.027**	-0.022*	-0.023*	-0.022*	-0.022*	-0.026**	-0.023*	-0.058**	-0.058**	-0.052**	-0.053**	-0.055**	-0.064**	-0.053**
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Employee Part-time	-0.028**	-0.013*	-0.017**	-0.017**	-0.018**	-0.027**	-0.017**	-0.095**	-0.075**	-0.075**	-0.076**	-0.079**	-0.101**	-0.078**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.016)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Not in employment	-0.117**	-0.045**	-0.042**	-0.041**	-0.042**	-0.043**	-0.041**	-0.133**	-0.028**	-0.032**	-0.034**	-0.036**	-0.046**	-0.034**
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.008)	(0.005)	(0.008)	(0.009)	(0.008)	(0.009)	(0.009)	(0.013)	(0.008)
Y = Unemployed														
Partner's employment status (ref = Employee Full-time)														
Self-employed	0.011*	0.009*	0.009*	0.008*	0.008*	0.009*	0.009*	0.001	0.003	0.003	0.003	0.003	0.003	0.003
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Employee Part-time	0.002	-0.003	-0.002	-0.003	-0.003	-0.001	-0.003	0.015^	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Not in employment	0.041**	0.011**	0.012**	0.010**	0.010**	0.011**	0.011**	0.051**	0.014**	0.014**	0.013**	0.013**	0.008^	0.013**
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
Y = Inactive														
Partner's employment status (ref = Employee Full-time)														
Self-employed	0.006	-0.000	0.000	-0.001	-0.002	-0.003	-0.001	0.021**	0.021**	0.019**	0.019**	0.020**	0.021**	0.020**

	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Employee Part-time	0.000	-0.010**	-0.008*	-0.010**	-0.010**	-0.011*	-0.009**	-0.000	-0.010	-0.011	-0.011	-0.010	-0.004	-0.009
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Not in employment	0.073**	0.033**	0.029**	0.026**	0.026**	0.017**	0.027**	0.124**	0.059**	0.054**	0.054**	0.055**	0.046**	0.055**
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.005)	(0.003)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.009)	(0.006)
Observations	59,289	59,289	59,289	59,289	59,289	59,289	59,289	62,800	62,800	62,800	62,800	62,800	62,800	62,800
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Romania, Serbia, Iceland, Slovakia and Czech Republic are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, manager, own ISEI included in all models apart from M0. Children and person with care need in household included from M2. Partner's education included in M3, M4 and M5. Partner's ISEI included in M4 and M5. Partner's earnings included in M6. Partner's relative education and ISEI included in M6. Country fixed effects included in all models.

Table A7: Robustness check - Results of logistic regressions on temporary employment, detailed definition of partner employment status, average marginal effects, employees 16-64, pooled sample of European countries

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Partner's employment status (ref = Employee Perm/FT)														
Self-employed	0.006	0.009	0.010	0.009	0.007	0.007	0.008	-0.001	0.009	0.009	0.009	0.009	0.010	0.009
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Employee Perm/PT	-0.008	-0.008	-0.007	-0.007	-0.008	-0.008	-0.008	0.007	0.010	0.009	0.010	0.009	0.010	0.008
	(0.005)	(0.005)	(0.006)	(0.005)	(0.006)	(0.006)	(0.005)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Employee Temp/FT	0.165**	0.098**	0.097**	0.096**	0.096**	0.095**	0.096**	0.192**	0.121**	0.120**	0.120**	0.118**	0.119**	0.118**
	(0.014)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.015)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Employee Temp/PT	0.100**	0.070**	0.071**	0.070**	0.067**	0.067**	0.069**	0.243**	0.159**	0.155**	0.154**	0.155**	0.158**	0.153**
	(0.016)	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.013)	(0.046)	(0.038)	(0.038)	(0.039)	(0.038)	(0.040)	(0.038)
Not in employment	0.040**	0.022**	0.023**	0.022**	0.022**	0.027**	0.021**	0.028**	0.020**	0.019**	0.019**	0.019**	0.028**	0.018**
	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.007)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.009)	(0.006)
Own children age 1-5 in household			-0.006	-0.005	-0.005	-0.005	-0.005			-0.021**	-0.021**	-0.021**	-0.021**	-0.021**
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Own children age 6-17 in household			-0.007^	-0.007^	-0.007^	-0.007^	-0.008*			-0.007	-0.007	-0.007	-0.007^	-0.007
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Person with care need (old age/illness) in household			-0.004	-0.004	-0.004	-0.003	-0.004			-0.008	-0.009	-0.009	-0.008	-0.009
			(0.007)	(0.007)	(0.007)	(0.007)	(0.007)			(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Partner's education (ref = Primary and lower secondary)														
Upper secondary				-0.006	-0.004	-0.004					-0.004	-0.003	-0.003	
				(0.006)	(0.006)	(0.006)					(0.006)	(0.006)	(0.006)	
Post-secondary non-tertiary				-0.026**	-0.021*	-0.021*					-0.034**	-0.031*	-0.031*	
				(0.010)	(0.010)	(0.010)					(0.013)	(0.013)	(0.013)	
Tertiary				-0.009	-0.007	-0.007					-0.004	0.002	0.002	
				(0.007)	(0.007)	(0.007)					(0.007)	(0.007)	(0.007)	
Partner's ISEI (ref = lower third)														
Middle third					-0.013**	-0.012**						-0.000	-0.001	
					(0.005)	(0.005)						(0.005)	(0.005)	
Upper third					-0.003	-0.003						-0.014*	-0.014*	
					(0.005)	(0.005)						(0.006)	(0.006)	
Partner's earnings (ref = first quintile)														
Second quintile						0.003							0.005	
						(0.007)							(0.011)	

Third quintile						0.012^							0.014	
						(0.006)							(0.009)	
Fourth quintile						0.002							0.012	
						(0.007)							(0.009)	
Fifth quintile						0.011							0.013	
						(0.008)							(0.009)	
Partner's education higher than own							-0.006							-0.007
							(0.005)							(0.006)
Partner's ISEI higher than own							-0.010*							-0.008
							(0.005)							(0.005)
Observations	47,163	47,163	47,163	47,163	47,163	47,163	47,014	44,449	44,449	44,449	44,449	44,449	44,449	44,449
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on temporary relative to permanent employment. Estonia, Latvia, Iceland, Sweden, Denmark, Norway, Finland and the Netherlands are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models apart from M0. Country fixed effects included in all models.

Table A8: Robustness check - Results of logistic regressions on part-time employment, detailed definition of partner employment status, average marginal effects, employees 16-64, pooled sample of European countries

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Partner's employment status (ref = Employee Permanent)														
Self-employed	0.005	0.007	0.008	0.009	0.009	0.016*	0.009	0.047**	0.039**	0.034**	0.034**	0.037**	0.054**	0.034**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Employee Perm/PT	0.023**	0.024**	0.025**	0.027**	0.028**	0.035**	0.026**	0.111**	0.106**	0.102**	0.102**	0.105**	0.132**	0.103**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.019)	(0.019)	(0.018)	(0.018)	(0.018)	(0.019)	(0.018)
Employee Temp/FT	0.019^	0.012	0.011	0.012	0.013	0.018^	0.012	-0.043**	-0.047**	-0.037*	-0.037*	-0.035*	-0.013	-0.036*
	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.016)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Employee Temp/PT	0.044**	0.037**	0.038**	0.040**	0.042**	0.055**	0.041**	0.040	0.056	0.081*	0.081*	0.083*	0.127**	0.083*
	(0.014)	(0.012)	(0.012)	(0.013)	(0.013)	(0.014)	(0.013)	(0.043)	(0.040)	(0.039)	(0.040)	(0.039)	(0.040)	(0.039)
Not in employment	0.014**	0.008^	0.007	0.009^	0.011*	0.025**	0.008^	0.019	-0.026*	-0.014	-0.014	-0.012	0.044*	-0.013
	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.008)	(0.005)	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.019)	(0.011)
Own children age 1-5 in household			-0.005	-0.005	-0.005	-0.005	-0.005			0.140**	0.140**	0.140**	0.140**	0.140**
			(0.006)	(0.006)	(0.006)	(0.005)	(0.006)			(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Own children age 6-17 in household			-0.005	-0.005	-0.005	-0.004	-0.005			0.107**	0.107**	0.107**	0.105**	0.107**
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)			(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Person with care need (old age/illness) in household			0.022**	0.022**	0.023**	0.023**	0.022**			0.034^	0.034^	0.034^	0.037*	0.034^
			(0.008)	(0.008)	(0.008)	(0.008)	(0.008)			(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Partner's education (ref = Primary and lower secondary)														
Upper secondary				-0.004	-0.005	-0.006					-0.011	-0.013	-0.016	
				(0.006)	(0.007)	(0.007)					(0.011)	(0.011)	(0.011)	
Post-secondary non-tertiary				-0.005	-0.008	-0.009					-0.008	-0.014	-0.021	
				(0.009)	(0.010)	(0.010)					(0.024)	(0.024)	(0.024)	
Tertiary				0.012^	0.005	0.002					0.005	-0.004	-0.015	
				(0.007)	(0.008)	(0.009)					(0.012)	(0.013)	(0.013)	
Partner's ISEI (ref = lower third)														
Middle third					0.004	0.002						0.020*	0.012	
					(0.005)	(0.005)						(0.009)	(0.009)	
Upper third					0.016*	0.009						0.026*	0.007	
					(0.006)	(0.006)						(0.010)	(0.011)	
Partner's earnings (ref = first quintile)														
Second quintile						0.002							-0.002	

						(0.008)							(0.024)	
Third quintile						0.007							0.029	
						(0.007)							(0.021)	
Fourth quintile						0.018^							0.048*	
						(0.009)							(0.021)	
Fifth quintile						0.035**							0.097**	
						(0.012)							(0.022)	
Partner's education higher than own							0.002							-0.002
							(0.005)							(0.009)
Partner's ISEI higher than own							0.010*							0.020*
							(0.005)							(0.009)
Observations	44,624	44,624	44,624	44,624	44,624	44,624	44,624	42,163	42,163	42,163	42,163	42,163	42,163	42,163
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on part-time relative to full-time employment. Romania, Serbia, Iceland, Slovakia and Czech Republic are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models apart from M0. Country fixed effects included in all models.

Table A9: Robustness check - Results of logistic regressions on temporary employment, average marginal effects, employees 16-64, pooled sample of European countries, weighting according to population size

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Partner's employment status (ref = Employee - Permanent)														
Self-employed	-0.006	-0.003	-0.002	-0.003	-0.004	-0.002	-0.003	-0.006	0.006	0.007	0.007	0.007	0.009	0.007
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Employee - Temporary	0.146**	0.091**	0.089**	0.087**	0.087**	0.088**	0.087**	0.205**	0.127**	0.126**	0.127**	0.126**	0.127**	0.125**
	(0.016)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.021)	(0.017)	(0.017)	(0.017)	(0.017)	(0.018)	(0.017)
Not in employment	0.037**	0.020**	0.021**	0.020**	0.020**	0.027**	0.020**	0.022*	0.017^	0.017^	0.017^	0.016^	0.034*	0.016^
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.009)	(0.006)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.014)	(0.009)
Own children age 1-5 in household			-0.008	-0.008	-0.008	-0.007	-0.008			-0.026**	-0.027**	-0.027**	-0.027**	-0.026**
			(0.006)	(0.006)	(0.006)	(0.006)	(0.006)			(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Own children age 6-17 in household			-0.010^	-0.011^	-0.011^	-0.010^	-0.011^			-0.003	-0.003	-0.003	-0.003	-0.003
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)			(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Person with care need (old age/illness) in household			-0.007	-0.006	-0.007	-0.006	-0.008			-0.025^	-0.025^	-0.026*	-0.025^	-0.025^
			(0.009)	(0.009)	(0.009)	(0.009)	(0.009)			(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Partner's education (ref = Primary and lower secondary)														
Upper secondary				-0.005	-0.004	-0.004					-0.006	-0.005	-0.005	
				(0.008)	(0.009)	(0.009)					(0.009)	(0.009)	(0.009)	
Post-secondary non-tertiary				-0.029*	-0.025*	-0.026*					-0.046**	-0.044**	-0.044**	
				(0.012)	(0.012)	(0.012)					(0.016)	(0.016)	(0.016)	
Tertiary				-0.008	-0.007	-0.008					-0.008	-0.001	-0.001	
				(0.010)	(0.011)	(0.011)					(0.010)	(0.010)	(0.011)	
Partner's ISEI (ref = lower third)														
Middle third					-0.008	-0.009						0.003	0.002	
					(0.006)	(0.007)						(0.007)	(0.007)	
Upper third					-0.001	-0.003						-0.015^	-0.016^	
					(0.008)	(0.008)						(0.009)	(0.009)	
Partner's earnings (ref = first quintile)														
Second quintile						0.000							0.012	
						(0.009)							(0.015)	
Third quintile						0.014							0.026*	
						(0.009)							(0.013)	
Fourth quintile						0.005							0.023^	
						(0.010)							(0.013)	
Fifth quintile						0.014							0.024^	

						(0.012)							(0.013)	
Partner's education higher than own							-0.008							-0.006
							(0.006)							(0.009)
Partner's ISEI higher than own							-0.008							-0.006
							(0.007)							(0.007)
Observations	47,163	47,163	47,163	47,163	47,163	47,163	47,163	44,449	44,449	44,449	44,449	44,449	44,449	44,449
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on temporary relative to permanent employment. Estonia, Latvia, Iceland, Sweden, Denmark, Norway, Finland and the Netherlands are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models apart from M0. Country fixed effects included in all models.

Table A10: Robustness check - Results of logistic regressions on part-time employment, average marginal effects, employees 16-64, pooled sample of European countries, weighting according to population size

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Partner's employment status (ref = Employee - Full-time)														
Self-employed	0.004	0.008	0.009	0.009	0.008	0.016	0.009	0.064**	0.050**	0.043**	0.045**	0.049**	0.066**	0.044**
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)
Employee - Part-time	0.021**	0.022**	0.024**	0.027**	0.028**	0.039**	0.025**	0.090**	0.090**	0.094**	0.095**	0.099**	0.135**	0.098**
	(0.007)	(0.006)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)	(0.023)	(0.023)	(0.021)	(0.021)	(0.021)	(0.022)	(0.021)
Not in employment	0.006	0.001	0.002	0.005	0.007	0.022*	0.003	0.008	-0.046**	-0.032*	-0.029*	-0.026^	0.018	-0.028*
	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.011)	(0.006)	(0.016)	(0.014)	(0.014)	(0.014)	(0.014)	(0.020)	(0.014)
Own children age 1-5 in household			-0.009	-0.011	-0.011	-0.011	-0.010			0.197**	0.197**	0.197**	0.195**	0.197**
			(0.007)	(0.007)	(0.007)	(0.007)	(0.007)			(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Own children age 6-17 in household			-0.004	-0.004	-0.003	-0.003	-0.004			0.137**	0.137**	0.137**	0.134**	0.137**
			(0.006)	(0.006)	(0.006)	(0.006)	(0.006)			(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Person with care need (old age/illness) in household			0.019^	0.019^	0.020^	0.020^	0.019^			0.060**	0.063**	0.064**	0.067**	0.062**
			(0.011)	(0.011)	(0.011)	(0.011)	(0.011)			(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Partner's education (ref = Primary and lower secondary)														
Upper secondary				0.000	-0.000	-0.001					-0.007	-0.011	-0.015	
				(0.008)	(0.008)	(0.008)					(0.013)	(0.014)	(0.014)	
Post-secondary non-tertiary				0.002	0.002	-0.000					0.015	0.003	-0.007	
				(0.011)	(0.012)	(0.012)					(0.026)	(0.027)	(0.027)	
Tertiary				0.022**	0.014	0.011					0.033*	0.013	-0.001	
				(0.009)	(0.010)	(0.010)					(0.014)	(0.016)	(0.016)	
Partner's ISEI (ref = lower third)														
Middle third					-0.001	-0.005						0.026*	0.015	
					(0.006)	(0.006)						(0.011)	(0.011)	
Upper third					0.017*	0.006						0.050**	0.026^	
					(0.008)	(0.008)						(0.013)	(0.014)	
Partner's earnings (ref = first quintile)														
Second quintile						-0.002							-0.039	
						(0.009)							(0.026)	
Third quintile						0.007							0.005	
						(0.009)							(0.023)	
Fourth quintile						0.019^							0.023	
						(0.011)							(0.023)	
Fifth quintile						0.044**							0.084**	

						(0.014)							(0.023)	
Partner's education higher than own							0.005							0.015
							(0.007)							(0.012)
Partner's ISEI higher than own							0.005							0.035**
							(0.007)							(0.011)
Observations	49,664	49,664	49,664	49,664	49,664	49,664	49,664	47,042	47,042	47,042	47,042	47,042	47,042	47,042
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on part-time relative to full-time employment. Romania, Serbia, Iceland, Slovakia and Czech Republic are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models apart from M0. Country fixed effects included in all models.

Table A11: Robustness check - Results of logistic regressions on part-time employment, average marginal effects, employees 16-64, pooled sample of European countries, hours-based definition of part-time work

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Partner's employment status (ref = Employee Full-Time)														
Self-employed	0.009	0.011^	0.011^	0.011^	0.010^	0.013^	0.011^	0.053**	0.048**	0.044**	0.045**	0.047**	0.058**	0.045**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Employee Part-time	0.010**	0.010**	0.010**	0.012**	0.012**	0.016**	0.011**	0.073**	0.062**	0.064**	0.064**	0.067**	0.094**	0.067**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.019)	(0.018)	(0.018)	(0.018)	(0.018)	(0.019)	(0.018)
Not in employment	0.010**	0.006^	0.006^	0.007*	0.007*	0.009	0.006^	0.019^	-0.024**	-0.017^	-0.015^	-0.014	0.006	-0.014
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.006)	(0.003)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.013)	(0.009)
Own children age 1-5 in household			-0.004	-0.004	-0.004	-0.004	-0.004			0.119**	0.118**	0.119**	0.117**	0.118**
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)			(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Own children age 6-17 in household			-0.001	-0.001	-0.001	-0.001	-0.001			0.093**	0.093**	0.093**	0.090**	0.093**
			(0.003)	(0.003)	(0.003)	(0.003)	(0.003)			(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Person with care need (old age/illness) in household			0.015**	0.015**	0.015**	0.015**	0.015**			0.041**	0.042**	0.042**	0.044**	0.042**
			(0.006)	(0.006)	(0.006)	(0.006)	(0.006)			(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Partner's education (ref = Primary and lower secondary)														
Upper secondary				-0.003	-0.002	-0.002					-0.009	-0.011	-0.015	
				(0.004)	(0.004)	(0.004)					(0.009)	(0.009)	(0.009)	
Post-secondary non-tertiary				-0.003	-0.001	-0.002					0.017	0.011	0.004	
				(0.007)	(0.007)	(0.007)					(0.018)	(0.018)	(0.018)	
Tertiary				0.009*	0.010^	0.009^					0.019^	0.009	-0.001	
				(0.005)	(0.005)	(0.005)					(0.010)	(0.010)	(0.011)	
Partner's ISEI (ref = lower third)														
Middle third					-0.004	-0.005						0.019**	0.011	
					(0.003)	(0.003)						(0.007)	(0.007)	
Upper third					0.000	-0.003						0.026**	0.009	
					(0.004)	(0.004)						(0.008)	(0.009)	
Partner's earnings (ref = first quintile)														
Second quintile						-0.006							-0.031^	
						(0.006)							(0.017)	
Third quintile						-0.004							-0.009	
						(0.006)							(0.015)	
Fourth quintile						0.001							0.000	
						(0.007)							(0.015)	
Fifth quintile						0.008							0.046**	

						(0.008)							(0.015)	
Partner's education higher than own							0.002							0.019*
							(0.004)							(0.008)
Partner's ISEI higher than own							-0.000							0.025**
							(0.004)							(0.007)
Observations	49,119	49,119	49,119	49,119	49,119	49,119	49,119	46,571	46,571	46,571	46,571	46,571	46,571	46,571

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on part-time relative to full-time employment. Romania, Serbia, Iceland, Slovakia and Czech Republic are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models apart from M0. Country fixed effects included in all models.

