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# A division of labour? Labour market segmentation by region of origin: The case of intra-EU migrants in the UK, Germany and Denmark1

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#### Abstract

The 2004/2007 EU enlargements rendered CEE citizens legally equal to EU labour market participants. However, CEE migrants still face 'racialisation' and segmentation in North-Western European labour markets. Similar processes might extend to EU-South migrants, giving rise to a division of labour, whereby CEE and EU-South migrants end up in poor-quality, low-pay jobs. We compare the labour market integration of recent intra-EU migrants (EU8, EU2, EU-South, EU-West/EEA) in the UK, Germany and Denmark. Using labour force, microcensus and register data, we model quantitative and qualitative integration through labour force participation and wages.

We find no significant differences in labour force participation between nationals and migrants in the UK. Whilst in both Denmark and Germany, the labour force participation of EU-migrants is significantly lower. Notwithstanding differences in migration trends, labour markets and welfare regimes, we find evidence of a division of labour along occupational and industry lines – that translates into wage differences. EU-West/EEA migrants occupy better jobs (even outperforming nationals), followed by EU-South and CEE migrants. In Denmark and Germany, EU8 and EU2 migrants' wages are lower than those of nationals even after controlling for

<sup>&</sup>lt;sup>1</sup> The parts of this paper on Germany and the UK have benefitted from funding from the European Union's Seventh Framework Programme for Research, Technological Development and Demonstration under Grant Agreement no. 613256. The Danish part of the paper was supported by a grant from the Danish Ministry of Employment. The authors would like to thank the editor and two anonymous reviewers for their constructive comments which significantly helped to improve the article. Additionally, the authors wish to thank the participants at the International Doctoral Workshop of Industrial Relations at the London School of Economics for their insightful comments. We would also like to thank Magnus Paulsen Hansen for comments on an earlier version of the paper.

differences in occupations. These findings suggest that inequalities across the EU are reproduced rather than converging.

**Keywords**: intra-EU migration; labour market integration; racialisation; wages; welfare regimes; segmentation; Central Eastern Europe; EU-South; EU-West

### Introduction

EU citizens consider the right to freedom of movement within the European Union to be the most important individual benefit of EU membership (Recchi 2015). Indeed, the 2004 and 2007 EU enlargement rounds to the Central and Eastern European (CEE) countries hugely increased intra-EU labour mobility (Kahanec & Zimmermann 2016), with European citizens representing 40% of the total EU migrant population in 2014 (Castro-Martin & Cortina 2015). The central premise of the right to free movement for workers as laid out in Article 45 of the Lisbon Treaty is that EU citizens working in another member state are not subject to discrimination based on their nationality as regards employment, remuneration or other conditions of work and employment. However, equal legal rights do not guarantee equal labour market outcomes.

Previous research (mainly on the UK) has shown that CEE migrants, in particular, have worse labour market outcomes than nationals in the destination country in terms of skills-occupation match (Bettin 2012; Clark & Drinkwater 2008; Johnston et al. 2015) and that they are over-represented in industries characterised by low-pay and low-skill jobs (Barrett et al. 2012; Friberg et al. 2014; Khattab & Fox 2016; Recchi 2015). Additionally, CEE migrants in the UK and Ireland earn lower wages than migrants from the former EU15 countries (Barrett et al. 2012; Clark & Drinkwater 2008; Voitchovsky 2014).

Such systematically poorer labour market outcomes pose a challenge to the premise of equality, as well as to the legal guarantee of non-discrimination of EU migrant citizens. Moreover, they challenge a fundamental tenet of the ever-closer European Union project, where workers' mobility is seen as a key driver of economic growth for the EU – as outlined in key EU documents, including the New Skills Agenda for Europe and Youth on the Move.