Table A12: Robustness check - Results of logistic regressions on temporary employment, average marginal effects, employees 16-64, pooled sample of European countries, additional control for part-time employment

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Partner's employment status (ref = Employee - Permanent)														
Self-employed	0.007	0.010	0.010	0.010	0.008	0.009	0.009	-0.001	0.008	0.008	0.008	0.008	0.009	0.008
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Employee - Temporary	0.146**	0.090**	0.089**	0.088**	0.087**	0.087**	0.087**	0.197**	0.126**	0.125**	0.125**	0.124**	0.123**	0.123**
	(0.011)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.015)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Not in employment	0.042**	0.024**	0.025**	0.024**	0.024**	0.030**	0.024**	0.027**	0.020**	0.020**	0.019**	0.019**	0.027**	0.019**
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.007)	(0.004)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.009)	(0.006)
Own children age 1-5 in household			-0.006	-0.005	-0.005	-0.005	-0.005			-0.025**	-0.025**	-0.025**	-0.025**	-0.025**
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Own children age 6-17 in household			-0.008*	-0.008*	-0.008*	-0.008*	-0.008*			-0.009*	-0.009*	-0.010*	-0.010*	-0.010*
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Person with care need (old age/illness) in household			-0.005	-0.005	-0.006	-0.005	-0.006			-0.009	-0.010	-0.010	-0.009	-0.010
			(0.007)	(0.007)	(0.007)	(0.007)	(0.007)			(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Partner's education (ref = Primary and lower secondary)														
Upper secondary				-0.005	-0.003	-0.003					-0.005	-0.003	-0.003	
				(0.006)	(0.006)	(0.006)					(0.006)	(0.006)	(0.006)	
Post-secondary non-tertiary				-0.025**	-0.021*	-0.022*					-0.034**	-0.031*	-0.031*	
				(0.009)	(0.010)	(0.010)					(0.013)	(0.013)	(0.013)	
Tertiary				-0.009	-0.007	-0.008					-0.005	0.002	0.002	
				(0.007)	(0.007)	(0.007)					(0.007)	(0.007)	(0.008)	
Partner's ISEI (ref = lower third)														
Middle third					-0.011*	-0.012*						-0.001	-0.001	
					(0.004)	(0.005)						(0.005)	(0.005)	
Upper third					-0.002	-0.003						-0.014*	-0.014*	
					(0.005)	(0.005)						(0.006)	(0.006)	
Partner's earnings (ref = first quintile)														
Second quintile						0.002							0.007	
						(0.007)							(0.011)	
Third quintile						0.011^							0.015	
						(0.007)							(0.009)	
Fourth quintile						0.004							0.011	
						(0.007)							(0.009)	
Fifth quintile						0.012							0.012	

						(0.008)							(0.009)	
Partner's education higher than own							-0.006							-0.008
							(0.005)							(0.006)
Partner's ISEI higher than own							-0.009^							-0.008^
							(0.005)							(0.005)
Observations	47,163	47,163	47,163	47,163	47,163	47,163	47,163	44,449	44,449	44,449	44,449	44,449	44,449	44,449
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on temporary relative to permanent employment. Estonia, Latvia, Iceland, Sweden, Denmark, Norway, Finland and the Netherlands are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models apart from M0. Country fixed effects included in all models.

Table A13: Robustness check - Results of logistic regressions on part-time employment, average marginal effects, employees 16-64, pooled sample of European countries, additional control for temporary employment

	Men							Women						
VARIABLES	M0	M1	M2	M3	M4	M5	M6	M0	M1	M2	M3	M4	M5	M6
Partner's employment status (ref = Employee - Full-time)														
Self-employed	0.008	0.012^	0.012^	0.013^	0.012^	0.018*	0.013^	0.048**	0.041**	0.037**	0.038**	0.040**	0.054**	0.037**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Employee - Part-time	0.028**	0.028**	0.029**	0.032**	0.033**	0.042**	0.031**	0.094**	0.087**	0.089**	0.090**	0.093**	0.121**	0.091**
	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.016)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Not in employment	0.011**	0.006	0.006	0.009*	0.010*	0.018**	0.007^	0.020^	-0.028**	-0.018^	-0.016^	-0.014	0.020	-0.016^
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.007)	(0.004)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.014)	(0.009)
Own children age 1-5 in household			-0.005	-0.006	-0.006	-0.006	-0.005			0.153**	0.153**	0.153**	0.152**	0.153**
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)			(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Own children age 6-17 in household			-0.003	-0.003	-0.003	-0.003	-0.003			0.110**	0.110**	0.110**	0.107**	0.110**
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)			(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Person with care need (old age/illness) in household			0.016*	0.016*	0.016*	0.017*	0.016*			0.046**	0.048**	0.048**	0.050**	0.047**
			(0.007)	(0.007)	(0.007)	(0.007)	(0.007)			(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Partner's education (ref = Primary and lower secondary)														
Upper secondary				-0.002	-0.003	-0.003					-0.003	-0.006	-0.010	
				(0.005)	(0.005)	(0.005)					(0.009)	(0.009)	(0.009)	
Post-secondary non-tertiary				0.001	0.000	-0.001					0.011	0.004	-0.003	
				(0.008)	(0.009)	(0.009)					(0.019)	(0.019)	(0.019)	
Tertiary				0.018**	0.013*	0.010					0.023*	0.011	-0.001	
				(0.006)	(0.006)	(0.006)					(0.010)	(0.011)	(0.011)	
Partner's ISEI (ref = lower third)														
Middle third					0.000	-0.003						0.016*	0.007	
					(0.004)	(0.004)						(0.007)	(0.008)	
Upper third					0.012*	0.004						0.032**	0.013	
					(0.005)	(0.005)						(0.009)	(0.009)	
Partner's earnings (ref = first quintile)						-0.007							-0.032^	
Second quintile						(0.006)							(0.018)	
						-0.001							0.001	
Third quintile						(0.006)							(0.016)	
						0.012							0.017	
Fourth quintile						(0.007)							(0.016)	
						0.027**							0.067**	
Fifth quintile						(0.009)							(0.016)	

Partner's education higher than own							0.007^							0.011
							(0.004)							(0.008)
Partner's ISEI higher than own							0.006							0.025**
							(0.004)							(0.008)
Observations	49,664	49,664	49,664	49,664	49,664	49,664	49,664	47,042	47,042	47,042	47,042	47,042	47,042	47,042
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on part-time relative to full-time employment. Romania, Serbia, Iceland, Slovakia and Czech Republic are excluded from the pooled sample. Additional variables age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI included in all models apart from M0. Country fixed effects included in all models.

Table A14: Results of logistic regressions on part-time employment, average marginal effects, employees 16-64, pooled sample of European countries, regression by couple's placement in national income distribution

	Men by quartile				Women by quartile			
VARIABLES	Bottom	2	3	Top	Bottom	2	3	Top
Partner's employment status (ref = Employee Full-Time)								
Self-employed	0.017	-0.024	-0.004	0.015	0.016	0.008	-0.025	0.063**
	(0.042)	(0.018)	(0.010)	(0.012)	(0.037)	(0.020)	(0.016)	(0.016)
Employee Part-Time	0.091**	-0.009	0.014^	0.033**	0.158**	-0.022	0.030	0.104**
	(0.031)	(0.013)	(0.008)	(0.009)	(0.043)	(0.027)	(0.026)	(0.031)
Not in employment	-0.009	-0.071**	-0.015*	0.018	-0.047^	-0.200**	-0.140**	-0.031
	(0.025)	(0.012)	(0.007)	(0.011)	(0.027)	(0.018)	(0.024)	(0.034)
Age (ref = 16-25)								
26-39	-0.037	-0.004	0.025**	0.006	0.087^	0.079**	0.138**	0.169**
	(0.038)	(0.024)	(0.005)	(0.028)	(0.047)	(0.029)	(0.024)	(0.035)
40-55	0.033	0.021	0.039**	0.013	0.215**	0.195**	0.250**	0.257**
	(0.044)	(0.025)	(0.006)	(0.029)	(0.051)	(0.032)	(0.026)	(0.035)
56-64	0.200**	0.098**	0.082**	0.048	0.334**	0.311**	0.331**	0.347**
	(0.065)	(0.035)	(0.017)	(0.034)	(0.056)	(0.039)	(0.033)	(0.040)
Education (ref = Primary and lower secondary)								
Upper secondary	-0.011	-0.020	-0.003	-0.046*	-0.019	-0.044*	0.011	0.035
	(0.020)	(0.013)	(0.009)	(0.022)	(0.029)	(0.018)	(0.018)	(0.023)
Post-secondary non-tertiary	-0.033	-0.002	0.001	-0.041	-0.095^	-0.040	0.024	0.042
	(0.041)	(0.025)	(0.017)	(0.027)	(0.055)	(0.033)	(0.028)	(0.030)
Tertiary	0.007	-0.004	0.007	-0.054*	-0.038	-0.059*	-0.014	-0.001
	(0.032)	(0.015)	(0.010)	(0.022)	(0.037)	(0.024)	(0.020)	(0.024)
Foreign birth	-0.001	0.002	-0.003	0.031**	-0.009	-0.071**	-0.069**	-0.071**
	(0.021)	(0.013)	(0.008)	(0.010)	(0.030)	(0.019)	(0.017)	(0.017)
Years in work	-0.004**	-0.001	-0.000	0.000	-0.004**	-0.002*	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployment in the past 12 months	-0.027	0.015	0.041**	0.035	-0.032	-0.017	0.032	0.094**
	(0.020)	(0.015)	(0.014)	(0.023)	(0.031)	(0.024)	(0.029)	(0.035)
Industry (ref = Extractive services)								
Construction, trade, accomodation and food servicea	0.096**	0.036**	0.021**	-0.008	0.127**	0.158**	0.107**	0.045*
	(0.019)	(0.009)	(0.007)	(0.008)	(0.035)	(0.021)	(0.018)	(0.018)
Professional services	0.120**	0.063**	0.017*	0.007	0.148**	0.150**	0.078**	0.042**
	(0.026)	(0.013)	(0.007)	(0.009)	(0.040)	(0.023)	(0.020)	(0.016)
Public services and other services	0.180**	0.080**	0.034**	0.037**	0.131**	0.153**	0.080**	0.057**

	(0.030)	(0.012)	(0.006)	(0.011)	(0.033)	(0.019)	(0.016)	(0.015)
Small firm	0.088**	0.028**	0.016**	0.016^	0.088**	0.079**	0.077**	0.095**
	(0.018)	(0.009)	(0.006)	(0.008)	(0.022)	(0.013)	(0.012)	(0.012)
Supervisory position	-0.078**	-0.033**	-0.023**	-0.041**	-0.132**	-0.117**	-0.109**	-0.133**
	(0.025)	(0.010)	(0.006)	(0.009)	(0.033)	(0.018)	(0.013)	(0.011)
ISEI (ref = lower third)								
Middle third	-0.030	-0.036**	-0.018*	-0.009	-0.043	-0.107**	-0.049**	-0.065**
	(0.018)	(0.010)	(0.007)	(0.012)	(0.027)	(0.016)	(0.013)	(0.017)
Upper third	-0.037	-0.035**	-0.018*	-0.018	-0.118**	-0.140**	-0.081**	-0.132**
	(0.033)	(0.013)	(0.008)	(0.012)	(0.038)	(0.021)	(0.015)	(0.018)
Own children age 1-5 in household	-0.022	-0.020^	-0.006	0.006	0.071*	0.137**	0.174**	0.137**
	(0.022)	(0.012)	(0.007)	(0.008)	(0.032)	(0.018)	(0.013)	(0.013)
Own children age 6-17 in household	0.043*	-0.021*	-0.004	0.002	0.085**	0.108**	0.118**	0.114**
	(0.020)	(0.009)	(0.006)	(0.007)	(0.025)	(0.013)	(0.010)	(0.010)
Person with care need (old age/illness) in household	0.040	0.021	0.007	0.015	-0.004	0.057^	0.036	0.056*
	(0.029)	(0.019)	(0.011)	(0.014)	(0.037)	(0.029)	(0.024)	(0.027)
Partner's education (ref = Primary and lower secondary)								
Upper secondary	-0.019	0.011	-0.001	0.018	0.021	0.010	0.007	0.022
	(0.019)	(0.012)	(0.007)	(0.013)	(0.027)	(0.017)	(0.015)	(0.020)
Post-secondary non-tertiary	-0.021	0.019	0.003	0.019	0.063	0.014	-0.009	0.082*
	(0.037)	(0.022)	(0.012)	(0.017)	(0.090)	(0.038)	(0.028)	(0.034)
Tertiary	0.046	0.027^	0.018*	0.027*	0.012	0.023	0.039*	0.059**
	(0.030)	(0.015)	(0.009)	(0.013)	(0.035)	(0.023)	(0.018)	(0.021)
Partner's ISEI (ref = lower third)								
Middle third	-0.003	0.018*	0.009^	-0.001	0.016	0.038**	0.033**	0.054**
	(0.021)	(0.009)	(0.005)	(0.009)	(0.023)	(0.014)	(0.012)	(0.017)
Upper third	-0.027	0.057**	0.030**	0.016	0.028	0.026	0.079**	0.088**
	(0.025)	(0.014)	(0.007)	(0.010)	(0.032)	(0.020)	(0.015)	(0.017)
Observations	4,009	12,290	15,958	16,037	4,281	10,644	15,133	16,984
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on part-time relative to full-time employment. Romania, Serbia, Iceland, Slovakia and Czech Republic excluded from the pooled sample. Malta, Cyprus and Bulgaria excluded from regression in fourth quartile for men due to perfected prediction of model outcome. Country fixed effects included in all models.

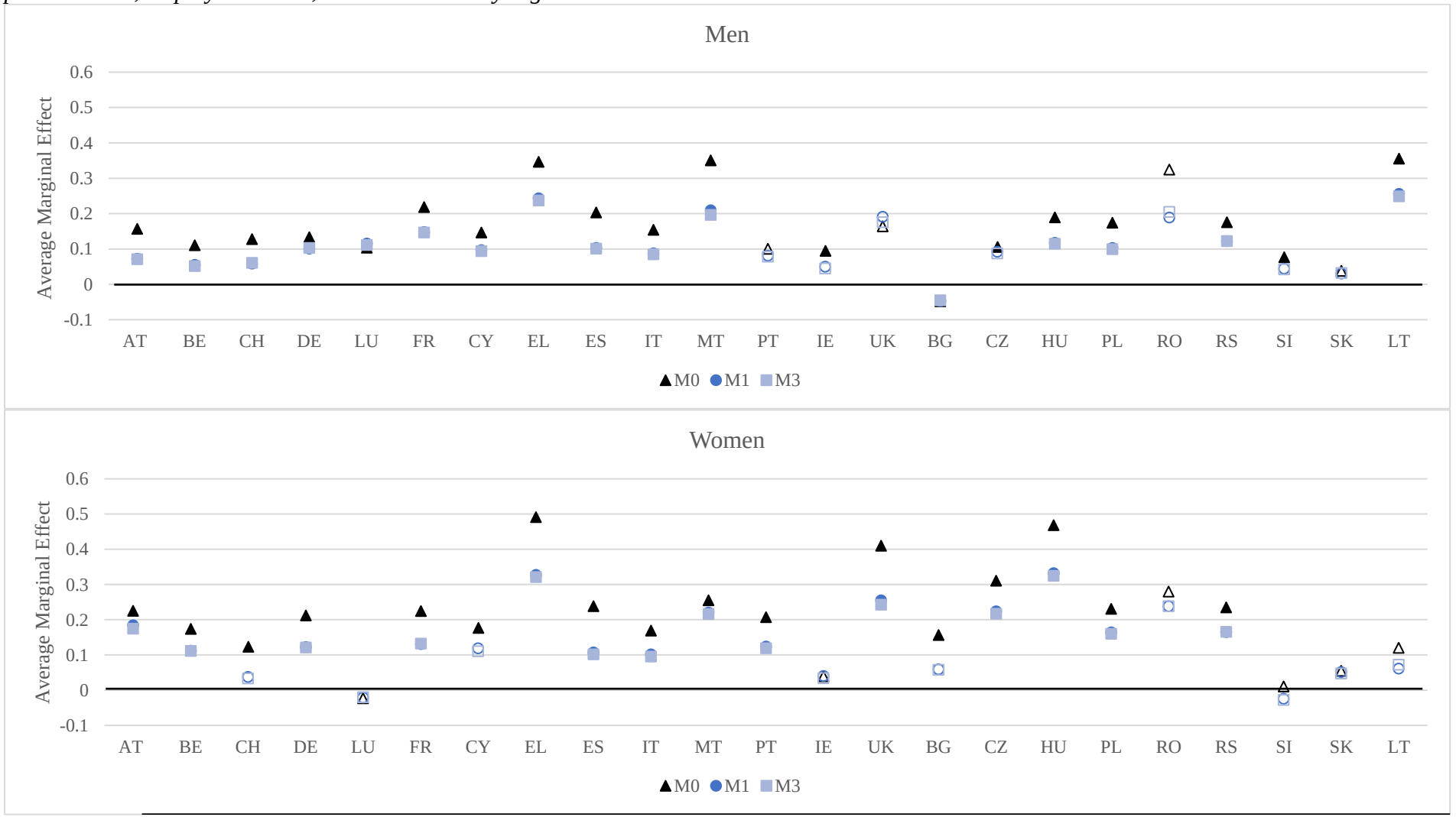
Table A15: Results of logistic regressions on temporary employment, average marginal effects, employees 16-64, pooled sample of European countries, regression by couple's placement in national income distribution

	Men by quartile				Women by quartile			
VARIABLES	Bottom	2	3	Top	Bottom	2	3	Top
Partner's employment status (ref = Employee Permanent)								
Self-employed	0.015	-0.039**	0.005	0.030^	0.003	0.009	-0.001	0.006
	(0.046)	(0.014)	(0.010)	(0.016)	(0.027)	(0.014)	(0.012)	(0.009)
Employee Temporary	0.098**	0.088**	0.077**	0.077**	0.105**	0.115**	0.139**	0.093**
	(0.032)	(0.019)	(0.014)	(0.017)	(0.035)	(0.020)	(0.023)	(0.021)
Not in employment	0.008	-0.015	0.003	0.021*	-0.001	-0.026*	-0.012	0.046^
	(0.021)	(0.009)	(0.007)	(0.010)	(0.022)	(0.011)	(0.015)	(0.025)
Age (ref = 16-25)								
26-39	-0.022	-0.032	0.001	-0.050	-0.084^	-0.036	0.003	0.009
	(0.045)	(0.031)	(0.021)	(0.038)	(0.049)	(0.024)	(0.018)	(0.021)
40-55	0.014	-0.030	-0.014	-0.055	-0.113*	-0.048^	0.015	0.006
	(0.050)	(0.034)	(0.024)	(0.040)	(0.050)	(0.026)	(0.020)	(0.022)
56-64	0.052	-0.002	-0.003	-0.020	-0.087	-0.021	0.033	0.009
	(0.058)	(0.041)	(0.029)	(0.044)	(0.056)	(0.031)	(0.027)	(0.027)
Education (ref = Primary and lower secondary)								
Upper secondary	-0.029	-0.031*	-0.012	0.004	0.026	-0.018	0.000	-0.010
	(0.023)	(0.013)	(0.010)	(0.015)	(0.018)	(0.012)	(0.011)	(0.018)
Post-secondary non-tertiary	-0.044	-0.015	-0.023	0.023	0.022	-0.061**	-0.026	-0.007
	(0.070)	(0.031)	(0.017)	(0.029)	(0.057)	(0.020)	(0.020)	(0.025)
Tertiary	-0.027	-0.037*	-0.018	-0.003	0.040	-0.024	-0.004	-0.029
	(0.033)	(0.019)	(0.012)	(0.015)	(0.032)	(0.016)	(0.013)	(0.019)
Foreign birth	0.005	0.033*	0.023*	0.018	-0.002	0.040**	0.033**	0.008
	(0.023)	(0.013)	(0.011)	(0.013)	(0.024)	(0.014)	(0.012)	(0.013)
Years in work	-0.006**	-0.004**	-0.002**	-0.003**	-0.003**	-0.006**	-0.005**	-0.005**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployment in the past 12 months	0.201**	0.166**	0.156**	0.123**	0.216**	0.201**	0.218**	0.165**
	(0.019)	(0.013)	(0.011)	(0.017)	(0.023)	(0.013)	(0.013)	(0.014)
Industry (ref = Extractive services)								
Construction, trade, accommodation and food services	-0.052**	-0.002	-0.009	-0.010	-0.002	0.005	0.007	0.004
	(0.020)	(0.009)	(0.007)	(0.010)	(0.022)	(0.011)	(0.010)	(0.011)
Professional services	-0.024	0.014	-0.014	-0.014^	-0.003	0.014	-0.011	-0.013
	(0.026)	(0.014)	(0.009)	(0.008)	(0.029)	(0.015)	(0.012)	(0.010)
Public services	0.062*	0.048**	0.006	0.036**	0.023	0.035**	0.020*	0.021*

	(0.025)	(0.012)	(0.008)	(0.010)	(0.020)	(0.011)	(0.009)	(0.009)
Small firm	-0.057**	-0.027**	0.010	0.013	-0.035*	-0.001	-0.004	-0.004
	(0.020)	(0.010)	(0.007)	(0.009)	(0.018)	(0.010)	(0.008)	(0.008)
Supervisory position	-0.110**	-0.046**	-0.023**	-0.020**	-0.065*	-0.028^	-0.042**	-0.036**
	(0.026)	(0.012)	(0.007)	(0.007)	(0.033)	(0.015)	(0.011)	(0.009)
ISEI (ref = lower third)								
Middle third	0.006	-0.007	-0.015*	-0.017	-0.028	-0.018	-0.033**	-0.030**
	(0.017)	(0.010)	(0.007)	(0.014)	(0.021)	(0.011)	(0.009)	(0.011)
Upper third	0.013	-0.022	-0.014^	-0.039**	0.021	-0.022^	-0.033**	-0.029*
	(0.032)	(0.015)	(0.008)	(0.013)	(0.034)	(0.013)	(0.011)	(0.011)
Own children age 1-5 in household	-0.012	-0.016^	0.000	0.003	-0.024	-0.044**	-0.017^	-0.008
	(0.022)	(0.010)	(0.007)	(0.009)	(0.023)	(0.012)	(0.009)	(0.009)
Own children age 6-17 in household	-0.016	-0.005	-0.007	-0.007	0.009	0.001	-0.003	-0.012^
	(0.020)	(0.009)	(0.006)	(0.008)	(0.018)	(0.009)	(0.007)	(0.007)
Person with care need (old age/illness) in household	0.002	-0.023	0.002	0.003	-0.009	-0.027	-0.022	0.005
	(0.026)	(0.016)	(0.012)	(0.016)	(0.026)	(0.019)	(0.018)	(0.018)
Partner's education (ref = Primary and lower secondary)								
Upper secondary	-0.012	0.018^	0.004	-0.032	-0.051*	0.001	0.016^	-0.000
	(0.023)	(0.010)	(0.008)	(0.024)	(0.023)	(0.011)	(0.010)	(0.014)
Post-secondary non-tertiary	-0.091**	0.014	-0.011	-0.034	-0.166**	-0.034	0.013	-0.020
	(0.036)	(0.022)	(0.016)	(0.028)	(0.044)	(0.024)	(0.025)	(0.022)
Tertiary	-0.006	0.014	0.008	-0.031	-0.059^	0.017	0.020^	0.013
	(0.036)	(0.015)	(0.010)	(0.024)	(0.033)	(0.017)	(0.012)	(0.015)
Partner's ISEI (ref = lower third)								
Middle third	-0.005	-0.004	-0.008	-0.009	-0.011	-0.001	0.006	0.008
	(0.021)	(0.010)	(0.007)	(0.009)	(0.018)	(0.009)	(0.008)	(0.011)
Upper third	0.004	0.018	-0.004	0.012	-0.031	-0.016	-0.000	0.003
	(0.027)	(0.014)	(0.008)	(0.010)	(0.027)	(0.014)	(0.011)	(0.010)
Observations	3,471	11,503	15,416	16,762	3,649	9,837	14,500	16,460
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

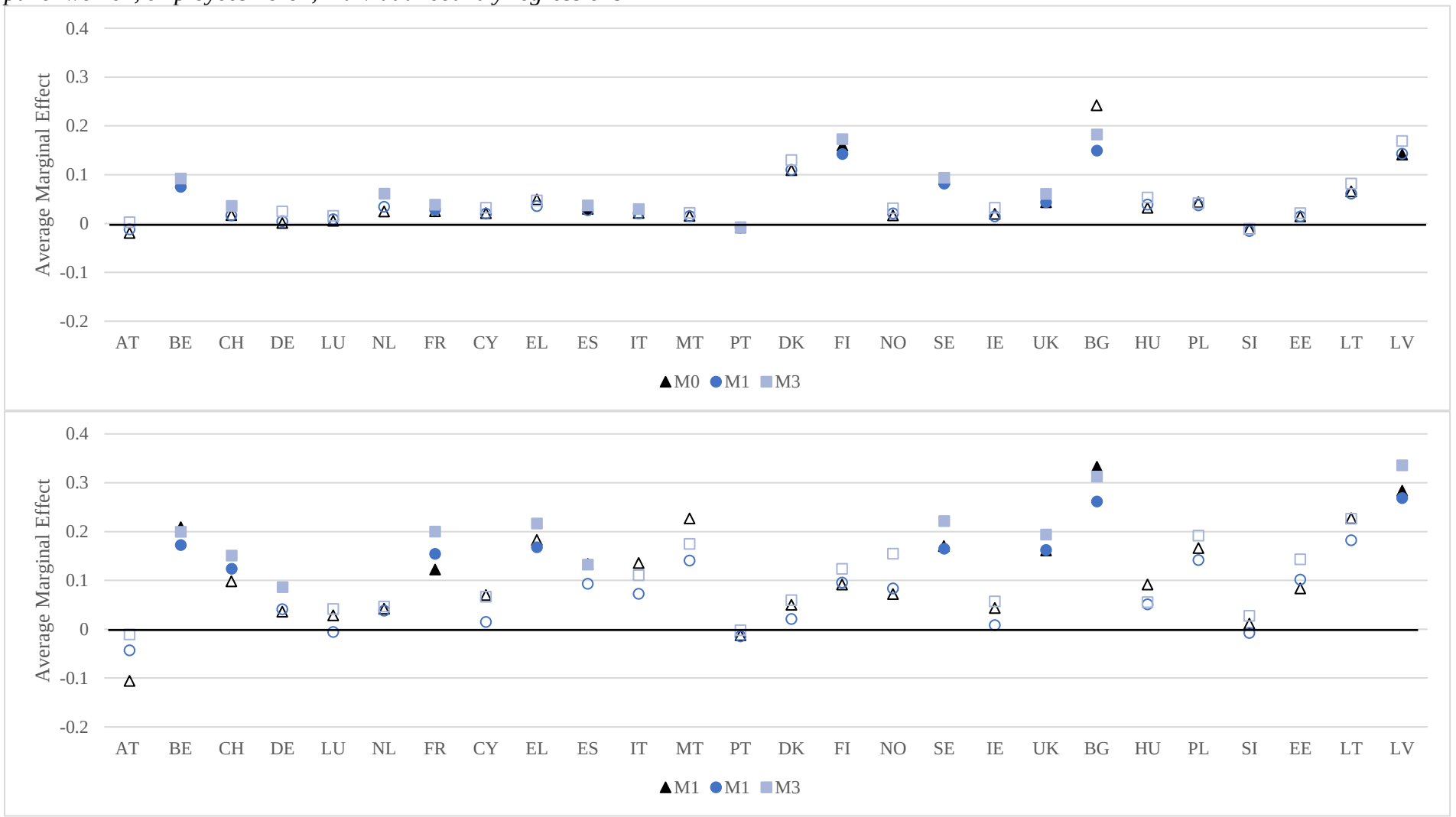
Note: Standard errors in parentheses. ** p<0.01, * p<0.05, ^ p<0.1. Regressions on temporary relative to permanent employment. Estonia, Latvia, Iceland, Sweden, Denmark, Norway, Finland and the Netherlands are excluded from the pooled sample. Country fixed effects included in all models.

Figure A1: Robustness check - Average marginal effect of partner temporary employment on own temporary employment, upper panel men, lower panel women, employees 16-64, individual country regressions



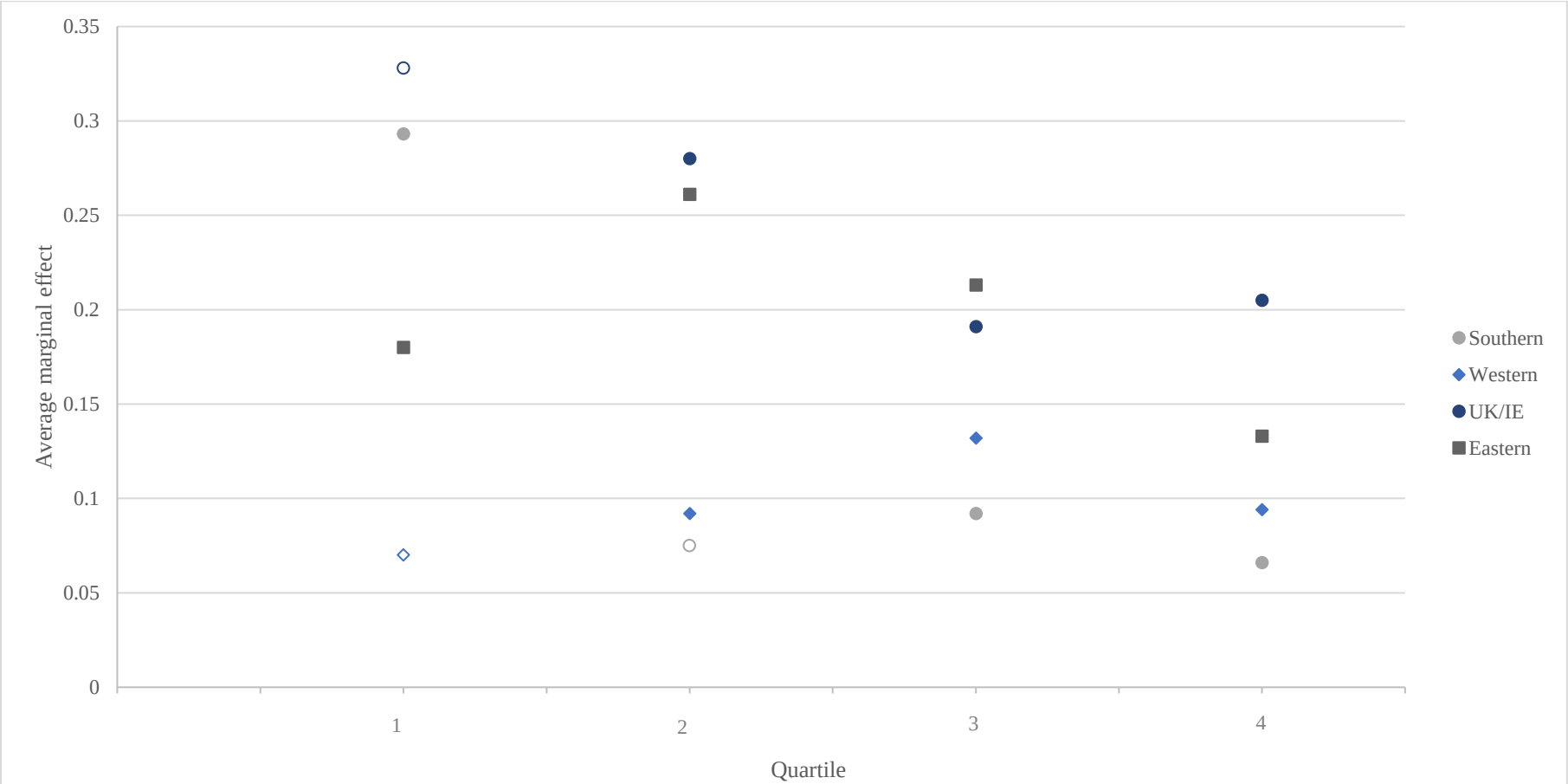
Note: Graphs shows average marginal effects on partner temporary employment relative to partner being in full-time, permanent employment. Hollow dots indicate insignificance at significance level 5%. Additional variables included in the model are age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI, young children in household, old children in household, caring responsibility due to old age/illness for someone in the household for M1, as well as partner's education, ISEI and earnings for M3. To aid the reading of graphs, countries are grouped according to their institutional characteristics (Esping-Andersen, 1990).

Figure A2: Robustness check – Average marginal effect of partner part-time employment on own part-time employment, upper panel men, lower panel women, employees 16-64, individual country regressions



Note: Graphs show average marginal effects on partner temporary employment relative to partner being in full-time, permanent employment. Hollow dots indicate insignificance at significance level 5%. Additional variables included in the model are age, education, foreign-born, years in work, unemployment in past 12 months, industry, firm size, manager, own ISEI, young children in household, old children in household, caring responsibility due to old age/illness for someone in the household for M1, as well as partner's education, ISEI and earnings (M3). To aid the reading of graphs, countries are grouped according to their institutional characteristics (Esping-Andersen, 1990).

Figure A3: Average marginal effect of partner temporary employment on own temporary employment by couple's position in the income distribution and country cluster



Note: Average marginal effects based on model 1, separately depending on couple's position in the national distribution of working age couples' income. Quartile 1 is the bottom quartile of the national distribution of working age couples' income. Quartile 4 is the top quartile of the national distribution of working age couples' income. The Southern country cluster includes Cyprus, Spain, Greece, Italy, Malta and Portugal. The Western cluster includes Austria, Belgium, Switzerland, Germany, France, Luxembourg and the Netherlands. The Nordic Cluster includes Denmark, Finland, Sweden and Norway. The Eastern European cluster includes Bulgaria, Hungary, Poland, Slovenia, Estonia, Lithuania and Latvia. 95% Confidence Intervals included.

Accumulation or mitigation? The impact of atypical employment in couples on joint labour income

Leonie Westhoff

Abstract

This article contributes to the body of literature on the economic consequences of atypical employment by investigating whether the presence of temporary or part-time employment in couples has implications for these couples' labour income. Using longitudinal data from Germany (1995-2018), the analysis shows that atypical employment in couples does affect these couples' income position. For temporary employment, one or both partners being in such employment has negative consequences for couples' labour income, especially once adjusting for working hours. For part-time employment, absolute joint labour income decreases significantly when one or both partners in a couples are employed part-time. However, once adjusting for working hours, no significant income differences are found. Moreover, the analysis further disaggregates these results. The results show that the income disadvantage associated with part-time work in couples is substantially more pronounced when one or both partners are working less than 15 hours per week. Second, the analysis takes into account gender differences in the effect of partner atypical employment on joint labour income. Overall, the results indicate that the male partner being in atypical employment within a couple has stronger negative effects on couple labour income than the female partner being atypically employed.

1 Introduction

A large amount of literature has examined the characteristics and individual socio-economic consequences of "atypical" employment - employment diverging from the standard employment relationship, that is permanent, full-time employment where the worker is employed on a contractual basis by an employer (Giesecke, 2009; Keller and Seifert, 2013; Hipp, Bernhardt and Allmendinger, 2015; ILO, 2016). This includes a variety of employment relationships, among them part-time work, temporary employment, contractual arrangements involving multiple parties (particularly temporary agency work) and dependent self-employment (Hipp, Bernhardt and Allmendinger, 2015; ILO, 2015). One central result of research on atypical employment is that it is associated with material disadvantages, including lower wages, though the extent of such disadvantages differs between types of atypical employment (Bardasi and Gornick, 2008; Giesecke, 2009; Dias da Silva and Turrini, 2014; Kahn, 2016).

To a large extent, however, literature on atypical employment focuses on the characteristics of atypical employment at the individual level, neglecting the dimension of couples and households. Yet, as many individuals live in partnership and partners share and pool income sources, the financial situation of the couple is an important dimension for well-being (Laß and Wooden, 2020). Indeed, in times of increasing dual earnership, a perspective that considers partnership dynamics is needed to understand the relationship between labour market developments – such as the prevalence of atypical employment – and social inequality (Horemans, 2016).

Paper 3 of this DPhil thesis took a first step in the direction of investigating the dynamics of atypical employment in couples. Focusing on two types of atypical employment, temporary and

part-time employment, it analyzes whether there is an association between partner and own atypical employment. Indeed, the results show that both partner temporary and part-time employment are associated with an increased likelihood of own temporary and part-time employment, respectively. This finding raises a new question however: in how far is the observed presence and accumulation of atypical employment in couples associated with material disadvantages for these couples? This is the question this paper seeks to answer. Specifically, it provides insights on the income consequences of two types of atypical employment – temporary and part-time employment – for dual-earner couples.

While some emerging research examines the prevalence of polarization in atypical employment from a macro-level societal perspective (Horemans, 2016), there is a lack of evidence examining how constellations of atypical employment in couples affect the couple's socio-economic situation. For Australia, Laß and Wooden (2020) show that fixed-term work at the individual level is associated with higher household income, whereas the reverse is the case for casual and agency work. As regards European countries, the OECD (2015) provides some first evidence that atypical working patterns - including own-account self-employment, temporary work and part-time work - are related to higher household earnings inequality. Households with such work arrangements are disproportionately located at the lower end of the household income distribution, though this is much more so the case when non-standard work is the main source of earnings than where earnings are combined with those of a standard worker (Ibid.). This paper extends and supplements this scholarship by providing a first account of how constellations of temporary and part-time work within dual-earner couples influence the labour income of these couples. It argues that, given the known income disadvantages associated with atypical employment, the presence of such employment within couples, particularly where both partners are in atypical employment, may lead to an accumulation of disadvantages. However,

it is also possible that the pooling of risks within couples mitigates the income disadvantages associated with atypical employment at the individual level, at least to some extent.

Furthermore, this paper discusses whether the income consequences of atypical employment for couples are gendered. It is well established that the division of labour in couples continues to be structured along the lines of gender (Dieckhoff *et al.*, 2020). In addition, atypical employment itself, particularly part-time work, is strongly gendered. This paper links these lines of enquiry by developing a theoretical framework and empirical analysis that examines whether the impact of atypical employment on couples' income depends on the gender of the partner in atypical employment. In doing so, the paper contributes to the broader discussion on atypical employment by highlighting the heterogeneity of such employment relationships, and their socio-economic consequences, not only at individual but also at couple level.

To analyze the link between constellations of temporary and part-time employment in couples and joint labour income, longitudinal data from the German Socio-Economic Panel (G-SOEP) is used. For interrogating the research question set out, longitudinal data holds two central advantages over cross-sectional data. First, longitudinal data can be used to account for selection of couples into atypical employment to a much larger extent than cross-sectional data, by employing fixed effect models, which absorb all time-invariant variation across couples. Second, by lagging the time-variant independent variables by one year, issues of reverse causality between couple atypical employment and couple income can be circumvented.

Germany is a particularly interesting case to study atypical employment. The successive deregulation of employment protection legislation for temporary contracts in past decades has led to the development of a dualized labour market with strong differences in protections between permanent and temporary workers (Gebel, 2010). Research has shown that temporary

contracts in Germany are associated with substantial disadvantages, including wage penalties (Hagen, 2002; Mertens, Gash and McGinnity, 2007; Giesecke, 2009). Part-time work is also very common in Germany, particularly among women. Similarly to temporary employment, past research has found that part-time work in Germany is associated with wage penalties, though these become much smaller once job characteristics are accounted for (Bardasi and Gornick, 2008; Gallego-Granados, 2019). Some papers identify an adjusted wage gap only for part-time workers working a low number of hours (Giesecke, 2009; Paul, 2016). However, despite the prevalence of both types of atypical employment relationships, their socio-economic consequences at the level of couples remains unexplored. This article seeks to fill this gap.

2 Atypical employment in couples: cumulative disadvantage or insulation through risk pooling?

Given the material disadvantages associated with atypical employment for individual earners, a pertinent question is to what extent such disadvantage is transmitted to the level of the household or couple. Several mechanisms may lead to an accumulation of disadvantages within a couple, meaning that atypical employment is associated with income disadvantages. However, if couples use household specialization strategies to pool risks within the couple, then such cumulative disadvantage may not occur. These mechanisms are set out in detail below.

Mechanisms influencing the income consequences of atypical employment in couples

Through several pathways, atypical employment of one or both partners in a couple may have a negative effect on the couple's joint labour income. At the individual level, a large body of literature has demonstrated that atypical employment is associated with socio-economic disadvantages both internationally and within the German context. For temporary employment,

many studies have found significant wage penalties for temporary employees relative to the permanently employed (Mertens, Gash and McGinnity, 2007; Dias da Silva and Turrini, 2014; Kahn, 2016). Similarly, part-time employment may be associated with wage penalties relative to full-time employment. However, compared to temporary employment, the wage disadvantages associated with part-time employment are smaller and may become insignificant once job characteristics, such as occupation, are controlled for (Bardasi and Gornick, 2008; Manning and Petrongolo, 2008; Giesecke, 2009). Given that atypical employment is associated with negative income effects at individual level, the presence of atypical employment within a couple should be associated with a negative income effect on the couple's income. If both partners are atypically employed, this disadvantage should accordingly be larger.

The disadvantage associated with atypical employment may be further exacerbated through homogamy in couples. A large body of literature has shown that partners match on many characteristics, including education, age, occupation, and family background (Bernasco, De Graaf and Ultee, 1998; Henz and Sundström, 2001; Blossfeld, 2009). This implies that partnership decisions may enhance social inequalities that exist at the individual level, as couples pool economic and sociocultural resources (Blossfeld, 2009). Individuals with similar characteristics, such as education and age, pair up, and these characteristics are in turn predictive of labour market success, including the propensity of being in atypical employment (Bardasi and Gornick, 2000; Hirsch, 2005; Baranowska and Gebel, 2010; Matteazzi, Pailhé and Solaz, 2014; Eichhorst and Marx, 2015). That is, if individuals in atypical employment are more likely to have characteristics associated with lower labour market success – such as lower education and labour market experience – then their partners are likely to share these characteristics, meaning they may also have low labour market success and income (even if they are not themselves atypically employed). As such, the income disadvantages within the

couple may accumulate and lead to significantly lower income relative to couples where both partners are in standard employment.

Finally, atypical employment within a couple may have negative effects on the couple's joint labour income beyond compositional or homogamy effects because of the influence of partner resources. A partner's social and cultural resources can influence the career through access to networks, advice on career development and knowledge transmission (Bernardi, 1999; Verbakel and De Graaf, 2008). Individuals in atypical employment are more likely to lack such social and cultural capital (De Lange, Wolbers and Ultee, 2013). The lack of resources to draw on within the couple is likely to have a negative effect on the couple's joint income, as couples reinforce each other's labour market outcomes.