Recent research focuses almost exclusively on the labour market situation of CEE migrants in Western European countries. This reflects the steep increase in CEE migrant inflows since accession, which has also been driven by the considerable economic differences between the EU8<sup>2</sup> and EU2 (Bulgaria and Romania) member states, on the one side, and the 'old' member states (EU15), on the other. Most of this research focuses on the UK and compares CEE migrants (more particularly

<sup>&</sup>lt;sup>2</sup> Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.

migrants from the EU8 and in most cases Poles) with nationals and sometimes with EU15 migrants. Several scholars have suggested that a new 'racialisation' and a resulting segmentation of EU migrants has developed since accession, with CEE migrants faring worst in North-Western Europe (Diehl et al. 2016; Favell 2008; Favell & Nebe 2009). However, to our knowledge, this proposition has not been tested simultaneously across different North-Western welfare state settings.

Poorer labour market outcomes amongst CEE migrants in terms of employment rates and wages are often attributed to employer behaviour in the form of discrimination (Demireva & Kesler 2011; Fox et al. 2015), ethnic hierarchies (Friberg & Midtbøen 2018) and exclusion from some occupations (Clark & Drinkwater 2008; Johnston et al. 2015; Parutis 2011; Voitchovsky 2014). Another explanation might be differences in welfare state generosity, which affects the value of portable benefits across member states (Bruzelius et al. 2017), and in migrants' reservation wages (given the different levels of earnings across Europe, see Eurostat 2017). These differences would enable migrants from more affluent countries (EU-West/EEA) to search longer for suitable jobs and to move country only for jobs that match their expectations and skills. CEE migrants, by contrast, would be more likely to take up jobs in the destination country that pay low wages and require low skill levels and for which they are over-qualified (Khattab & Fox 2016).

However, in light of this research it is crucial to note that there are also wage and welfare differentials between the Northern EU countries and the Southern EU countries, albeit less substantial (Farrell 2001; Ferrera 1996). Following the economic downturn in the aftermath of the 2008 economic and financial crisis, skyrocketing unemployment and the subsequent steep increase in migration flows from Southern Europe, it seems pertinent to consider EU-South migrants as a separate group. In Southern Europe, high unemployment rates and to some degree also lower wages are likely to act as economic push factors. Spreckelsen et al. (2019) show descriptively that recent (young) migrants from the EU-South in the UK and Germany seem to fare worse in terms of wages and skills–occupation match than migrants from EU-West/EEA countries.

These differentials are likely to produce differences in employment rates as well as a *division of labour* between labour migrants across the EU. CEE and potentially Southern European labour migrants are likely to be more accepting of job offers than EU-West/EEA migrants, systematically taking up jobs at the bottom of the labour market that are characterised by poor working conditions,

including low wages. These migrant groups would consequently achieve poorer qualitative labour market outcomes in EU15 destination countries than their peers from the EU-West and EEA.<sup>3</sup>

To establish whether such a division of labour across the EU exists, different groups of intra-EU migrant citizens must be compared, and few studies do so (for notable exceptions, see Barrett et al. 2012; Clark & Drinkwater 2008; Johnston et al. 2015; Voitchovsky 2014). Crucially, previous studies rarely look at EU-South<sup>4</sup> migrants as a group distinct from the EU-West/EEA countries.

Moreover, the labour market outcomes of EU migrants need to be compared across different national or institutional settings. Most studies examining the labour market situation of EU migrant focus on the UK or on some other single country (see, e.g., Barrett et al. 2012). This is problematic if we are testing for a division of labour amongst EU migrants across Northern Europe, given its different institutional configurations and post-enlargement transition regimes.

Using country-level micro data and regression analyses, this article investigates whether both a quantitative and a qualitative division of labour (the latter with a focus on wages) exist amongst recent intra-EU migrants in three distinct labour market and welfare regimes – the UK, Germany and Denmark.

We hypothesise the existence of a labour market division between intra-EU migrant groups in terms of their qualitative labour market outcomes by region of origin and independent of individual characteristics. We hypothesise that this division exists despite legal equality for EU citizens and the end of transition measures following the 2004 and 2007 enlargement rounds. We expect the quantitative labour market outcomes of recent EU migrants in terms of employment propensity to be similar to those of nationals, given that they have unrestricted labour market access and are on average young and relatively highly educated. Because of persisting hurdles, including language challenges and possible discrimination by employers, we expect some differences in labour force participation to remain and to vary by destination country. Given the general openness of the UK

<sup>&</sup>lt;sup>3</sup> Nationals from the four EEA countries (Iceland, Liechtenstein, Norway and Switzerland) enjoy the same freedom of movement with regard to labour as EU citizens. These four are amongst the most affluent countries in Europe (Eurostat 2017).

<sup>&</sup>lt;sup>4</sup> Greece, Italy, Portugal, Spain, Cyprus and Malta.

labour market, we expect intra-EU migrants to fare comparatively better in the UK than in Germany and Denmark. Turning to qualitative outcomes and based on occupational and industry segmentation - i.e., a division of labour created by discrimination and driven by 'racialisation' and economic push factors (differences in reservation wages and unemployment rates) – we expect to see migrants from the EU-West and EEA countries doing better in terms of wages than those from Southern Europe. We expect CEE migrants to show the poorest outcomes. This segmentation, we propose, reflects a distinct division of labour by regions of origin across the EU, independent of the destination countries' labour market and welfare regime types.

# Division of labour of intra-EU migrants in Western Europe: Theoretical explanations and hypotheses

On a macro level, segmentation theory (Piore 1979) provides two explanations for the expected division of labour in the EU. First, it argues that because of structural demand, all modern industrialised economies have a secondary labour market segment characterised by low skills and poor working conditions, which is unattractive to national workers but filled by often temporary labour migrants with lower reservation wages given their different frame of reference (Piore 1979). Second, labour demand mechanisms of segmentation are counteracted by labour market institutions and welfare state arrangements (Peck 1996; Rubery 2007). The different destination countries and their respective institutional configurations (e.g., labour market and welfare regimes) should therefore play a moderating role in the degree of the division of labour generated by the general segmentation mechanisms. However, we know little about the role of institutional configurations in the segmentation of intra-EU migration because most existing studies have focused on a single country, often the UK.

Consequently, this article concentrates on three countries – Denmark, Germany and the UK. Each of these countries represents labour market and welfare state configurations characterising the North-Western EU member states, with varying strengths for the role of the state, market and family: Denmark represents the social-democratic welfare regime; Germany, the conservative regime and – in *Varieties of Capitalism* (VOC) terminology – a coordinated market economy; and the UK, the liberal regime and in VOC terms a liberal market economy (Esping-Andersen 1990; Hall & Soskice 2001). It is important to note that these typologies are highly relevant for labour market segmentation and dualisation (e.g., Häusermann & Schwander 2012). Thus, because of the predominance of

general as opposed to specific skills in the (more open) UK labour market, we expect the UK to have more equal outcomes in terms of employment between nationals and EU migrants than Germany and Denmark. However, in the context of intra-EU migration, we posit that the institutional configurations only moderate the more prominent country-of-origin differences discussed below.

On a micro level, employer discrimination by nationality or ethnicity (Ebner & Helbling 2016; Fossati et al. 2017; Kingston et al. 2015), language barriers and insufficient recognition of skills (Chiswick & Miller 2007), as well as differences in reservation wages (Amuedo-Dorantes & De La Rica 2007) are known to influence migrants' job prospects and choice of occupations (Fries-Tersch et al. 2017).

The above theoretical explanations correspond to observations of macro-level migrant-national segmentation patterns. Previous research has found nationals to be better integrated than migrants in their respective labour markets (Nielsen et al. 2004); similarly, Western migrants consistently do better than their non-Western counterparts (Brodmann & Polavieja 2010; Kogan 2011). Likewise, migrants consistently find it easier to gain access to the UK than to the German and Danish labour markets (Algan et al. 2010), albeit often through atypical jobs (Ballarino & Panichella 2015; McCollum & Findlay 2015).