The mechanisms set out imply that atypical employment in a couple may lead to an accumulation of disadvantages and therefore lower joint couple income. However, it is also possible that couples can mitigate the income disadvantages associated with atypical employment through a pooling of resources. Indeed, it is conceivable that the taking up of atypical employment in a couple is not an expression of a weaker labour market position, but rather is driven by household specialization, as described by Becker (1993). According to this theory, partners specialize in paid and unpaid work because they pool their resources to maximize utility within marriage (Bernardi, 1999). Efficiency is achieved when the resources of household members are allocated to activities relative to their comparative advantage in the labour market. This may result in a disincentive to participate in the labour market for the partner with inferior labour market resources. In dual-earner couples, the disincentive effect may impact the level of labour market connection that the partner seeks, in the form of hours worked, job permanency, occupational status, or earnings (Becker, 1993; Bernardi, 1999; Róbert and Bukodi, 2002). As a result, couples may opt for one partner to work atypically, with

the income disadvantage being associated with this balanced out by the other partner working in standard employment (Laß and Wooden, 2020). This may particularly be feasible for couples with higher socio-economic standing, who can afford for one partner to be atypically employed. Hence, one of two partners being in atypical employment may not be associated with income disadvantages relative to couples where both partners are in standard employment. This is because the partner who is in standard employment can compensate for the income disadvantage associated with one partner being atypically employed.

Temporary and part-time employment: different mechanisms at work?

Two competing mechanisms have been set out: that atypical employment within couples leads to lower joint couple income compared to couples in standard employment due to the accumulation of disadvantages, or that couples mitigate the individual-level disadvantages associated with atypical employment by pooling resources. However, the extent to which these mechanisms apply likely differs between types of atypical employment. Though both temporary and part-time employment are associated with wage disadvantages, as described above, the extent of such penalties is more pronounced for temporary employment (Mertens, Gash and McGinnity, 2007; Bardasi and Gornick, 2008; Dias da Silva and Turrini, 2014; Kahn, 2016). Moreover, temporary workers tend to, on average, be negatively selected with regard to characteristics such as education and labour market experience (Barbieri, 2009; Gebel and Giesecke, 2009). Therefore, temporary employment is associated with substantial labour market disadvantage, which may reinforce the pathways to an accumulation of disadvantage in couples set out earlier. This should be reflected in the patterns associated with temporary employment in couples, in that there should be a significant income disadvantage associated with temporary employment in a couple, and even more so when both partners are in temporary employment.

In contrast, part-time work is a distinct form of atypical employment that has become well-established in European labour markets and is associated with a higher level of labour market protection than temporary employment (Barbieri, 2009; Nicolaisen, Kavli and Steen Hensen, 2019). In Germany, part-time work is associated with a relatively low degree of labour market disadvantage in terms of job quality, though this is not necessarily the case for marginal part-time work, which has grown notably since the introduction of the German Hartz II reforms in 2003 (Dieckhoff *et al.*, 2016). Moreover, compared to temporary employment, the likelihood of being employed part-time in Germany is somewhat less influenced by previous labour market experience and, in contrast, often determined by household characteristics such as the presence of children, particularly for women (Giesecke, 2009). As part-time work is associated with labour market disadvantage to a lower extent than temporary employment, it is less likely to lead to an accumulation of disadvantage through homogamy and reduced partner resources. Rather, within couples, part-time work may be part of household specialization strategies. Hence, the income disadvantage associated with it should be lower, particularly if only one partner is in part-time employment.

Is the income effect of atypical employment in couples gendered?

The previous section has set out how atypical employment within couples may have negative effects on the couple's labour income. However, in examining these effects the gendered nature of both atypical employment and the division of labour in households should be considered. The German labour market in particular has traditionally been considered part of a conservative welfare state, with strong emphasis on the male breadwinner model and a gendered division of labour (Esping-Andersen, 1990; Ahrens and Scheele, 2022). Moreover, in this context the

German taxation system, where couples can be taxed jointly with full income splitting, may encourage lower female labour market participation and part-time work (Dieckhoff *et al.*, 2016). Though there have been policy initiatives to address gender inequalities in the German labour market in recent years and female labour force participation has increased, substantial inequalities remain, including in hours worked, income and vertical and horizontal segregation (Ahrens and Scheele, 2022; Schmitt and Auspurg, 2022). Given the important role gender plays in the German labour market, it is plausible that effects of atypical employment within couples are also gendered. In particular, it is posited that within heterosexual couples, the female partner being in atypical employment is likely to have a smaller influence on couple income than the male partner being atypically employed, for several reasons.

First, while atypical employment is associated with wage disadvantages for both men and women, these penalties differ by gender. Research on temporary employment tends to find that both men and women incur wage penalties in temporary employment, but these penalties are somewhat weaker for women than for men (Giesecke, 2009; Westhoff, 2022). These differences are even more strongly pronounced for part-time work. For female part-time work, wage penalties are on balance very small or non-existent once individual characteristics are taken into account (Manning and Petrongolo, 2008; Matteazzi, Pailhé and Solaz, 2014). In contrast, significant part-time wage penalties for men have been found in several studies (Hirsch, 2005; O'Dorchai, Plasman and Rycx, 2007; Wolf, 2014). If atypical work, particularly part-time work, is more disadvantageous for men, the male partner being in atypical employment should correspondingly lead to larger wage disadvantages within couples, relative to the female partner being atypically employed.

Second, men and women in couples may select into atypical work, particularly part-time work, for different reasons. Some workers in jobs involving shorter hours or lower contractual

commitment may prefer flexible schedules or allocate more time to non-market work, which is more likely to be the case for women (Hagen, 2002; McGinnity and McManus, 2007). Many women in Germany express that they work part-time voluntarily (Holst, 2009). If women in couples select into atypical employment due to diverse preferences - within the context of gendered norms and institutional constraints that encourage female care work (Kangas and Rostgaard, 2007) – they are less likely to be negatively selected. Indeed, household characteristics have been shown to be strongly predictive of part-time work for German women (Giesecke, 2009). In contrast, for men, atypical employment is less likely to be driven by the family context and may be more strongly associated with inferior human capital. Given homogamy in couples as described above, the male partner being atypically employed may be more strongly associated with inferior labour market characteristics and a larger income disadvantage within the couple.

Finally, atypical employment for female partners is more likely to be part of household specialization strategies within the couple. In Germany, women continue to be the secondary earner within couples (Dieckhoff *et al.*, 2020; Haupt and Strauß, 2022). Research has shown that traditional gender norms regarding the role of women as caregivers still prevail within the German labour market (Lott and Klenner, 2018). In this context, female partners taking up atypical work – again, particularly part-time work – may be a strategy for couples within the gendered division of labour (Becker, 1993). Indeed, women are more likely to work part-time in Germany when they are in a weaker labour market position relative to their partner, and such household specialization appears to be increasing over time (Dieckhoff *et al.*, 2016). In contrast, in couples where the male partner is working atypically, women contribute more to overall household income (Dieckhoff *et al.*, 2020).

To summarize, the income disadvantage associated with atypical employment in couples is expected to be more pronounced when it is the male partner who is in atypical employment. Moreover, these effects are expected to be more pronounced for part-time employment compared to temporary employment, given the strongly gendered nature of part-time work (in particular within the German context).

3 Data and Variables

To investigate the link between atypical employment and couples' incomes, this paper makes use of data from the German Socio-Economic Panel (SOEP) (DIW, 2021). The SOEP is an extensive panel dataset covering private households in Germany, which started in 1984 (including East Germany from 1990). It covers around 15,000 households and 30,000 individuals yearly. The longitudinal SOEP data contains rich information on individuals' income, employment status and socio-demographic characteristics. In this paper, data from 1995-2018 is used. Prior to 1995, the data on temporary employment was not consistently collected, leading to extensive missingness on this variable. Weighting and sample design information is provided, which is taken into account in all analyses presented.[1]

The focus of the analysis are heterosexual[2] dual-earner couples aged 25-64[3]. The individual-level data provided in the SOEP includes a partner ID for each individual who is living with a partner in the same household. Based on these identifiers, partners can be linked and a couple-level dataset is constructed, which measures the dependent and independent variables at the

[1] To construct the dataset and variables, documentation from the SOEP and paneldata.org was used (SOEP, 2021).
[2] There is a small proportion of same-sex couples within the dataset. However, in order to explicitly focus on heterosexual gendered patterns of atypical employment within couples, the analysis focuses on heterosexual couples.
[3] Of couples aged 25-64 in the sample, 58.5% are dual-earner couples.

level of the couple. Taking into account missingness on the control variables, the final analytical sample size is 39,075 couple-year observations, based on 8564 couples. The Appendix (Table A1) shows the analytical sample size by year of observation.

The dependent variable of interest is the couple's joint labour income. The SOEP provides data on both partners' gross monthly labour income[4]. Based on this, two measures of couple joint labour income are constructed. First, the couples absolute joint gross monthly labour income is calculated by summing up the two measures of monthly labour income (adjusted for inflation, base year 2015). Second, a measure of full-time equivalized joint couple labour income is constructed. Differences in labour income between couples in atypical and standard employment may be related to differences in working hours, particularly in the case of part-time employment. The measure of full-time equivalized joint labour income adjusts for this by calculating the couple's income if both partners were working full-time (40 hours per week). In this way, the extent to which the absolute income disadvantage potentially observed persists once accounting for differences in working hours can be examined. Logged measures of income are used in all analyses.

The key independent variable is the constellation of atypical employment in the couple. For each partner who is an employee, temporary and part-time employment status are observed. Temporary employment is defined as holding a non-permanent contract, measured at the time of interview. Part-time employment is defined as working less than 32 hours per week. While there is no fixed definition of part-time work in research in the German context, an hours-based definition is commonly used (e.g. Giesecke, 2009; Gallego-Granados, 2019). Robustness checks in the Appendix show results based on alternative hours-based thresholds of working

[4] Values of income smaller than the first percentile and greater than 3 times the 99th percentile are set equal to the respective values to adjust for outliers (SOEP, 2021).

less than 30 and 35 hours (Table A8), as well as self-defined part-time work (Table A9), with largely similar results.

Based on the two partners' atypical employment status, two categorical variables of atypical employment constellation in the couple are constructed. The indicator for temporary employment includes the following categories: both partners in permanent employment, one partner in temporary employment and one in permanent employment, both partners in temporary employment, or at least one partner self-employed[5]. Correspondingly, the indicator for part-time employment includes both partners in full-time employment, one partner in part-time employment and one in full-time employment, both partners in part-time employment, and at least one partner self-employed. To ensure that the model captures the influence of atypical employment in the couple on income, rather than the reverse, the indicator is lagged by one year[6].

Table 1 shows the distribution of temporary and part-time employment in dual-earner couples in the sample. In the majority of dual-earner couples (70.7%), both partners are permanently employed, with one partner in temporary employment in 10% of couples and only a small share of couples (0.9%) where both are in temporary employment. Nevertheless, the relatively small share of dual-temporary couples constitutes a significant number of individuals when extrapolating to a population level. For instance, a calculation based on the German micro census data on the number of couples in Germany (Statistisches Bundesamt, 2022) suggests that, averaging over the observation period[7], ca. 65000 couples in Germany are in a dual-temporary employment situation per year. This underlines the importance of investigating the

[5] This category includes atypically employed individuals with a self-employed partner. Running the analysis only on couples where both partners are employees did not substantially change the results (Appendix, Table A13).
[6] Equally, all other time-variant variables included in the model are lagged by one year.
[7] The first year of observation, 1995, is excluded from the calculation due to lack of data.

socio-economic situation of individuals in this situation. As regards part-time work, in contrast, dual full-time couples are in the minority (33.8%) of dual-earner couples, with the largest share (43.2%) having one partner in part-time employment, and a relatively small proportion where both are employed part-time (2.1%).

Table 1: Distribution of temporary and part-time employment in dual-earner couples aged 25-64, SOEP 1995-2018

Category	**Proportion (%)**
Temporary work in couples	
Both permanent	70.7
One temporary, one permanent	10
Both temporary	0.9
At least one self-employed	18.4
Part-time work in couples (32 hours)	
Both full-time	33.8
One part-time, one full-time	43.2
Both part-time	2.1
At least one self-employed	20.9

Further analyses expand on this set of independent variables to provide more detailed analysis. First, several studies looking at part-time work in Germany have found that the influence of part-time work on individual-level income depends on whether part-time work is marginal or substantial (Giesecke, 2009; Paul, 2016). To investigate whether this also applies at the level of couples, an extended variable distinguishes between marginal and substantial part-time work in the couple, marginal part-time being defined as working less than 15 hours per week (Messenger and Wallot, 2013), and substantial part-time between 15 and 31 hours. The variable includes the following categories: both partners in full-time employment; one partner in full-time employment, one in substantial part-time employment; both partners in substantial part-time employment; at least one partner in marginal part-time employment[8]; and at least one

[8] The proportion of couples where both partners are in marginal part-time employment is extremely low and therefore subsumed within the category of at least one partner being in marginal part-time employment.

partner self-employed. Second, the theoretical framework also set out that the influence of atypical employment in the couple on the socio-economic situation may differ depending on whether the male or female partner is in atypical employment. To investigate this possibility, a subsequent set of analyses further disaggregates the key independent variable, distinguishing whether it is the female or male partner in temporary or part-time employment.

In addition, the analyses control for a range of variables that may influence a couple's joint labour income. Socio-demographic characteristics include the average age of the two partners, whether the couples lives in East Germany[9], whether the couple is married and the number of children present in the household. Furthermore, an indicator for the education of the couple is constructed (both elementary education; one elementary education, one secondary education; both secondary education; one lower tertiary education, one less than lower tertiary education; both lower tertiary education; one lower tertiary education, one less than lower tertiary education; both upper tertiary education). The analysis also controls for the average ratio of years the two partners have spent in unemployment. In addition, separate variables for the male and female partner are included considering whether they work in a small firm, whether they work in the civil service and which industry they are in (categories extractive services, manufacturing and construction; trade, accommodation and food services; professional services; public and other services[10]). To capture occupational status, occupation is included in the form of the average International Socio-Economic Index (ISEI) of the couple, derived from four-digit 1988 ISCO codes (De Graaf, Treiman and Ganzeboom, 1992). Finally, controls for each partner in regard to the respective other type of atypical employment not included as the

[9] It is conceivable that the effects identified, particularly the gendered effects, differ across West and East Germany. While the analysis does control for living in East Germany, interaction effects or separate regressions by region are not conducted, given low sample sizes in some categories.

[10] The classification is based on on NACE Rev. 1 (1995-2017) and Rev. 2 (2018): extractive services, manufacturing and agriculture – NACE A-F; Trade, accommodation and food services – NACE G-I; professional services – NACE J-K (Rev. 1) or J-N (Rev. 2); public services – NACE L-N (Rev. 1) or O-Q (Rev. 2); other services – NACE O-Q (Rev 1) or R-U (Rev. 2).

key variable – temporary or part-time employment – are included. The Appendix shows descriptive statistics on overall composition of the sample (Table A2), as well as the distribution of control variables (Table A3) and income (Table A4) by couple employment constellation.

When examining the relationship between couple's employment constellation and couple's income, a possible selection issue occurs. That is, couples in atypical employment may systematically differ in their characteristics from those who are not in atypical employment, which may account for income differences between them. In order to account for such selection effects as much as possible, the longitudinal structure of the data is exploited by running fixed effect regression models. By employing fixed effects for the couple, observable and unobservable variation across couples that does not vary over time can be absorbed in the model (Allison, 2009). Models also include an additional fixed effect for the survey year.

An alternative specification would be a mixed model that includes a fixed effect for the observable characteristics in the model, as well as a random intercept for each couple. The random effects component that is part of the mixed model captures the variance of couple trajectories around the average effects of variables included in the model (Curran, Obeidat and Losardo, 2010). However, the random effect cannot account for unobservable (time-constant) variation in the manner of a fixed effect model, which is why the main analysis relies on the fixed effect specification. Nevertheless, random effects estimates are presented in the Appendix (Table A10-A12) as a robustness check[11]. The results are generally similar, with the random effects specification, if anything, showing larger or more significant effects relative to the fixed effects specification, as would be expected given that unobservable time-constant variation is not differenced out of the model.

[11] Random effect models include additional controls for migration background. As a time-constant variable, this is absorved within the couple fixed effect in the main model.

4 Results

The relationship between atypical employment in couples and labour income

Using the data described, the association between couple atypical employment and labour income can be examined in detail using fixed effects regressions. Table 2[12] shows the results from the fixed effects regression on log joint couple labour income and equivalized income, for regressions where couple temporary employment is the key explanatory variable. The table shows both the unadjusted coefficients from a base model including no controls (M1), and adjusted coefficients where controls are accounted for (M2). To illustrate the results further, Figure 1 shows estimated log income and equivalized income by couple temporary employment status, based on the adjusted model.

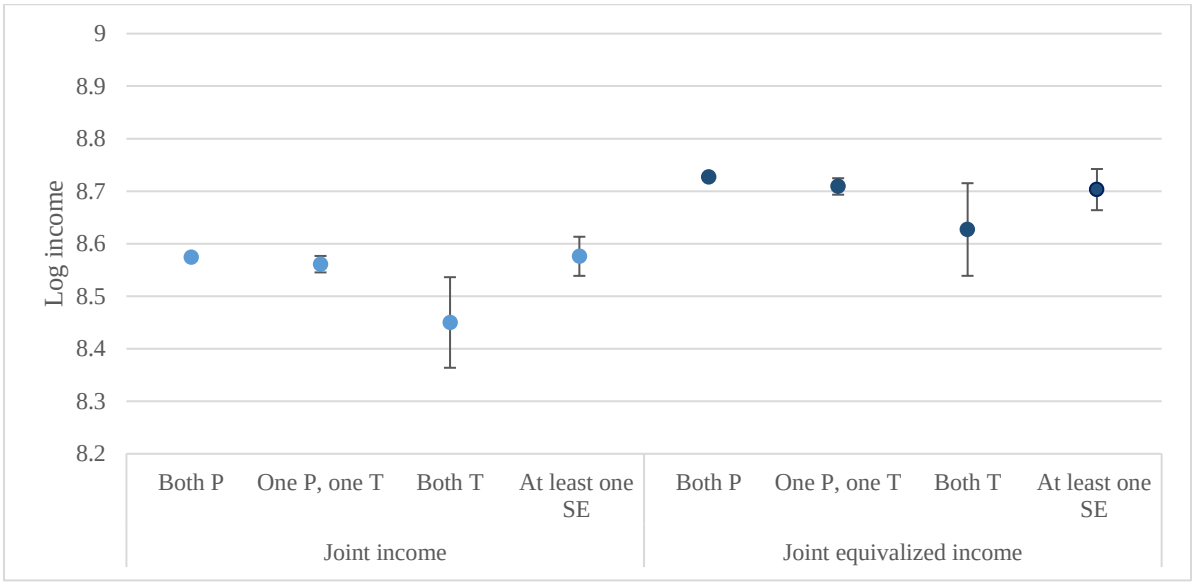
Table 2: Results of fixed effect regression on couple income and equivalized income, couple temporary employment as key explanatory variable

Y = Log joint couple labour income	Income		Equivalized income	
	M1	M2	M1	M2
Couple employment (ref = both permanent)				
One permanent, one temporary	-0.034*	-0.012	-0.032*	-0.017*
	(0.014)	(0.009)	(0.014)	(0.009)
Both temporary	-0.152**	-0.124**	-0.122**	-0.100*
	(0.042)	(0.044)	(0.045)	(0.045)
At least one partner self-employed	0.008	0.002	-0.059*	-0.023
	(0.020)	(0.022)	(0.027)	(0.022)
Controls	No	Yes	No	Yes
Observations	37,709	37,709	37,709	37,709
Number of couples	8,564	8,564	8,564	8,564

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year. Models with controls include the average age of the couple, marriage, children in the household, education, couple's unemployment experience, work in a small firm, work in the civil service, ISEI, both partners' industry, living in East Germany and part-time employment as controls.

[12] The full regression results are shown in the Appendix, Table A5.

Figure 1: Estimated log income by couple temporary employment composition, regression on joint labour income and equivalized labour income



Note: P = Permanent employment, T = Temporary Employment, SE = Self-employed. 95% Confidence Intervals included.

Looking first at the unadjusted coefficients, couples where one partner is in temporary employment have a log monthly joint income that is 3.4% lower than that of couples where both work in permanent employment. The difference in income is significantly higher (15.2%) where both partners work in temporary employment. Once controls are included in the model, the disadvantage for couples with one partner in temporary employment remains negative but is no longer statistically significant. Hence, there is some indication that the income disadvantage for couples where one partner is in temporary employment can be attributed to couples' observable characteristics. In contrast, the effect of both partners being in temporary employment is somewhat reduced but remains substantial (12.4%). When looking at equivalized income, these patterns are very similar, and the effect of one partner being temporarily employed in fact remains significant once adjusting for controls. That is, if working hours were equal, couples with one partner in temporary employment would continue to face an income disadvantage. In other words, ceteris paribus, couples with one partner in temporary employment may compensate for the income disadvantage associated with temporary work by

working longer hours. Overall, as theorized, temporary employment in a couple is associated with substantial income disadvantage.

There is a particular accumulation of income disadvantage in couples where both partners work in temporary contracts. However, in interpreting this association, it should be kept in mind that the proportion of couples where both partners are in temporary employment within the population is small (0.9% of dual-earner couples). While this is still a significant number of couples within the German labour market, this group may have quite distinct characteristics. Indeed, the descriptive statistics (Appendix, Table A3) show that relative to other couples, couples where both partners are in temporary employment tend to be younger and have spent relatively more time in unemployment yet are highly educated and have relatively high occupational status. Hence, dual temporary employment is not necessarily associated with disadvantageous characteristics for all workers but is rather taken up by a group of young couples with high human capital but inferior labour market experience.[13]

Analogous to Table 2, Table 3 shows the regression coefficients on constellations of part-time employment in couples, and Figure 2 the estimated income based on the adjusted model. The patterns when looking at absolute income are similar to temporary employment. There are significant negative income effects when one partner (7.9%) or, particularly, both (22.1%) work part-time in the unadjusted model, and these do not change much (7% and 19%, respectively) when including controls in the model.

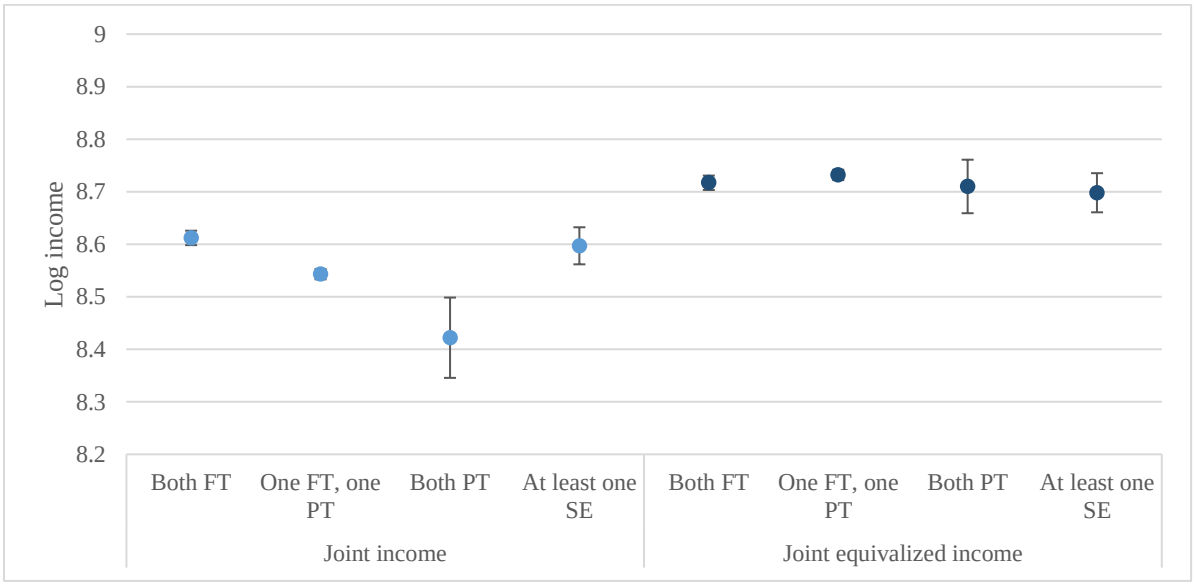
[13] For absolute joint income, the median joint income of dual-temporary couples is significantly higher than their mean income, suggesting that the large absolute income disadvantage found is driven by some particularly low-earning couples (Appendix, Table S4). A similar patterns is observed for part-time employment. However, once adjusting for working hours, dual-temporary couples face a particularly large income disadvantage also when looking at median incomes.

Table 3:Results of fixed effect regression on couple income and equivalized income, couple part-time employment as key explanatory variable

Y = Log joint couple labour income	Income		Equivalized income	
	M1	M2	M1	M2
Couple employment (ref = both full-time)				
One full-time, one part-time	-0.079**	-0.070**	0.017	0.015
	(0.012)	(0.010)	(0.012)	(0.010)
Both part-time	-0.221**	-0.190**	-0.021	-0.007
	(0.052)	(0.040)	(0.039)	(0.028)
At least one partner self-employed	-0.044^	-0.015	-0.044	-0.019
	(0.023)	(0.022)	(0.027)	(0.023)
Controls	No	Yes	No	Yes
Observations	37,709	37,709	37,709	37,709
Number of couples	8,564	8,564	8,564	8,564

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year. Models with controls include the average age of the couple, marriage, children in the household, education, couple's unemployment experience, work in a small firm, work in the civil service, ISEI, both partners' industry, living in East Germany and temporary employment as controls.

Figure 2: Estimated log income by couple part-time employment composition, regression on joint labour income and equivalized labour income



Note: FT = Full-time employment, PT = Part-time Employment, SE = Self-employed. 95% Confidence Intervals included.

Given the lower working hours that are obviously associated with part-time work, the lower absolute income associated with it is not surprising. However, though there are substantial disadvantages in absolute income associated with one or both partners work part-time, these

differences largely disappear when looking at equivalized income. As such, a large part of the income disadvantage associated with part-time work in couples is driven by lower working hours, not by the fact that part-time workers are inherently situated in lower-paying jobs.

Nevertheless, when interpreting the figures on equivalized income, it should be stressed that this does not imply that part-time work in couples does not carry income disadvantages with it. Clearly, in absolute terms, working part-time is associated with material disadvantages for couples, despite the fact that part-time work in couples is not associated with worse-paid jobs as such once adjusting for working hours. This may particularly be an issue of concern if individuals would in fact like to work longer hours. In order to investigate whether this is the case, data on working hours in the SOEP was compared with that on preferred working hours indicated by individuals (assuming their income would increase along with hours worked). This data shows that of the female part-time workers in dual-earner couples, 42.1% would like to increase their working hours, while this is the case for 58.3% of male part-time workers. 10% of female part-time workers and 30.8% of male part-time workers would like to increase their working hours by 10 hours or more. This gives a clear indication that low working hours are in fact not voluntary for a substantial proportion of part-time workers, particularly for men.

As an additional analysis, a model on income and equivalized income was run distinguishing between substantial and marginal part-time employment in couples (Table 4 and Figure 3)[14]. The results show that, as one would expect, the absolute income disadvantage associated with at least one partner being in marginal part-time employment (working less than 15 hours per week) is much larger than both partners being in substantial part-time employment and, particularly, only one partner being in substantial part-time employment. Furthermore, when

[14] The full regression models are shown in the Appendix, Table A6.

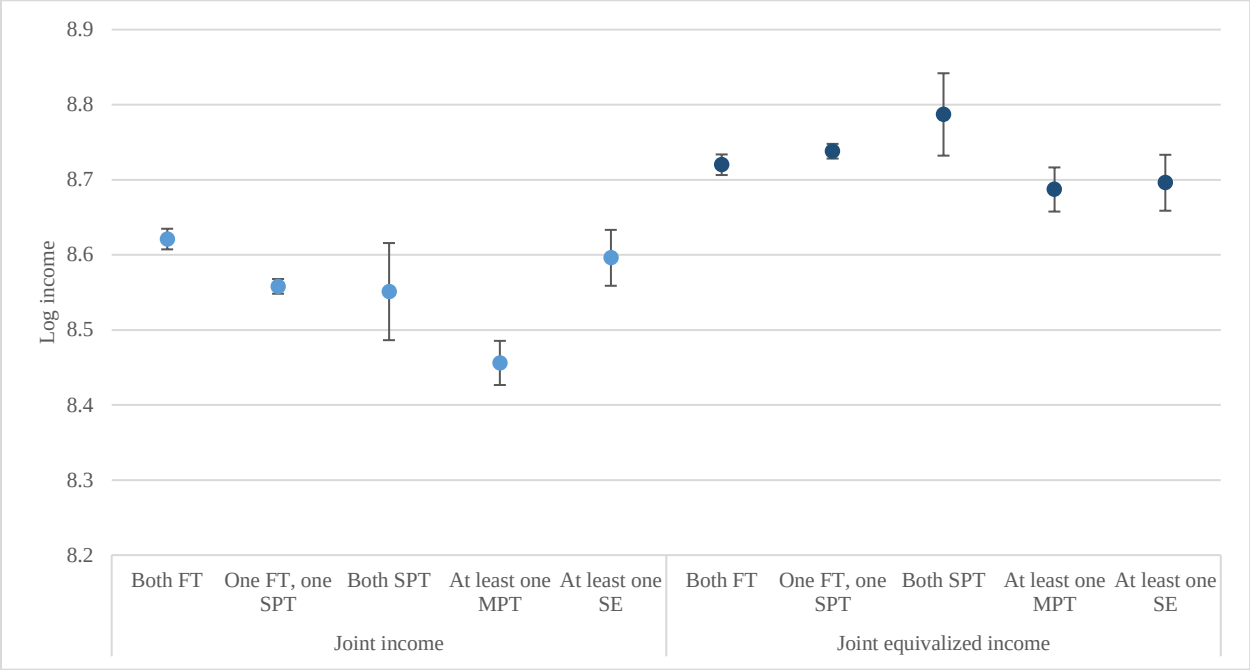
looking at equivalized income, an income advantage is actually observed when one (1.8%) or particularly both (6.7%) partners are in substantial part-time employment relative to both partners being employed full-time. In contrast, there is still a negative coefficient (3.3%) on marginal part-time work within the couple, though this is only significant at the 10% significance level. Overall, consistent with previous research on part-time work in Germany (Giesecke, 2009; Paul, 2016), marginal part-time work is associated with a significant amount of labour market and income disadvantage, while this is not the case for substantial part-time work to the same extent.

Table 4: Results of fixed effect regression on couple income and equivalized income, couple part-time employment as key explanatory variable, distinction between substantial and marginal part-time employment

Y = Log joint couple labour income	Part-time work	
	Income	Equivalized income
Couple employment (ref = both full-time)		
One full-time, one substantial part-time	-0.063**	0.018*
	(0.009)	(0.009)
Both substantial part-time	-0.070*	0.067*
	(0.034)	(0.030)
At least one partner marginal part-time	-0.165**	-0.033^
	(0.019)	(0.019)
At least one partner self-employed	-0.025	-0.024
	(0.022)	(0.022)
R-squared (within)	0.108	0.083
Observations	37,709	37,709
Number of couples	8,564	8,564

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year. Models with controls include the average age of the couple, marriage, children in the household, education, couple's unemployment experience, work in a small firm, work in the civil service, ISEI, both partners' industry, living in East Germany and temporary employment as controls.

Figure 3: Estimated log income by couple part-time employment composition and type of part-time work, regression on joint labour income and equivalized labour income



Note: FT = Full-time employment, SPT = Substantial Part-time Employment, MPT = Marginal Part-time Employment, SE = Self-employed. 95% Confidence Intervals included.

Atypical employment in couples and labour income: is there a gender difference?

Up to now, the analysis has shown that atypical employment in a couple does have a substantial influence on the couple's joint income. For temporary employment, a substantial income penalty was found when looking at both absolute and equivalized income. For part-time work, an absolute income penalty was similarly found, though it disappears once adjusting for working hours. However, as set out in the theoretical framework, atypical employment within heterosexual couples, particularly part-time work, is a strongly gendered phenomenon within the German labour market. This raises the question whether the impact of atypical work on the couple's income position depends on which partner is in atypical employment.

Table 5 shows the estimated fixed effect regression coefficients on couples' temporary employment, distinguishing between whether the male or female partner is in temporary

employment[15]. This analysis shows that in fact, a negative effect on couple's income is only observed when the male partner is the temporarily employed one (3.4%), whereas there is no such penalty when the female partner is in temporary employment, relative to both partners being in permanent employment (the difference is statistically significant at significance level 10%). This pattern also holds when looking at equivalized income rather than absolute income. The results are further illustrated in Figure 4, where estimated log income based on the models is shown.

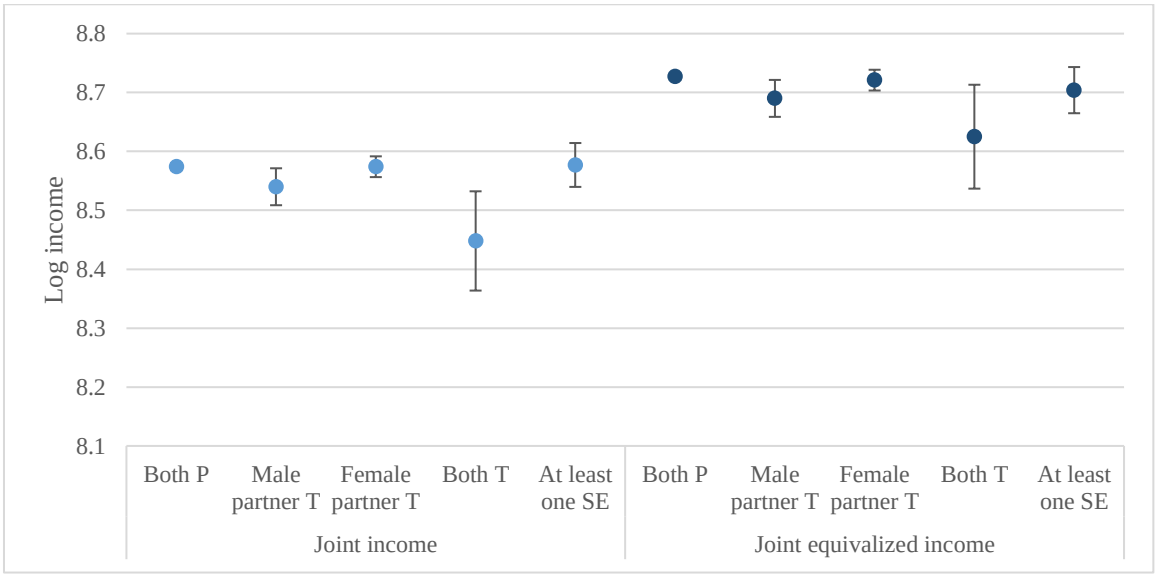
Table 5: Results of fixed effect regression on couple income and equivalized income, gendered couple temporary employment as key explanatory variable

Y = Log joint couple labour income	Temporary work	
	Income	Equivalized income
Couple employment (ref = both permanent)		
Male partner temporary, female partner permanent	-0.034*	-0.037*
	(0.017)	(0.017)
Male partner permanent, female partner temporary	0.000	-0.005
	(0.010)	(0.009)
Both partners temporary	-0.126**	-0.101*
	(0.043)	(0.045)
At least one partner self-employed	0.003	-0.023
	(0.022)	(0.022)
Average age of the couple	(0.022)	(0.022)
	0.007**	0.007**
Controls	Yes	Yes
Observations	37,709	37,709
Number of couples	8,564	8,564

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year. Models with controls include the average age of the couple, marriage, children in the household, education, couple's unemployment experience, work in a small firm, work in the civil service, ISEI, both partners' industry, living in East Germany and temporary employment as controls.

[15] The full regression models are shown in the Appendix, Table A7.

Figure 4: Estimated log income by couple temporary employment composition and gender, regression on joint labour income and equivalized labour income



Note: P = Permanent employment, T = Temporary Employment, SE = Self-employed. 95% Confidence Intervals included.

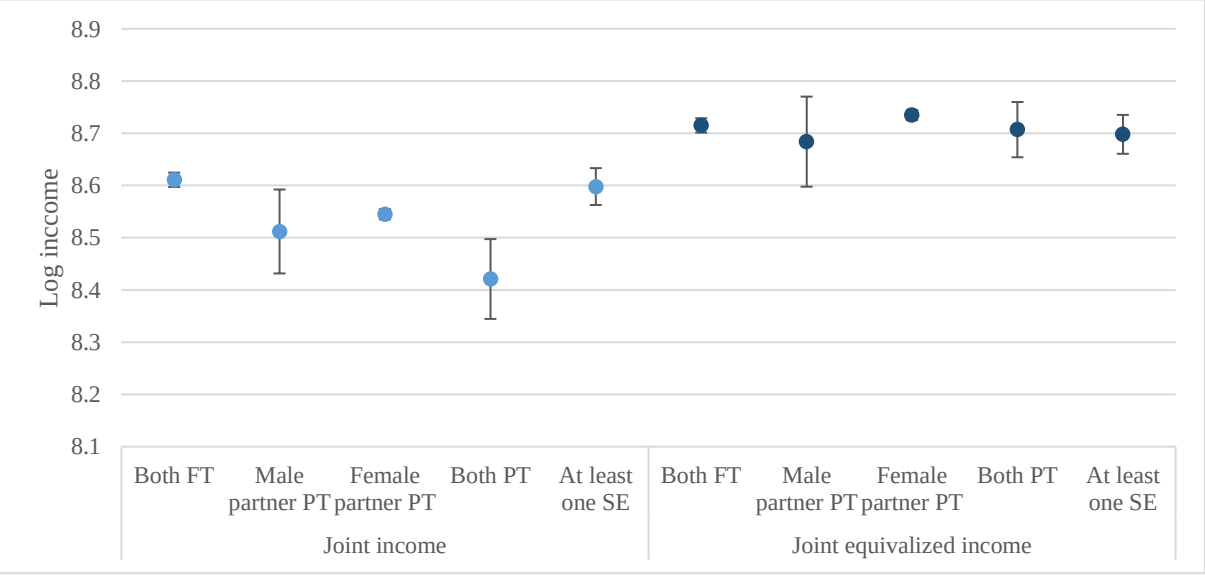
Similarly, Table 6 and Figure 5 show the estimated regression coefficient on part-time employment within couples by gender and associated predicted income. This analysis shows that the absolute income penalty for couples' labour income is larger when the male partner is in part-time work (9.9%) than when the female partner is (6.6%). It should be noted that the difference in penalties between male and female part-time work is not statistically significant, due to substantial variance on the estimated coefficient for male part-time work in couples. Nevertheless, this is still a substantively meaningful result. For both genders, when looking at equivalized income, no income penalty is observed anymore. In fact, when the female partner is in part-time employment, a small wage benefit for the couple's equivalized income is observed (though again the difference between male and female part-time work is not statistically significant).

Table 6: Results of fixed effect regression on couple income and equivalized income, gendered couple part-time employment as key explanatory variable

Y = Log joint couple labour income	Part-time work	
	Income	Equivalized income
Couple employment (ref = both part-time)		
Male partner part-time, female partner full-time	-0.099*	-0.031
	(0.040)	(0.044)
Male partner full-time, female partner part-time	-0.066**	0.020*
	(0.011)	(0.010)
Both partners part-time	-0.190**	-0.008
	(0.041)	(0.029)
At least one partner self-employed	-0.013	-0.016
	(0.022)	(0.023)
Average age of the couple	0.007**	0.008**
	(0.001)	(0.001)
Controls	Yes	Yes
Observations	37,709	37,709
Number of couples	8,564	8,564

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year. Models with controls include the average age of the couple, marriage, children in the household, education, couple's unemployment experience, work in a small firm, work in the civil service, ISEI, both partners' industry, living in East Germany and temporary employment as controls.

Figure 5: Estimated log income by couple temporary part-time composition and gender, regression on joint labour income and equivalized labour income



Note: FT = Full-time employment, PT = Part-time Employment, SE = Self-employed. 95% Confidence Intervals included.

In sum, these results largely confirm the theoretical expectation set out earlier, that the male partner being atypically employed has more negative consequences for the couple's income position than the female partner being atypically employed. Contrary to expectation, this effect is not necessarily more pronounced for part-time work than for temporary employment. Indeed, an income disadvantage is only associated with male temporary employment, but not with female temporary employment in couples, even though temporary employment is associated with wage penalties for women at individual level. As regards part-time employment, the results also provide some indication that male part-time work is associated with greater disadvantage than female part-time work for couples. This is consistent with the earlier observation that a large proportion of male part-time workers would like to increase their hours. When the female partner is in part-time work, in contrast, the absolute income disadvantage is smaller and a small equivalized income advantage is observed. This implies that female part-time workers are not necessarily in inferior jobs relative to female full-time workers, once accounting for the lower working hours. Rather, as theorized, the female partner may work part-time as part of household specialization strategies when couples can afford this.

5 Conclusion

This paper has provided a novel account of the income consequences of two types of atypical employment, temporary and part-time employment, for couples, as well as the gendered implications thereof. This is a contribution to the previous literature on atypical employment, which has provided ample evidence on the socio-economic consequences of atypical employment on the individual level but has largely neglected the dimension of households and couples. Using longitudinal data from the German Socio-Economic Panel, the analysis has examined how different constellations of temporary and part-time employment in couples influence both couples' absolute joint labour income and income adjusted for working hours.

Furthermore, the analysis has also investigated whether the effects of atypical employment differ by gender.

As regards temporary employment, the analysis generally showed evidence that the presence of temporary employment within dual-earning couples is associated with a negative impact on the couple's joint labour income. This disadvantage is equally, if not more so, apparent when adjusting for working hours. That is, the results indicate that temporary work is associated with inherent income disadvantages that cannot be accounted for by the working hours of couples. The negative income effect is particularly large when both partners are in temporary employment, though the proportion of dual-temporary couples is small and likely highly selected. Nevertheless, a substantial number of couples in Germany (ca. 65000, averaging over the observation period) are in such a dual-temporary arrangement, underlining the importance of investigating the consequences of accumulation of temporary employment in couples. These results lend support to the theory set out, that temporary employment is associated with an accumulation of disadvantage within couples and an overall lower socio-economic position.