The segmentation mechanisms identified above affect migrants in general. However, EU and EEA migrants are legally and economically distinct, different both to nationals and to third-country migrants. CEE migrants were until recently restricted in their EU-wide freedom of movement by transition measures.<sup>5</sup> However, the now unrestricted freedom of movement (for workers) implies that EU citizens can relatively easily move to or return from one member state from/to another. This mobility is facilitated by short distances and low transport costs (Black et al. 2010), as well as various EU initiatives improving transparency and recognition of skills and qualifications. The easy mobility is likely to lead to relatively high employment rates because migrants who are unsuccessful in one destination labour market can simply move on to another.

<sup>&</sup>lt;sup>5</sup> Transition measures for EU2 citizens were abolished in Denmark on 1 May 2009, in Germany and the UK in 2013, and for EU8 citizens in Germany in 2011.

At the same time, the EU countries are very heterogeneous in terms of economic and welfare state developments. Compared to EU-West/EEA member states, CEE countries (especially the EU2) have considerably lower nominal wages – the post-accession catch-up having been partly reversed by the 2008 crisis (Galgóczi 2017) – and also have less developed welfare states. To a lesser extent, this is also the case for the Southern European member states; after a convergence period, the 2008 economic crisis and the subsequent surge in unemployment and the austerity pressures on wages and welfare systems all widened the gap to Northern Europe (Lehndorff 2015). A longer-term, structural push factor is provided by the persistently high youth unemployment rates in Southern Europe (Farrell 2001). By contrast, the relatively good economic conditions in their home countries mean EU-West/EEA migrants are less likely to have migrated because of economic *push* factors and are more likely to respond to economic *pull* factors. Consequently, the mechanisms outlined in segmentation theory should – because of differences in the selectivity of migration – (Chiswick 2008) vary according to the country/region of origin of EU migrants, potentially leading to a division of labour amongst them.

Two factors, in particular, could create segmentation *between groups of EU migrants* and, in particular, between CEE migrants and EU-West/EEA migrants, with EU-South migrants potentially taking a middle position: differences in employer discrimination deriving from racialisation; and economic push factors, in particular reservation-wage and unemployment differentials. Additionally, transition measures are likely to have played a role in restricting to some degree the free choice of employment.

First, a process of racialisation leads to CEE – and potentially with the recent economic crisis also EU-South – migrants being perceived as distinct from their EU-West/EEA counterparts in terms of language and culture (Favell 2008; Favell & Nebe 2009; Fox et al. 2015), resulting in experiences of discrimination due to employers' conscious or unconscious ethnic hierarchies. This mechanism has empirically been shown to lead to poorer labour market outcomes at least for CEE migrants in terms of occupational segmentation and hence also wages (Demireva & Kesler 2011; Fox et al. 2015). In particular, such discrimination seems to be related to the hiring of CEE migrants for specific jobs: employers' perception of CEE migrants' work ethic and flexibility has meant that employers prefer them to national workers, especially for low-skill, routine, manual jobs (Friberg & Midtbøen 2018; Hopkins & Dawson 2016; McCollum & Findlay 2015). Paradoxically, employers' general perceptions of CEE migrants may thus translate into high overall employment levels, while at the same time hindering their transition out of the secondary labour market. The racialisation and

ensuing discrimination on the part of employers might therefore lead to a systematic sorting of different migrant groups into different jobs based on their region of origin (Constant & Massey 2005). This effect will likely be further reinforced by job-search strategies that make use of co-ethnic social networks (Waldinger & Lichter 2003).