In the case of part-time employment, similar income disadvantages were discovered when looking at absolute income. That is, one partner working in part-time employment, and particularly both partners working in part-time employment, was associated with significantly lower absolute joint labour income relative to couples where both partners work full-time. However, when adjusting for working hours, this disadvantage became non-significant both for couples where one partner works part-time and where both work part-time. That is, unlike for temporary employment, a large part of the income disadvantage associated with part-time employment is attributable to the face that it implies reduced working hours, rather than that part-time jobs are inherently lower paid. However, the analysis also shows that the income penalty associated with part-time work is particularly pronounced in couples where one or both

partners are in marginal part-time employment, including when adjusting for working hours. In line with previous research on part-time work in Germany (Giesecke, 2009; Paul, 2016), this indicates that marginal part-time work is associated with more significant labour market disadvantage than substantial part-time work.

Nevertheless, despite the finding that part-time work is not necessarily associated with inferior equivalized joint labour income it may carry disadvantages with it. Indeed, part-time work is associated with a significant absolute income disadvantage for couples, and a large portion of part-time workers in the sample indicate that they would like to increase their working hours. As such, part-time work in couples is associated with material disadvantages, and it should not be assumed that all couples are voluntarily in such lower-hours arrangements.

The analysis also examined whether the effect of atypical employment in heterosexual couples on income is gendered. Indeed, atypical employment is associated with more significant disadvantages when the male partner is in atypical employment. This lends support to the conclusion that male part-time work in couples is associated with an accumulation of disadvantages, whereas female part-time work may more often be associated with household specialization strategies within the gendered vision of labour. It also illustrates that it is not only part-time work that has significant gendered effects, but rather that temporary employment similarly appears to have a gendered dimension within couples, which should be a concern for future research.

Indeed, this analysis could be extended in several ways. First, it would be desirable to extend the analysis to include other types of atypical employment, namely temporary agency work and dependent self-employment, in order to obtain a full picture of the income consequences of atypical employment for couples. Second, longitudinal data could be further analysed to explore

not only the immediate consequences of atypical employment in couples, but also the longer-term development of these couples, both with regard to their career paths as well as other life developments, such as family formation. Finally, it would be desirable to compare the consequences of atypical employment on gross and net income, so as to decipher to what extent welfare state policies mitigate against the income disadvantages found. This could be further investigated in future research.

Overall, the analysis conducted in this paper has shown that beyond its effects at the individual level, atypical employment in couples holds significant importance for the socio-economic situation of couples, and therefore their material welfare. Indeed, the results suggest that rather than couples being able to mitigate against the disadvantage associated with atypical employment at individual level through the pooling of resources, such disadvantage may be transferred onto the couple dimension. Further examining the socio-economic situation of couples in atypical employment in more detail must therefore be an important concern for future research.

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Appendix

Table A1: Analytical sample size

Year	**N**
1995	0
1996	1069
1997	963
1998	982
1999	1057
2000	1009
2001	1898
2002	1688
2003	1679
2004	1543
2005	1877
2006	1711
2007	1680
2008	1857
2009	1608
2010	1617
2011	1990
2012	2340
2012	2415
2014	2174
2015	1976
2016	2043
2017	1795
2018	2104
Total	**39075**

Table A2: Summary statistics on the composition of the sample, SOEP 1996-2018

Variable	**Distribution**
Temporary work in the couple	
Both permanent (%)	77.6
One temporary, one permanent (%)	8.4
Both temporary (%)	0.7
At least one self-employed (%)	13.4
Part-time work in the couple (32 hours)	
Both full-time (%)	36.7
One part-time, one full-time (%)	48.4
Both part-time (%)	1.9
At least one self-employed (%)	13.4
Male partner temporary (%)	3.7
Female partner temporary (%)	6.6
Male partner part-time (self-defined) (%)	2.7
Female partner part-time (self-defined) (%)	47.9
Male partner part-time (32 hours) (%)	3.6
Female partner part-time (32 hours) (%)	32.9
Age of the couple (mean)	44.3
Education of the couple	
Both elementary (%)	19.3
One elementary, one secondary (%)	21.6
Both secondary (%)	26.3
One lower tertiary, one less than lower tertiary (%)	11.4
Both lower tertiary (%)	2.5
One lower tertiary, one upper tertiary (%)	12.4
Both upper tertiary (%)	6.6
Children in household (mean)	0.7
Married couples (%)	86.8
Couples living in East Germany (%)	21.2
Couple's joint ratio of working years in unemployment (mean)	0.02
Male partner in small firm (%)	22.8
Female partner in small firm (%)	31.5
Male partner in civil service (%)	23.8
Female partner in civil service (%)	32.6
Couple average ISEI (mean)	45.63
Male partner's industry	
Extractive services, manufacturing and agriculture (%)	48.5
Trade, accommodation and food services, communication (%)	16.8
Professional services (%)	11.7
Public and other services (%)	23
Female partner's industry	

Extractive services, manufacturing and agriculture (%)	18.1
Trade, accommodation and food services, communication (%)	22.8
Professional services (%)	13.5
Public and other services (%)	45.7

Table A3: Composition of the sample by couple employment constellation, SOEP 1996-2018

	Temporary employment			Part-time employment			
Variable	**Both P**	**One P, One T**	**Both T**	**Both FT**	**One FT, One PT**	**Both PT**	**At least one SE**
Age of the couple (mean)	44.6	41.3	37.3	43.5	44.7	46	44.8
Education of the couple							
Both elementary (%)	20.6	15.1	10.8	16.7	22.7	11.3	15.3
One elementary, one secondary (%)	22.2	18.8	13.7	19.2	23.9	19	20
Both secondary (%)	27.1	24.3	15.2	30	25	11.4	23
One lower tertiary, one less than lower tertiary (%)	11.4	12.6	6.5	13.1	10.5	3.4	10.9
Both lower tertiary (%)	2.6	2.6	3.1	2.7	2.3	2.9	1.8
One lower tertiary, one upper tertiary (%)	10.8	14.3	21	11.6	10.4	26.6	19.7
Both upper tertiary (%)	5.3	12.3	29.6	6.5	5.2	25.3	9.3
Children in household (mean)	0.7	0.8	0.8	0.4	1	0.9	0.8
Married couples (%)	87	81.8	65.5	77.6	93	82.3	89.8
Couples living in East Germany (%)	20.7	22.8	25.8	32.4	12.5	13.9	23.3
Couple's joint ratio of working years in unemployment (mean)	0.02	0.04	0.07	0.02	0.02	0.04	0.02
Male partner in small firm (%)	15	15.8	12.4	15.4	14.6	17.6	73.2
Female partner in small firm (%)	16.8	21.9	15.7	17.2	33.2	22.4	65.7
Male partner in civil service (%)	16.4	14.7	41.3	25.1	26.3	52	7.3
Female partner in civil service (%)	14.3	38.5	40	37.4	32.1	49.9	18.9
Couple average ISEI (mean)	45	45.2	51.9	46.2	44.1	51.1	49
Male partner's industry							
Extractive services, manufacturing and agriculture (%)	49.9	46.6	22.8	46.7	52.3	21.8	42.9
Trade, accommodation and food services, communication (%)	16.6	15.9	12.4	18.3	15.3	10.5	18.6
Professional services (%)	9.8	12.5	12.1	11.6	8.9	8.2	22.4
Public and other services (%)	23.7	25	52.7	23.1	23.5	59.4	16.1
Female partner's industry							
Extractive services, manufacturing and agriculture (%)	18.8	12.5	13.1	23.7	14.5	6.5	17.3
Trade, accommodation and food services, communication (%)	22.6	21	16.4	17.8	26	18.6	25.6
Professional services (%)	12.9	12.6	10.6	14	12	10.4	17.5
Public and other services (%)	45.7	53.9	59.9	44.5	47.5	64.5	39.7

Note: P = Permanent Contract; T = Temporary Contract; FT = Full-Time Work; PT = Part-Time Work; SE = Self-Employed

Table A4: Log mean and median joint income and joint equivalized income by couple employment constellation, SOEP 1996-2018

Couple atypical employment constellation	**Log joint income**		**Log joint equivalized income**	
	Mean	**Median**	**Mean**	**Median**
Temporary employment				
Both permanent	8.55	8.55	8.7	8.7
One permanent, one temporary	8.47	8.48	8.64	8.69
Both temporary	8.41	8.50	8.58	8.58
At least one self-employed	8.62	8.62	8.71	8.71
Part-time employment				
Both full-time	8.65	8.65	8.7	8.69
One full-time, one part-time	8.47	8.46	8.69	8.69
Both part-time	8.29	8.48	8.77	8.85
At least one self-employed	8.62	8.62	8.71	8.70

Table A5: Results of fixed effects regression on log joint couple income and equivalized income, SOEP 1996-2018

Y = Log joint couple labour income	Income				Equivalized income			
Couple employment constellation - Temporary (ref = both permanent)								
One permanent, one temporary	-0.034*	-0.012			-0.032*	-0.017*		
	(0.014)	(0.009)			(0.014)	(0.009)		
Both temporary	-0.152**	-0.124**			-0.122**	-0.100*		
	(0.042)	(0.044)			(0.045)	(0.045)		
At least one partner self-employed	0.008	0.002			-0.059*	-0.023		
	(0.020)	(0.022)			(0.027)	(0.022)		
Couple employment constellation - Part-time (ref = both full-time)								
One full-time, one part-time			-0.079**	-0.070**			0.017	0.015
			(0.012)	(0.010)			(0.012)	(0.010)
Both part-time			-0.221**	-0.190**			-0.021	-0.007
			(0.052)	(0.040)			(0.039)	(0.028)
At least one partner self-employed			-0.044^	-0.015			-0.044	-0.019
			(0.023)	(0.022)			(0.027)	(0.023)
Average age of the couple		0.007**		0.007**		0.008**		0.008**
		(0.001)		(0.001)		(0.001)		(0.001)
Children in household		0.002		0.002		0.015**		0.015**
		(0.006)		(0.006)		(0.006)		(0.006)
Married		-0.009		-0.009		0.011		0.011
		(0.025)		(0.025)		(0.026)		(0.026)
Couple's education (ref = both elementary)								
One elementary, one secondary		-0.016		-0.015		-0.019		-0.019
		(0.023)		(0.023)		(0.021)		(0.021)
Both secondary		0.017		0.011		0.075^		0.076^
		(0.033)		(0.032)		(0.044)		(0.044)
One lower tertiary, one less then lower tertiary		0.058		0.052		0.076		0.077
		(0.052)		(0.051)		(0.049)		(0.050)
Both lower tertiary		0.133		0.129		0.154^		0.150^
		(0.096)		(0.097)		(0.091)		(0.090)
One upper tertiary, one less than upper tertiary		0.218*		0.211*		0.198*		0.197*
		(0.103)		(0.101)		(0.082)		(0.082)
Both upper tertiary		0.568^		0.568^		0.373*		0.374*
		(0.314)		(0.313)		(0.173)		(0.175)
Couple's unemployment experience		-1.564**		-1.567**		-1.377**		-1.387**
		(0.435)		(0.433)		(0.437)		(0.432)

Male partner working in small firm		-0.020		-0.021		-0.031*		-0.030*
		(0.014)		(0.014)		(0.013)		(0.013)
Female partner working in small firm		-0.026^		-0.026^		-0.023		-0.023
		(0.014)		(0.014)		(0.015)		(0.015)
Male partner working in civil service		0.011		0.012		0.013		0.012
		(0.017)		(0.016)		(0.018)		(0.017)
Female partner working in civil service		0.020^		0.020^		0.027*		0.026*
		(0.011)		(0.010)		(0.013)		(0.013)
Couple's average ISEI		0.001*		0.001*		0.001*		0.001*
		(0.001)		(0.001)		(0.001)		(0.001)
Male partner's industry (ref = Extractive services, manufacturing, construction)								
Trade, accommodation and food services, communication		-0.052**		-0.053**		-0.040*		-0.040*
		(0.018)		(0.018)		(0.017)		(0.017)
Professional services		-0.059**		-0.057**		-0.040^		-0.038^
		(0.022)		(0.021)		(0.023)		(0.022)
Public and other services		-0.029^		-0.028^		-0.039**		-0.039**
		(0.016)		(0.016)		(0.015)		(0.015)
Female partner's industry (ref = Extractive services, manufacturing, construction)								
Trade, accommodation and food services, communication		-0.015		-0.013		-0.009		-0.009
		(0.024)		(0.024)		(0.026)		(0.026)
Professional services		-0.042*		-0.041*		-0.030		-0.029
		(0.020)		(0.020)		(0.021)		(0.020)
Public and other services		-0.030		-0.027		-0.025		-0.024
		(0.019)		(0.019)		(0.022)		(0.022)
Couple living in East Germany		-0.141**		-0.137*		-0.113**		-0.109**
		(0.053)		(0.058)		(0.027)		(0.030)
Male partner in part-time employment		-0.111**				-0.028		
		(0.031)				(0.029)		
Female partner in part-time employment		-0.068**				0.018^		
		(0.011)				(0.010)		
Male partner in temporary employment				-0.045**				-0.044**
				(0.014)				(0.015)
Female partner in temporary employment				-0.010				-0.011
				(0.011)				(0.010)
Constant	8.525**	8.298**	8.560**	8.304**	8.661**	8.348**	8.649**	8.346**
	(0.015)	(0.062)	(0.015)	(0.062)	(0.014)	(0.058)	(0.015)	(0.059)
R-squared (within)	0.057	0.101	0.072	0.100	0.058	0.080	0.056	0.080

Observations	37,709	37,709	37,709	37,709	37,709	37,709	37,709	37,709
Number of couples	8,564	8,564	8,564	8,564	8,564	8,564	8,564	8,564

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year

Table A6: Results of fixed effects regression on log joint couple income and log joint couple full-time equivalized income, distinction between marginal and substantial part-time, SOEP 1996-2018

	Part-time work	
	Income	Equival income
Couple employment constellation - Part-time (ref = both full-time)		
One full-time, one substantial part-time	-0.063**	0.018*
	(0.009)	(0.009)
Both substantial part-time	-0.070*	0.067*
	(0.034)	(0.030)
At least one partner marginal part-time	-0.165**	-0.033^
	(0.019)	(0.019)
At least one partner self-employed	-0.025	-0.024
	(0.022)	(0.022)
Average age of the couple	0.007**	0.007**
	(0.001)	(0.001)
Children in household	0.003	0.016**
	(0.006)	(0.006)
Married	-0.002	0.012
	(0.023)	(0.026)
Couple's education (ref = both elementary)		
One elementary, one secondary	-0.008	-0.015
	(0.022)	(0.020)
Both secondary	-0.006	0.068
	(0.030)	(0.042)
One lower tertiary, one less then lower tertiary	0.045	0.072
	(0.052)	(0.048)
Both lower tertiary	0.124	0.145
	(0.100)	(0.090)
One upper tertiary, one less than upper tertiary	0.202^	0.188*
	(0.105)	(0.079)
Both upper tertiary	0.555^	0.356*
	(0.317)	(0.169)
Couple's unemployment experience	-1.519**	-1.363**
	(0.423)	(0.428)
Male partner working in small firm	-0.020	-0.029*
	(0.014)	(0.013)
Female partner working in small firm	-0.017	-0.019

	(0.013)	(0.014)
Male partner working in civil service	0.010	0.011
	(0.015)	(0.017)
Female partner working in civil service	0.022*	0.027*
	(0.011)	(0.013)
Couple's average ISEI	0.001^	0.001^
	(0.001)	(0.001)
Male partner's industry (ref = Extractive services, manufacturing, construction)		
Trade, accommodation and food services, communication	-0.052**	-0.039*
	(0.018)	(0.017)
Professional services	-0.055**	-0.038^
	(0.021)	(0.022)
Public and other services	-0.028^	-0.039**
	(0.016)	(0.014)
Female partner's industry (ref = Extractive services, manufacturing, construction)		
Trade, accommodation and food services, communication	-0.012	-0.009
	(0.022)	(0.026)
Professional services	-0.036^	-0.027
	(0.020)	(0.020)
Public and other services	-0.022	-0.021
	(0.019)	(0.023)
Couple living in East Germany	-0.141*	-0.109**
	(0.059)	(0.029)
Male partner in temporary employment	-0.045**	-0.044**
	(0.013)	(0.015)
Female partner in temporary employment	-0.015	-0.014
	(0.010)	(0.010)
Constant	8.319**	8.357**
	(0.063)	(0.059)
R-squared (within)	0.108	0.083
Observations	37,709	37,709
Number of couples	8,564	8,564

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year.

Table A7: Results of fixed effects regression on log joint couple income and log joint couple full-time equivalized income, gendered definition of temporary and part-time employment constellation, SOEP 1996-2018

	Temporary work		Part-time work	
	Income	Equivalent income	Income	Equivalent income
Couple employment constellation (ref = both standard)				
Male partner atypical, female partner standard	-0.034*	-0.037*	-0.099*	-0.031
	(0.017)	(0.017)	(0.040)	(0.044)
Male partner standard, female partner atypical	0.000	-0.005	-0.066**	0.020*
	(0.010)	(0.009)	(0.011)	(0.010)
Both partners atypical	-0.126**	-0.101*	-0.190**	-0.008
	(0.043)	(0.045)	(0.041)	(0.029)
At least one partner self-employed	0.003	-0.023	-0.013	-0.016
	(0.022)	(0.022)	(0.022)	(0.023)
Average age of the couple	(0.022)	(0.022)	0.007**	0.008**
	0.007**	0.007**	(0.001)	(0.001)
Children in household	(0.001)	(0.001)	0.001	0.014*
	0.002	0.014*	(0.006)	(0.006)
Married	(0.006)	(0.006)	-0.010	0.010
	-0.010	0.011	(0.025)	(0.026)
Couple's education (ref = both elementary)				
One elementary, one secondary	-0.016	-0.019	-0.015	-0.019
	(0.023)	(0.021)	(0.023)	(0.021)
Both secondary	0.016	0.074^	0.011	0.075^
	(0.033)	(0.044)	(0.032)	(0.044)
One lower tertiary, one less then lower tertiary	0.058	0.076	0.052	0.077
	(0.052)	(0.049)	(0.051)	(0.049)
Both lower tertiary	0.131	0.152^	0.130	0.151^
	(0.096)	(0.090)	(0.097)	(0.089)
One upper tertiary, one less than upper tertiary	0.217*	0.197*	0.211*	0.198*
	(0.103)	(0.082)	(0.101)	(0.082)
Both upper tertiary	0.570^	0.374*	0.568^	0.374*
	(0.314)	(0.174)	(0.312)	(0.173)
Couple's unemployment experience	-1.550**	-1.363**	-1.557**	-1.371**
	(0.429)	(0.431)	(0.428)	(0.427)
Male partner working in small firm	-0.020	-0.031*	-0.021	-0.030*
	(0.014)	(0.013)	(0.014)	(0.013)
Female partner working in small firm	-0.026^	-0.023	-0.026^	-0.023

	(0.014)	(0.015)	(0.014)	(0.015)
Male partner working in civil service	0.013	0.014	0.013	0.015
	(0.016)	(0.017)	(0.016)	(0.017)
Female partner working in civil service	0.019^	0.026*	0.020^	0.026*
	(0.010)	(0.013)	(0.010)	(0.013)
Couple's average ISEI	0.001*	0.001*	0.001*	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)
Male partner's industry (ref = Extractive services, manufacturing, construction)				
Trade, accommodation and food services, communication	-0.051**	-0.039*	-0.053**	-0.039*
	(0.018)	(0.017)	(0.018)	(0.017)
Professional services	-0.058**	-0.038^	-0.057**	-0.038^
	(0.021)	(0.022)	(0.021)	(0.022)
Public and other services	-0.028^	-0.038*	-0.027^	-0.037*
	(0.016)	(0.015)	(0.016)	(0.015)
Female partner's industry (ref = Extractive services, manufacturing, construction)				
Trade, accommodation and food services, communication	-0.014	-0.008	-0.013	-0.009
	(0.024)	(0.026)	(0.024)	(0.026)
Professional services	-0.041*	-0.029	-0.041*	-0.030
	(0.020)	(0.020)	(0.020)	(0.020)
Public and other services	-0.029	-0.024	-0.028	-0.024
	(0.019)	(0.022)	(0.019)	(0.022)
Couple living in East Germany	-0.141**	-0.113**	-0.136*	-0.108**
	(0.054)	(0.028)	(0.058)	(0.030)
Male partner in temporary employment	-0.110**	-0.027	-0.044**	-0.042**
	(0.030)	(0.028)	(0.014)	(0.014)
Female partner in temporary employment	-0.068**	0.018^	-0.010	-0.011
	(0.011)	(0.010)	(0.011)	(0.010)
Constant	8.299**	8.349**	8.304**	8.347**
	(0.062)	(0.058)	(0.063)	(0.059)
R-squared (within)	0.101	0.080		
Observations	37,709	37,709	37,709	37,709
Number of couples	8,564	8,564	8,564	8,564

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year.

Table A8: Robustness check - results of fixed effects regression on log joint couple income and log joint couple full-time equivalized income, different definition of part-time employment (hours-based),

	30 hours		35 hours	
	Income	Equivalent income	Income	Equivalent income
Couple employment constellation - Part-time (ref = both full-time)				
One full-time, one part-time	-0.080**	0.014	-0.070**	0.014
	(0.009)	(0.009)	(0.009)	(0.009)
Both part-time	-0.290**	-0.068^	-0.115**	0.031
	(0.053)	(0.038)	(0.037)	(0.027)
At least one partner self-employed	-0.012	-0.021	-0.014	-0.019
	(0.022)	(0.023)	(0.022)	(0.022)
Average age of the couple	0.007**	0.007**	0.008**	0.008**
	(0.001)	(0.001)	(0.001)	(0.001)
Children in household	0.003	0.001	0.015**	0.015*
	(0.006)	(0.006)	(0.006)	(0.006)
Married	-0.007	-0.004	0.010	0.011
	(0.025)	(0.023)	(0.026)	(0.026)
Couple's education (ref = both elementary)				
One elementary, one secondary	-0.015	-0.016	-0.019	-0.019
	(0.023)	(0.023)	(0.021)	(0.021)
Both secondary	0.007	0.004	0.075^	0.074^
	(0.032)	(0.032)	(0.043)	(0.044)
One lower tertiary, one less then lower tertiary	0.043	0.052	0.073	0.078
	(0.049)	(0.053)	(0.048)	(0.050)
Both lower tertiary	0.117	0.130	0.144	0.152^
	(0.095)	(0.099)	(0.088)	(0.090)
One upper tertiary, one less than upper tertiary	0.193*	0.216*	0.188*	0.201*
	(0.090)	(0.109)	(0.075)	(0.084)
Both upper tertiary	0.531^	0.585^	0.353*	0.386*
	(0.293)	(0.327)	(0.166)	(0.180)
Couple's unemployment experience	-1.542**	-1.559**	-1.379**	-1.383**
	(0.438)	(0.433)	(0.431)	(0.430)
Male partner working in small firm	-0.021	-0.022	-0.030*	-0.030*
	(0.014)	(0.014)	(0.013)	(0.013)
Female partner working in small firm	-0.023^	-0.025^	-0.023	-0.023
	(0.014)	(0.014)	(0.015)	(0.015)
Male partner working in civil service	0.021*	0.019^	0.025*	0.026*

	(0.011)	(0.010)	(0.013)	(0.013)
Female partner working in civil service	0.009	0.012	0.012	0.012
	(0.016)	(0.016)	(0.017)	(0.017)
Couple's average ISEI	0.001*	0.001*	0.001*	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)
Male partner's industry (ref = Extractive services, manufacturing, construction)				
Trade, accommodation and food services, communication	-0.052**	-0.053**	-0.039*	-0.040*
	(0.018)	(0.018)	(0.017)	(0.017)
Professional services	-0.058**	-0.055**	-0.038^	-0.039^
	(0.021)	(0.021)	(0.022)	(0.022)
Public and other services	-0.028^	-0.030^	-0.039**	-0.038**
	(0.016)	(0.016)	(0.015)	(0.015)
Female partner's industry (ref = Extractive services, manufacturing, construction)				
Trade, accommodation and food services, communication	-0.013	-0.013	-0.009	-0.009
	(0.025)	(0.024)	(0.026)	(0.026)
Professional services	-0.039^	-0.042*	-0.029	-0.030
	(0.020)	(0.020)	(0.020)	(0.020)
Public and other services	-0.025	-0.027	-0.024	-0.024
	(0.020)	(0.019)	(0.022)	(0.022)
Couple living in East Germany	-0.044**	-0.046**	-0.043**	-0.045**
	(0.014)	(0.014)	(0.015)	(0.015)
Male partner in temporary employment	-0.015	-0.013	-0.012	-0.013
	(0.010)	(0.010)	(0.010)	(0.010)
Female partner in temporary employment	-0.134*	-0.144*	-0.111**	-0.109**
	(0.053)	(0.063)	(0.030)	(0.029)
Constant	8.317**	8.302**	8.349**	8.346**
	(0.061)	(0.064)	(0.058)	(0.058)
R-squared (within)	0.106	0.097	0.080	0.080
Observations	37,709	37,709	37,709	37,709
Number of couples	8,564	8,564	8,564	8,564

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year.

Table A9: Robustness check - results of fixed effects regression on log joint couple income and log joint couple full-time equivalized income, self-definition of part-time work

	Self-defined part-time	
	Income	Equivalent income
Couple employment constellation - Part-time (ref = both full-time)		
One full-time, one part-time	-0.020*	0.039**
	(0.008)	(0.008)
Both part-time	-0.093*	0.007
	(0.042)	(0.037)
At least one partner self-employed	0.026	-0.008
	(0.021)	(0.022)
Average age of the couple	0.007**	0.007**
	(0.001)	(0.001)
Children in household	-0.005	0.013*
	(0.006)	(0.006)
Married	-0.009	0.008
	(0.024)	(0.026)
Couple's education (ref = both elementary)		
One elementary, one secondary	-0.015	-0.018
	(0.023)	(0.021)
Both secondary	-0.003	0.073^
	(0.032)	(0.043)
One lower tertiary, one less then lower tertiary	0.053	0.079
	(0.055)	(0.049)
Both lower tertiary	0.125	0.149^
	(0.099)	(0.089)
One upper tertiary, one less than upper tertiary	0.228^	0.203*
	(0.118)	(0.084)
Both upper tertiary	0.611^	0.379*
	(0.351)	(0.177)
Couple's unemployment experience	-1.693**	-1.416**
	(0.446)	(0.433)
Male partner working in small firm	-0.023	-0.030*
	(0.015)	(0.013)
Female partner working in small firm	-0.027*	-0.022
	(0.014)	(0.015)
Male partner working in civil service	0.012	0.010

	(0.016)	(0.017)
Female partner working in civil service	0.019^	0.026*
	(0.011)	(0.013)
Couple's average ISEI	0.001*	0.001^
	(0.001)	(0.001)
Male partner's industry (ref = Extractive services, manufacturing, construction)		
Trade, accommodation and food services, communication	-0.056**	-0.040*
	(0.019)	(0.017)
Professional services	-0.057**	-0.038^
	(0.022)	(0.022)
Public and other services	-0.027	-0.039**
	(0.016)	(0.014)
Female partner's industry (ref = Extractive services, manufacturing, construction)		
Trade, accommodation and food services, communication	-0.015	-0.012
	(0.024)	(0.026)
Professional services	-0.045*	-0.031
	(0.021)	(0.020)
Public and other services	-0.030	-0.026
	(0.019)	(0.022)
Couple living in East Germany	-0.119*	-0.104**
	(0.058)	(0.031)
Male partner in temporary employment	-0.050**	-0.045**
	(0.014)	(0.015)
Female partner in temporary employment	-0.015	-0.012
	(0.010)	(0.010)
Constant	8.302**	8.358**
	(0.067)	(0.059)
R-squared (within)	0.089	0.083
Observations	37,709	37,709
Number of couples	8,564	8,564

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year.

Table A10: Robustness check - Results of mixed effects regression on log joint couple income and equivalized income, SOEP 1995-2018, full models with controls

Y = Log joint couple labour income	Income		Equivalent income	
Fixed effects				
Couple employment constellation - Temporary (ref = both permanent)				
One permanent, one temporary	-0.025**		-0.032**	
	(0.007)		(0.007)	
Both temporary	-0.144**		-0.142**	
	(0.043)		(0.042)	
At least one partner self-employed	0.023		-0.005	
	(0.016)		(0.014)	
Couple employment constellation - Part-time (ref = both full-time)				
One full-time, one part-time		-0.090**		-0.002
		(0.006)		(0.006)
Both part-time		-0.276**		-0.051**
		(0.027)		(0.020)
At least one partner self-employed		-0.003		-0.007
		(0.015)		(0.014)
Average age of the couple	0.003**	0.003**	0.003**	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)
Children in household	-0.005	-0.005	0.011**	0.012**
	(0.004)	(0.004)	(0.004)	(0.004)
Married	-0.006	-0.006	0.014	0.015
	(0.011)	(0.011)	(0.011)	(0.010)
Migrant background (ref = none)				
One partner has a migrant background	-0.000	0.000	-0.008	-0.008
	(0.016)	(0.016)	(0.016)	(0.016)
Both partners have a migrant background	-0.136**	-0.136**	-0.127**	-0.129**
	(0.017)	(0.017)	(0.015)	(0.015)
Couple's education (ref = both elementary)				

One elementary, one secondary	0.066**	0.066**	0.062**	0.062**
	(0.013)	(0.013)	(0.012)	(0.012)
Both secondary	0.151**	0.149**	0.142**	0.142**
	(0.014)	(0.014)	(0.014)	(0.014)
One lower tertiary, one less then lower tertiary	0.218**	0.216**	0.200**	0.200**
	(0.017)	(0.017)	(0.016)	(0.016)
Both lower tertiary	0.285**	0.285**	0.277**	0.276**
	(0.031)	(0.032)	(0.027)	(0.027)
One upper tertiary, one less than upper tertiary	0.326**	0.324**	0.312**	0.310**
	(0.022)	(0.022)	(0.020)	(0.020)
Both upper tertiary	0.505**	0.503**	0.491**	0.487**
	(0.031)	(0.032)	(0.028)	(0.028)
Couple's unemployment experience	-1.277**	-1.278**	-1.089**	-1.093**
	(0.104)	(0.106)	(0.095)	(0.096)
Male partner working in small firm	-0.038**	-0.042**	-0.042**	-0.042**
	(0.008)	(0.008)	(0.008)	(0.008)
Female partner working in small firm	-0.040**	-0.037**	-0.043**	-0.042**
	(0.008)	(0.008)	(0.008)	(0.008)
Male partner working in civil service	-0.000	-0.000	0.001	0.000
	(0.011)	(0.011)	(0.010)	(0.010)
Female partner working in civil service	0.016*	0.015^	0.022**	0.021**
	(0.008)	(0.008)	(0.008)	(0.008)
Couple's average ISEI	0.005**	0.005**	0.005**	0.005**
	(0.000)	(0.000)	(0.000)	(0.000)
Male partner's industry (ref = Extractive services, manufacturing, construction)				
Trade, accommodation and food services, communication	-0.042**	-0.043**	-0.037**	-0.038**
	(0.011)	(0.012)	(0.011)	(0.011)
Professional services	-0.009	-0.010	-0.002	-0.001
	(0.015)	(0.015)	(0.014)	(0.013)
Public and other services	-0.033**	-0.034**	-0.034**	-0.035**
	(0.011)	(0.012)	(0.011)	(0.011)
Female partner's industry (ref = Extractive services, manufacturing, construction)				
Trade, accommodation and food services, communication	-0.035**	-0.033**	-0.032**	-0.030*

	(0.012)	(0.012)	(0.012)	(0.012)
Professional services	-0.008	-0.007	0.001	0.001
	(0.014)	(0.014)	(0.013)	(0.013)
Public and other services	-0.006	-0.005	-0.001	-0.000
	(0.012)	(0.012)	(0.012)	(0.011)
Couple living in East Germany	-0.211**	-0.211**	-0.261**	-0.263**
	(0.012)	(0.012)	(0.011)	(0.012)
Male partner in part-time employment	-0.165**		-0.062**	
	(0.023)		(0.019)	
Female partner in part-time employment	-0.084**		0.009	
	(0.007)		(0.006)	
Male partner in temporary employment		-0.057**		-0.058**
		(0.013)		(0.012)
Female partner in temporary employment		-0.018*		-0.024**
		(0.009)		(0.009)
Random effects				
Variance at couple level	0.081**	0.081**	0.07**	0.071**
	(0.005)	(0.005)	(0.004)	(0.004)
Residual variance	0.029**	0.029**	0.03**	0.03**
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	8.223**	8.225**	8.274**	8.275**
	(0.034)	(0.034)	(0.033)	(0.033)
Observations	39,075	39,075	39,075	39,075
Number of couples	8,771	8,771	8,771	8,771

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year.

Table A11: Robustness check - Results of mixed effects regression on log joint couple income and log joint couple full-time equivalized income, distinction between marginal and substantial part-time

	Part-time work	
	Income	Equivalent income
Fixed effects		
Couple employment constellation - Part-time (ref = both full-time)		
One full-time, one substantial part-time	-0.077**	0.007
	(0.006)	(0.006)
Both substantial part-time	-0.156**	0.008
	(0.022)	(0.019)
At least one partner marginal part-time	-0.190**	-0.053**
	(0.012)	(0.011)
At least one partner self-employed	-0.013	-0.010
	(0.016)	(0.015)
Average age of the couple	0.002**	0.003**
	(0.001)	(0.001)
Children in household	-0.002	0.013**
	(0.004)	(0.004)
Married	-0.001	0.017^
	(0.011)	(0.010)
Migrant background (ref = none)		
One partner has a migrant background	0.001	-0.007
	(0.016)	(0.016)
Both partners have a migrant background	-0.136**	-0.127**
	(0.017)	(0.015)
Couple's education (ref = both elementary)		
One elementary, one secondary	0.064**	0.061**
	(0.013)	(0.012)
Both secondary	0.143**	0.139**
	(0.014)	(0.014)
One lower tertiary, one less then lower tertiary	0.213**	0.199**
	(0.017)	(0.016)

Both lower tertiary	0.280**	0.275**
	(0.032)	(0.027)
One upper tertiary, one less than upper tertiary	0.316**	0.307**
	(0.022)	(0.020)
Both upper tertiary	0.493**	0.482**
	(0.032)	(0.028)
Couple's unemployment experience	-1.279**	-1.090**
	(0.104)	(0.095)
Male partner working in small firm	-0.042**	-0.042**
	(0.008)	(0.008)
Female partner working in small firm	-0.029**	-0.038**
	(0.008)	(0.008)
Male partner working in civil service	-0.001	-0.000
	(0.011)	(0.010)
Female partner working in civil service	0.015^	0.022**
	(0.008)	(0.008)
Couple's average ISEI	0.005**	0.005**
	(0.000)	(0.000)
Male partner's industry (ref = Extractive services, manufacturing, construction)		
Trade, accommodation and food services, communication	-0.043**	-0.037**
	(0.012)	(0.011)
Professional services	-0.009	-0.001
	(0.015)	(0.013)
Public and other services	-0.036**	-0.036**
	(0.012)	(0.010)
Female partner's industry (ref = Extractive services, manufacturing, construction)		
Trade, accommodation and food services, communication	-0.033**	-0.031*
	(0.012)	(0.012)
Professional services	-0.003	0.003
	(0.014)	(0.013)
Public and other services	-0.004	-0.000
	(0.012)	(0.011)
Couple living in East Germany	-0.215**	-0.267**
	(0.012)	(0.012)
Male partner in temporary employment	-0.061**	-0.060**

	(0.013)	(0.012)
Female partner in temporary employment	-0.019*	-0.025**
	(0.009)	(0.009)
Random effects		
Variance at couple level	0.08**	0.07**
	(0.005)	(0.004)
Residual variance	0.029**	0.03**
	(0.002)	(0.002)
Constant	8.247**	8.284**
	(0.034)	(0.033)
Observations	39,075	39,075
Number of couples	8,771	8,771

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year.

Table A12: Robustness check - Results of mixed effects regression on log joint couple income and log joint couple full-time equivalized income, gendered definition of atypical employment constellation

	Temporary work		Part-time work	
	Income	Equivalent income	Income	Equivalent income
Fixed effects				
Couple employment constellation - Part-time (ref = both full-time)				
Male partner atypical, female partner standard	-0.048**	-0.051**	-0.135**	-0.071*
	(0.013)	(0.013)	(0.033)	(0.031)
Male partner standard, female partner atypical	-0.013^	-0.022**	-0.087**	0.003
	(0.008)	(0.007)	(0.007)	(0.006)
Both partners atypical	-0.145**	-0.142**	-0.279**	-0.054**
	(0.043)	(0.041)	(0.028)	(0.020)
At least one partner self-employed	0.024	-0.005	-0.002	-0.005
	(0.016)	(0.014)	(0.015)	(0.014)
Average age of the couple	0.003**	0.003**	0.003**	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)
Children in household	-0.005	0.011**	-0.005	0.011**
	(0.004)	(0.004)	(0.004)	(0.004)
Married	-0.007	0.013	-0.007	0.014
	(0.011)	(0.010)	(0.011)	(0.010)
Migrant background (ref = none)				
One partner has a migrant background	0.003**	0.003**	0.000	-0.008
	(0.001)	(0.001)	(0.016)	(0.016)
Both partners have a migrant background	-0.005	0.011**	-0.136**	-0.128**
	(0.004)	(0.004)	(0.017)	(0.015)
Couple's education (ref = both elementary)				
One elementary, one secondary	0.066**	0.062**	0.067**	0.062**
	(0.013)	(0.012)	(0.013)	(0.012)
Both secondary	0.151**	0.142**	0.149**	0.142**
	(0.014)	(0.014)	(0.014)	(0.014)
One lower tertiary, one less then lower tertiary	0.218**	0.201**	0.217**	0.201**
	(0.017)	(0.016)	(0.017)	(0.016)
Both lower tertiary	0.285**	0.277**	0.285**	0.277**
	(0.031)	(0.027)	(0.031)	(0.027)
One upper tertiary, one less than upper tertiary	0.325**	0.312**	0.324**	0.311**
	(0.022)	(0.020)	(0.022)	(0.020)

Both upper tertiary	0.506**	0.491**	0.505**	0.490**
	(0.031)	(0.028)	(0.032)	(0.028)
Couple's unemployment experience	-1.272**	-1.085**	-1.273**	-1.085**
	(0.104)	(0.095)	(0.105)	(0.095)
Male partner working in small firm	-0.039**	-0.042**	-0.042**	-0.041**
	(0.008)	(0.008)	(0.008)	(0.008)
Female partner working in small firm	-0.040**	-0.043**	-0.038**	-0.043**
	(0.008)	(0.008)	(0.008)	(0.008)
Male partner working in civil service	0.001	0.002	0.001	0.002
	(0.011)	(0.010)	(0.011)	(0.010)
Female partner working in civil service	0.015^	0.021**	0.015^	0.021**
	(0.008)	(0.008)	(0.008)	(0.008)
Couple's average ISEI	0.005**	0.005**	0.005**	0.005**
	(0.000)	(0.000)	(0.000)	(0.000)
Male partner's industry (ref = Extractive services, manufacturing, construction)				
Trade, accommodation and food services, communication	-0.042**	-0.037**	-0.043**	-0.037**
	(0.011)	(0.011)	(0.011)	(0.011)
Professional services	-0.008	-0.001	-0.009	-0.001
	(0.015)	(0.013)	(0.015)	(0.013)
Public and other services	-0.032**	-0.033**	-0.033**	-0.033**
	(0.011)	(0.011)	(0.012)	(0.011)
Female partner's industry (ref = Extractive services, manufacturing, construction)				
Trade, accommodation and food services, communication	-0.034**	-0.031*	-0.033**	-0.031*
	(0.012)	(0.012)	(0.012)	(0.012)
Professional services	-0.008	0.001	-0.008	0.001
	(0.014)	(0.013)	(0.014)	(0.013)
Public and other services	-0.006	-0.001	-0.005	-0.001
	(0.012)	(0.011)	(0.012)	(0.011)
Couple living in East Germany	-0.211**	-0.261**	-0.210**	-0.262**
	(0.012)	(0.011)	(0.012)	(0.012)
Male partner in part-time employment	-0.164**	-0.061**		
	(0.023)	(0.019)		
Female partner in part-time employment	-0.085**	0.009		
	(0.007)	(0.006)		
Male partner in temporary employment			-0.056**	-0.056**
			(0.013)	(0.012)
Female partner in temporary employment			-0.018*	-0.024**
			(0.009)	(0.009)
Random effects				

Variance at couple level	0.081**	0.071**	0.081**	0.071**
	-0.005	(0.004)	(0.005)	(0.004)
Residual variance	0.029**	0.03**	0.029**	0.03**
	-0.002	(0.002)	(0.002)	(0.002)
Constant	8.224**	8.275**	8.225**	8.275**
	(0.034)	(0.033)	(0.034)	(0.033)
Observations	39,075	39,075	39,075	39,075
Number of couples	8,771	8,771	8,771	8,771

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year.