Second, lower reservation wages amongst CEE migrants because of sizeable region-of-origin versus country-of-destination wage differentials are likely to make CEE migrants (and amongst them especially EU2 migrants) more willing to accept low-pay, low-skill jobs. Short-term labour migration will be especially affected, where a migrant accumulates wages in the destination country but regularly returns to and consumes in the country of origin or otherwise transfers earnings in the form of remittances (Drinkwater & Garapich 2015). The expected wage differences have been consistently observed for CEE migrants (with a focus on the UK: Dustmann et al. 2010; Johnston et al. 2015; Pietka-Nykaza et al. 2013; Trevana 2013). Consequently, the intra-EU differentials in wages and likely also portable unemployment benefits (Bruzelius et al. 2017) seem to increase the likelihood of EU migrants from poorer member states taking on lower-paid and lower-skilled jobs resulting in high employment rates but also low wages (Khattab & Fox 2016). In line with very high crisis-induced unemployment rates and limited welfare state benefits as push factors, Spreckelsen et al. (2019) and Akgüç & Beblavý (2019) also find poorer qualitative labour market outcomes for young migrants from the EU-South as compared to the EU-West in North-Western destination countries. EU-West/EEA migrants, on the other hand, have better employment opportunities and better qualitative outcomes at home and are thus less likely to migrate to take up low-skill, low-pay employment (Chiswick & Miller 2011).

Building on the above theoretical arguments and previous empirical findings, we expect that:

Hypothesis 1: The labour force participation of all migrant groups will be lower than that of their national peers because of remaining barriers in access to the labour market, such as a lack of recognition of qualifications, language challenges and discrimination by employers.

Hypothesis 1a: Because English is a lingua franca and the UK labour market is rendered more permeable by its need for general rather than specific skills, migrants in the UK are expected to have quantitative labour market outcomes that are closer to those of nationals than migrants in Germany or in Denmark.

Hypothesis 2 on qualitative integration: Recent intra-EU migrants from EU-West/EEA will earn higher wages than recent EU migrants from EU8 and EU2 countries, with EU-South migrants taking a middle ground.

Further, we expect this division of labour to manifest itself:

Hypothesis 3: across all three types of institutional configurations represented by Denmark, Germany and the UK, despite their different welfare state and labour market institutions.

#### **Data and methods**

Region of origin is defined using the following five categories: nationals (British, German or Danish)<sup>6</sup>; EU-West/EEA (consisting of EU15 – excluding EU-South – and EEA citizens); EU-South; EU8; and EU2. Third-country nationals are excluded from the analysis because their rights differ considerably from those of intra-EU mobile labour and also because they are a highly heterogeneous group. We look at recent migrants (who arrived within the last five years), who account for a considerable share of EU28 migrants (Fries-Tersch et al. 2017).<sup>7</sup> Region-of-origin effects are best studied in recent migrants (Rienzo 2013) because migrants tend to catch up or assimilate with their national peers over time.

<sup>&</sup>lt;sup>6</sup> In the analyses of the UK, Germans and Danes are included in the EU-West/EEA group and vice versa. <sup>7</sup> For the UK, migrants are identified as having a different country of birth than the UK, no UK citizenship and UK residency for between one and five years. For Germany, migrants are identified as having non-German citizenship and having migrated to Germany within the previous one to five years. For Denmark, migrants are identified as having a different country of birth and having officially settled in Denmark between one and five years ago.

Our analyses are based on data from the German Microcensus (2013)<sup>8</sup> and pooled data (2012–2014) from the UK quarterly Labour Force Survey (UK-LFS).<sup>9</sup> These two surveys have relatively comparable sampling designs and indicators as inputs to the European Labour Force Survey (EU-LFS). For Denmark, we use administrative register data (2014).<sup>10</sup>

The UK-LFS has been shown to underreport on migrant populations (Longhi & Rokicka 2012; Martí & Ródenas 2007) and we expect similar effects for the German Microcensus given its German-only questionnaire (the interviewers are given translation assistance into English). The Danish administrative data is limited in that it only covers the resident population. All three datasets inadequately cover short-term migrants (e.g., seasonal workers and posted workers). However, since those migrants who are not covered are likely to be in more precarious jobs, the following estimates are bound to be more conservative, thus constituting a stronger test for our hypotheses.