Table A13: Robustness check - Results of fixed effects regression on log joint couple income and log joint couple full-time equivalized income, couples with self-employed partners excluded

Y = Log joint couple labour income	Income		Equivalized income	
Couple employment constellation - Temporary (ref = both permanent)				
One permanent, one temporary	-0.012		-0.016^	
	(0.008)		(0.008)	
Both temporary	-0.126**		-0.100*	
	(0.043)		(0.045)	
Couple employment constellation - Part-time (ref = both full-time)				
One full-time, one part-time		-0.080**		0.005
		(0.010)		(0.010)
Both part-time		-0.194**		-0.029
		(0.039)		(0.028)
Average age of the couple	0.008**	0.008**	0.008**	0.008**
	(0.001)	(0.001)	(0.001)	(0.001)
Children in household	0.004	0.005	0.020**	0.021**
	(0.006)	(0.006)	(0.006)	(0.006)
Married	-0.007	-0.007	0.014	0.015
	(0.026)	(0.025)	(0.027)	(0.027)
Couple's education (ref = both elementary)				
One elementary, one secondary	-0.014	-0.014	-0.011	-0.012
	(0.020)	(0.020)	(0.018)	(0.018)
Both secondary	-0.017	-0.020	0.009	0.006
	(0.035)	(0.035)	(0.034)	(0.032)
One lower tertiary, one less then lower tertiary	0.062	0.060	0.059	0.058
	(0.053)	(0.053)	(0.045)	(0.044)
Both lower tertiary	0.058	0.052	0.054	0.048
	(0.092)	(0.091)	(0.075)	(0.074)
One upper tertiary, one less than upper tertiary	0.193^	0.189^	0.150^	0.147^
	(0.105)	(0.104)	(0.077)	(0.076)
Both upper tertiary	0.506	0.508	0.217	0.220
	(0.397)	(0.399)	(0.187)	(0.191)
Couple's unemployment experience	-1.709**	-1.723**	-1.471**	-1.487**
	(0.426)	(0.421)	(0.431)	(0.425)
Male partner working in small firm	-0.019	-0.019	-0.034*	-0.034*
	(0.014)	(0.015)	(0.014)	(0.014)
Female partner working in small firm	-0.028^	-0.028^	-0.023	-0.023

	(0.015)	(0.015)	(0.016)	(0.016)
Male partner working in civil service	-0.000	-0.000	0.006	0.005
	(0.015)	(0.014)	(0.018)	(0.017)
Female partner working in civil service	0.016	0.015	0.022^	0.021
	(0.010)	(0.010)	(0.013)	(0.013)
Couple's average ISEI	0.001*	0.001*	0.001*	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)
Male partner's industry (ref = Extractive services, manufacturing, construction)				
Trade, accommodation and food services, communication	-0.047*	-0.047*	-0.037*	-0.038*
	(0.019)	(0.019)	(0.018)	(0.019)
Professional services	-0.042^	-0.040^	-0.029	-0.027
	(0.022)	(0.021)	(0.024)	(0.022)
Public and other services	-0.026^	-0.025^	-0.035*	-0.036*
	(0.015)	(0.014)	(0.014)	(0.014)
Female partner's industry (ref = Extractive services, manufacturing, construction)				
Trade, accommodation and food services, communication	-0.023	-0.022	-0.017	-0.016
	(0.025)	(0.025)	(0.028)	(0.028)
Professional services	-0.038^	-0.037^	-0.023	-0.022
	(0.020)	(0.019)	(0.020)	(0.020)
Public and other services	-0.038^	-0.036^	-0.030	-0.028
	(0.019)	(0.019)	(0.023)	(0.023)
Couple living in East Germany	-0.150**	-0.142*	-0.110**	-0.106**
	(0.057)	(0.065)	(0.027)	(0.031)
Male partner in part-time employment	-0.121**		-0.047^	
	(0.030)		(0.027)	
Female partner in part-time employment	-0.076**		0.011	
	(0.011)		(0.010)	
Male partner in temporary employment		-0.044**		-0.042**
		(0.014)		(0.014)
Female partner in temporary employment		-0.007		-0.010
		(0.011)		(0.011)
Constant	8.274**	8.274**	8.345**	8.345**
	(0.066)	(0.066)	(0.061)	(0.061)
R-squared (within)	0.138	0.137	0.094	0.093
Observations	32,513	32,513	32,513	32,513
Number of couples	7,508	7,508	7,508	7,508

Note: Robust standard errors in parentheses. Standard errors clustered at primary sampling unit level. ** p<0.01, * p<0.05, ^ p<0.1. All models include a fixed effect for the survey year

Conclusion

1 Introduction

A long research tradition within the social sciences has examined socio-economic inequalities in labour markets, including those associated with different types of employment relationships. This doctoral thesis has contributed to this body of work by focusing on the socio-economic inequalities associated with two types of atypical employment, temporary and part-time work. In particular, its aim has been to shed light on two areas hitherto underexamined in previous research: the stratification of disadvantage within part-time and temporary work; and the make-up and socio-economic consequences of the two types of atypical work at the level of couples.

Four research articles which address these questions were presented. The first two articles examined heterogeneity in the wage implications of atypical employment, focusing on wage consequences of atypical employment across the wage distribution and career phase variation in the wage growth consequences of temporary employment. The latter two articles looked at atypical employment from a couple perspective, investigating the influence of partner atypical employment on own atypical employment and the impact of atypical employment in couples on their joint labour income. This concluding chapter summarizes the main insights and contributions gathered from the four papers, points out some policy implications of the findings, and suggests directions for future research.

2 Main contributions and findings

Heterogeneity in wage effects of atypical employment

As set out in the introduction to this doctoral thesis, while there is a considerable body of literature looking at the socio-economic consequences of atypical employment, much of this scholarship has focused on the average effects of different types of atypical work. One of the main contributions of this thesis is that it analysed how the effects of both temporary and part-time employment may be stratified within the population of atypical workers in detail. Such variation is the particular focus of the first two empirical papers, focusing on the wage effects of atypical employment.

The first article examined whether and how the wage effects of part-time and temporary employment differ across the wage distribution. For both part-time and temporary employees, substantial variation in wage gaps across the wage distribution was found. Relative to permanent employees, temporary workers experience wage penalties across the wage distribution, but these penalties decrease significantly towards the top of the wage distribution, even disappearing at some top deciles. The wage gaps associated with part-time employment follow a similar pattern, in that they become more positive towards the upper end of the wage distribution. Generally, however, part-time work is associated with less negative effects relative to full-time work, with significant wage penalties only found at the bottom of the wage distribution, and insignificant effects or premiums towards the top.

These results further our understanding of both temporary and part-time employment, as they demonstrate that the extent of labour market disadvantage associated with them is not constant

across all workers in these employment relationships. Rather, it is workers at the bottom of the wage distribution, argued to be located in the external labour market and to have lower labour market bargaining power, who are found to suffer wage disadvantages most acutely. One of the mechanisms through which this occurs, highlighted in paper 1, is the occupational position of workers influencing their labour market standing. Differences in occupational status are a key distinguishing factor among both temporary and part-time workers across the wage distribution, influencing their labour market bargaining power and, accordingly, wage disadvantages they experience. Within higher-status occupations at the upper end of the wage distribution, atypical workers face much smaller or no wage disadvantages.

In paper 2, the analysis of heterogeneity in wage consequences of atypical employment was further extended by taking a longitudinal view and investigating longer-term wage growth consequences. Focusing on temporary employment, the paper looked at career phase variation in the long-term wage growth of temporary employees relative to permanent employees. The paper did indeed find evidence for career phase variation in such effects – that is, the long-term consequences of temporary employment for individual wage development depend on the career phase in which the spell in temporary employment takes place. Specifically, experiencing a spell in temporary employment in the early career is initially associated with a significant wage gap relative to early-career permanent workers, but this gap is closed after a few years. In contrast, late-career and, particularly, mid-career workers in temporary employment experience long-term wage divergence from permanent workers.

The paper argued that the observed differences can be explained by the different functions that temporary employment can take, depending on the career phase of workers. In the early career, it is more likely to be used as a screening mechanism and lead to longer-term labour market integration. In later life, temporary contracts are more likely to be offered to workers to serve

as a buffer stock for employers and may be associated with stigma and an unstable labour market career. Indeed, the paper showed that a part of the career phase variation observed can be accounted for by the subsequent labour market careers of workers, including time spent in further temporary employment, but also employment and unemployment, after the initial spell in temporary employment. Overall, the article complements paper 1 in demonstrating that the socio-economic consequences associated with temporary employment are not uniform, but rather depend on the individual position of workers.

The role of couples in research on atypical employment

The second main contribution of this doctoral thesis is that it illuminated the couple dimension of atypical employment, which is hitherto underexplored in research on atypical employment. This aspect was explored in the second half of the thesis. As a first step, paper 3 examined whether partner atypical employment is related to an individual's own likelihood of being atypically employed, again looking at both part-time and temporary employment. In the case of temporary employment, the analysis found substantial support for what it terms the accumulation scenario, that is, that partner temporary employment is positively associated with one's own likelihood of being in temporary employment. A large portion of this association is driven by composition effects, in the sense that individuals whose partners are in temporary employment themselves have characteristics that predispose them to being temporarily employed. Nevertheless, a significant association between partner and own temporary employment remains even after accounting for household characteristics and partner resources in the analysis.

For part-time employment, a positive association between partner and own part-time employment was similarly found, although the magnitude of the association is smaller than for

the case of temporary employment. A supplementary analysis showed, however, that dual part-time work is not equally distributed across the population of couples, in contrast to dual temporary employment. Rather, it occurs at the two extremes of the income distribution, among very low-earning and very high-earning couples. In contrast, in the middle of the income distribution, there is no or even a negative association between partner and own part-time employment, which is more consistent with classic household specialization patterns. While dual part-time work at the bottom of the income distribution is argued to be an expression of labour market disadvantage, dual part-time work within high-earning couples may be driven by different mechanisms. For such couples, dual part-time work is likely taken up in a context where the financial and other resources of both partners allow for it. In sum, the results of paper 3 demonstrate that partner dynamics may play an important role in determinants of atypical employment, an aspect that should be taken into account more in future research.

In paper 4, this research line was further continued by investigating whether the presence of temporary or part-time employment in couples has implications for these couples' labour income. The analysis generally did show that atypical employment in couples has effects on labour income. For temporary employment, one or, particularly, both partners in a couple being in temporary employment has negative consequences for the couple's labour income, including when adjusting for working hours. For part-time employment, as one would expect, absolute joint labour income decreases significantly when one or both partners in a couple are employed part-time. However, once adjusting for working hours, no significant income differences was found, indicating the income disadvantage can largely be attributed to the lower working hours associated with part-time work. Nevertheless, a large proportion of part-time workers indicate that they would like to increase their working hours. This implies that the relative income disadvantage associated with part-time work should not be discounted.

Moreover, the analysis also further disaggregated these results in order to investigate factors that influence the degree of income disadvantage associated with atypical employment in couples. First, the analysis of part-time work was deepened by providing a distinction between marginal (working less than 15 hours) and substantial (15-31 hours) part-time work. The income disadvantages associated with one or both partners being in marginal part-time work are significantly more pronounced than when one or both partners are in substantial part-time work. Second, the analysis considered gender differences in the effect of couple atypical employment on joint labour income. Overall, the results indicate that the male partner being in atypical employment within a couple has stronger negative effects on couple labour income than the female partner being atypically employed. Taken together, the results of paper 4 provide some first evidence that atypical employment in couples may indeed have significant effects on the economic position of couples. However, the paper also illuminates heterogeneity in these effects, both between types of atypical employment and by gender. Jointly, papers 3 and 4 further our understanding of the patterns of and socio-economic disadvantages associated with atypical employment at the level of couples, and potential driving mechanisms thereof.

Taking a comparative perspective

A further contribution of the thesis is that it sought to emphasize a comparative perspective; three of the four articles presented as part of the thesis compare two types of atypical employment, temporary and part-time work. By jointly examining these forms of employment relationships, which may be labelled as atypical but are distinct in several ways, the mechanisms driving social inequalities associated with them can be illuminated.

On the one hand, this comparative approach showed that, as has been acknowledged in previous research (e.g. Giesecke, 2009), temporary and part-time employment are quite distinct. In

particular, the papers reinforce the notion that the labour market disadvantage associated with temporary employment is, generally speaking, more pronounced than that associated with part-time work. Paper 1 illustrates that wage penalties associated with temporary employment are more negative and significant across the wage distribution than those associated with part-time employment. Paper 4 shows that these differences in economic disadvantage also translate to the level of couples as, adjusted for working hours, there are significant income disadvantages associated with temporary employment within couples, but not with part-time employment. As such, the results in the thesis confirm that temporary employment, which is generally regulated and protected to a lesser extent than part-time employment in European labour markets, carries more significant wage and income disadvantage with it than part-time work.

On the other hand, a comparative analysis of temporary and part-time employment also allows for discovering commonalities between these two types of employment relationships. Paper 1 illustrates that for both temporary and part-time employment, wage disadvantages associated with it are largest for workers at the bottom of the income distribution, and that one significant factor driving differences in wage gaps across the distribution is occupation. Theoretically and empirically, this analysis helps to illustrate that both temporary and part-time employment are in themselves dualized forms of employment, rather than all or no such workers being part of either the primary or the secondary labour market. It is mainly temporary and part-time workers at the bottom of the wage distribution who are likely part of the secondary labour market and experience strong disadvantages associated with atypical employment.

Furthermore, the analysis of atypical employment in couples also reveals commonalities between temporary and part-time employment. In paper 3, the analysis shows that both partner temporary and partner part-time employment are associated with own temporary and part-time employment, respectively. The observation that this relationship is only observed at the

extremes of the income distribution for part-time employment reinforces the notion of part-time work as a dualized form of employment (see also Nicolaisen, Kavli, & Steen Hensen, 2019; Tilly, 1996), as emphasized in paper 1. Finally, paper 4 shows that within couples, part-time and temporary employment share a gendered dimension, as gendered effects of atypical employment on couple income occur not only for part-time employment, but also for temporary employment. Overall, the articles therefore demonstrate that while temporary and part-time employment are certainly distinct forms of employment with different characteristics, there are also points of similarity between them, and a comparative perspective helps to derive conclusions about possible mechanisms driving socio-economic inequalities associated with them.

In addition to taking a comparative perspective with regard to temporary and part-time employment, two of the papers in the thesis (paper 1 and paper 3) also considered country commonality and difference across Europe in the patterns observed. While the aim of these papers was not to formally investigate country variation, conclusions on the extent of country commonality can be drawn.

In general, there is a pattern of country commonality found in the results related to temporary employment. Paper 1 identifies a low-wage penalty associated with temporary employment in almost all of the seven Western European countries studied, with some variation in the middle and top of the wage distribution. Paper 3 shows that an association between partner temporary employment and own temporary employment exists in almost all of the 29 European countries in the sample. Nevertheless, the analyses also show that there are country differences, which mainly manifest as variation in the scale of effects. While some of this variation aligns with what we would expect based on countries' institutional design and extent of labour market dualization (Esping-Andersen and Regini, 2000; Häusermann and Schwander, 2012), there are

also outlier cases, such as the finding that the wage penalties associated with temporary employment in Portugal, a country with a strongly segmented labour market, do not differ along the wage distribution.

As regards part-time employment, the extent of country commonality found varies between research articles. Looking at part-time wage gaps across the wage distribution (paper 1), patterns are quite systematic across countries, though there are differences in the scale of effects. However, there are outlier cases, particularly Italy, where part-time premiums are found across the wage distribution. As regards the findings on accumulation of part-time work in couples, however, country variation is a more prominent theme. An association between partner and own part-time employment is only found in a minority of European countries, most systematically in Northern and Western Europe, but also in some Southern and Eastern European countries. Exploratory analysis indicates that in Southern and Eastern Europe, where part-time work is less protected and more likely to be involuntary, accumulation of part-time work occurs only within low-earning couples. Conversely, a positive relationship between partner and own part-time employment is found among high-earning couples only in Western Europe, where part-time work is more established and protected. The findings of papers 1 and 3 illustrate that country-comparative studies can be useful in establishing empirical regularities and pointing to interesting findings as regards country variation, which may be explored in more detail in country-specific studies.

3 Policy implications

Both temporary and part-time employment are prominent types of employment within European labour markets. However, if these forms of employment lead to disadvantages for workers, net of their individual characteristics, equity concerns would lead us to conclude that

this has important implications for policy. The results presented in this thesis do indicate that temporary and part-time employment can economically disadvantage both individuals and couples, and this disadvantage is argued to be related to lower levels of labour market standing and protection associated with atypical employment relative to standard employment. Measures to better ensure that atypical employment does not imply low-quality employment for workers should therefore be considered by policymakers.

Indeed, in a context where the standard employment relationship, as defined during the Fordist golden age, is becoming less and less common, labour market and social protection systems need to adapt to this situation. While directives on equal treatment of temporary and part-time workers have been implemented in the European Union, the effectiveness of equal treatment legislation may vary by country depending on legal loopholes and exceptions (ILO, 2017). Moreover, though they are generally formally covered by social protection schemes, temporary and part-time workers may face coverage gaps for benefits due to minimum hours or (uninterrupted) contribution period thresholds (ILO, 2017; Spasova *et al.*, 2017). Finally, a significant issue to consider in the design of social security is the fact that atypical workers tend to have less or fewer access to non-wage benefits, such as pensions (Schulze Buschoff, 2015). Social security systems that are contribution based and rely on the presumption of continuous full-time employment over the life course are badly positioned to respond to the needs of individuals with increasingly flexible employment histories (Ibid.).

At the same time, however, regulatory and social protection measures to strengthen the labour market standing of atypical workers should be combined with active labour market policies that address the specific needs of this group. One crucial issue is that of skills development. Research has shown that atypical workers tend to have less access to employer-provided training than standard employees, given firms' limited incentives to invest in training for these

workers (Arulampalam and Booth, 1998; Eurofound, 2012). This thesis identified a lack of training for atypically employed workers as one of the pathways through which inferior wage growth may be explained. As such, upskilling measures for atypically employed workers are an important issue for policymakers to address. In this context, investment in active labour market policies that provide workers with opportunities to invest in their skills independent of their employer, such as individual learning accounts (OECD, 2019), may be a promising way forward.

A further important conclusion for policy that was drawn in this thesis, however, is that the impact of atypical employment on individual welfare is not homogeneous: rather, it appears that it is low-income individuals with low labour market bargaining power who are particularly disadvantaged by being in atypical work. In addition, effects are stratified by social categories, such as age and gender. In designing policies to address the impacts of atypical employment on job quality, such heterogeneity should be taken into account in targeting policies. For instance, upskilling measures may be most relevant for workers at the bottom of the income distribution, as low-skilled workers are also disproportionately more likely to be low-income (Lyly-Yrjänäinen, 2008).

4 Directions for future research

The findings presented in this thesis point to a number of avenues for future research on atypical employment.

First, this thesis has shown that atypical employment may accumulate in couples, and that the presence of atypical work in couples has implications for the economic position of these couples. These results demonstrate that atypical employment within couples and households

should receive greater research attention. While a body of sociological literature examines couples' careers and the impact of partner resources on labour market outcomes, including temporary and part-time work (Henz and Sundström, 2001; Verbakel and de Graaf, 2009; Kanji, 2011; Dieckhoff *et al.*, 2015), there is ample room to further extend this scholarship. For instance, it would be desirable to longitudinally track couples' employment careers, including atypical employment, from before couple formation, in order to more directly investigate the patterns of atypical employment in couples and the ways in which own and partner atypical employment intersect. Use of longitudinal data could also help in refining analysis of the causal mechanisms that drive patterns of atypical employment within couples. Moreover, the consequences of atypical employment on socio-economic welfare at the level of couples warrant further investigation. Here, it would be desirable to consider not only effect on labour income, as has been done in this thesis, but to take into account how other sources of household income as well as welfare state policies can exacerbate or mitigate against the negative impact of atypical employment on the economic position of couples. Finally, a broader household-level analysis of atypical employment may also want to take into account single individuals and single-earner households experiencing atypical employment, who may be in a particularly precarious economic situation.

Second, the findings presented show that there is significant heterogeneity in the effects of atypical employment across the wage distribution and more specifically, that low-income atypical workers are the ones who suffer the most significant relative labour market disadvantage from being atypically employed, both in temporary and part-time employment. Indeed, as has been argued previously, the results show support for the theory that temporary and part-time work are in themselves dualized and particularly disadvantageous for low-income workers who are already in a position of labour market disadvantage. In future research, these low-income atypical workers should receive more specific attention. As regards the wage

effects of atypical employment, some scholarship has investigated the low-pay penalty associated with atypical employment (Comi and Grasseni, 2012; Nightingale, 2019), research to which this thesis has further contributed. However, this work could be further extended. In particular, it would be desirable to examine the medium and long-term career consequences of atypical work for low-income workers. That is, is it these workers in particular who are likely to experience atypical employment as a career-inhibiting factor, stuck in a cycle of labour market churning, unemployment and atypical work? In addition, going back to the previous discussion, the role of atypical employment in low-earning couples and households should be examined in more detail, as accumulation of disadvantage may be particularly pertinent among these groups.

Third, this thesis has focused on two specific types of atypical employment, temporary and part-time work. However, this is not an extensive account of all types of atypical employment. Taking the definition of atypical employment most commonly employed in academic research (e.g. Hipp, Bernhardt, & Allmendinger, 2015; International Labour Organization, 2016), temporary agency work and solo self-employment are categories of atypical employment that remain understudied relative to temporary and part-time employment. More broadly, the ongoing digitalization of labour markets is causing fundamental changes to the employment relationship, including the development of forms of labour that go beyond the classic definition of atypicality. For instance, recent years have seen large growth in digital labour platforms, where a digital platform intermediates work between a client and a person working through the platform, often formally classified as self-employed (Urzì Brancati, Pesole and Fernandez Macias, 2020). Such developments raise many questions about the working conditions and labour market position of workers in these types of employment relationship, which future academic research should explore in detail.

Finally, throughout this thesis, atypical employment was generally juxtaposed with standard employment, in this case meaning either permanent (relative to temporary) or full-time (relative to part-time) employment. However, this should not be taken to imply that all such standard employment is superior to atypical employment, or that workers cannot experience precarious labour market outcomes within standard employment. Indeed, just as the research results presented in this thesis demonstrate that the labour market circumstances of atypical workers are strongly heterogeneous and structured by factors such as occupation, the circumstances of workers in standard employment are likely equally diverse. In future, it may be desirable for research to further move beyond the binary juxtaposition of atypical and standard employment – semantically, theoretically and empirically - in order to allow a richer interrogation of the structural factors that shape socio-economic inequalities across and within different types of employment relationships.

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