#### Dependent variables

We investigate *overall quantitative labour market integration* by measuring labour market participation, defined as active (employed or unemployed) versus inactive (ILO) labour market

<sup>&</sup>lt;sup>8</sup> The German Microcensus is a representative sample containing demographic and labour market information from 1% of all households in Germany. All persons who have right of residence in Germany, whether living in private or collective households, or at their main or secondary residence, are sampled and are obliged to participate (RDC 2016).

<sup>&</sup>lt;sup>9</sup> The LFS is the largest social survey in the UK. All adult members from a rotating sample of 41,000 private households are interviewed in five consecutive quarters. The sample size makes it the best data set available for analysing the labour market situation of recent migrants (ONS 2015).

<sup>&</sup>lt;sup>10</sup> Danish administrative register data cover the total population of residents in Denmark, both migrants and nationals. The analysis of employment, unemployment and inactivity uses a register indicating the primary labour market status (ILO definitions) of every resident at the end of each November. For the analysis of wages and working hours, a register containing information on everyone active in the labour market during the year is used to calculate average hourly wages throughout the year.

status.<sup>11</sup> This approach captures employment propensities and thus allows us to assess labour market openness and selection processes according to region of origin.

We examine *qualitative labour market integration* by means of *hourly wages*. These are measured in the Danish data by dividing the total average earned income (as recorded by the tax office and reported by employers) by the number of actual hours worked. In the German data, net hourly wages are derived from net wages in the month prior to the survey, which are available only in earnings classes.<sup>12</sup> The UK-LFS provides net hourly pay directly.<sup>13</sup> The lack of comparable measures precludes the use, for example, of skills-mismatch indicators as measures of qualitative labour market integration.

### Explanatory variables

To assess the division of labour, we compare labour market integration measures across *'regions of origin'* in five groups: nationals, EU-West/EEA, EU-South, EU8 and EU2.

#### Control variables

All models include demographic characteristics: *age*, *age squared*, *gender*; and two household characteristics: presence of a *dependent child* (<16) *in household* and *employment status of partner* (no partner in household, partner not employed, partner part-time employed, partner full-time

<sup>13</sup> Wages have been adjusted for inflation using the Consumer Price Index (ONS 2015) on the pooled data.

<sup>&</sup>lt;sup>11</sup> According to the EU-LFS definition, persons working at least one hour in the reference week and persons who were not active in the reference period but had a job from which they were temporarily absent are counted as employed and asked questions relating to their employment status. Economically inactive persons are those who are neither employed nor unemployed.

<sup>&</sup>lt;sup>12</sup> The mean of the respective wage class is divided by the normal working hours. We limit the German analysis to persons whose main source of income are wages from work because the information in the Microcensus not only contains wages from work but also, for example, child benefits and income from renting out property (for details, see Engels et al. 2012, pp. 198ff.).

employed; cf. O'Reilly & Fagan 1998; Warren 2004). A robustness check for the labour force participation model is undertaken by investigating the role of length of stay in the destination country (table 2b, appendix).

The wage model (table 3) includes occupation (one-digit ISCO08) and, alternatively, industry sector (one-digit NACE; table 3A, appendix) to account for the existence of migrant occupation niches and their clustering in specific industries such as construction and hospitality.<sup>14</sup> Additionally, we control for the length of employment with the current employer in months as well as employment in the public as compared to the private sector. We do not control for length of stay in the destination country in the wage model because of its high correlation with the duration of current employment. This choice is also justified by the fact that the variation in years since arrival between regions of origin is small (see table 1 below) and by past research showing that catching up takes more than five years (Chiswick 1978).

Information on qualification/education is not available in the administrative registers for Denmark but is included in additional models for the UK and Germany (table 3B, appendix). For Germany we use the International Standard Classification of Education (ISCED) (Schroedter et al. 2006).<sup>15</sup> For migrants in the UK, only an origin-of-qualification variable is available (with categories: none, from school, work-related, from university).

#### Statistical analyses

We model labour market participation using multivariate logistic regressions and we model wages through a linear regression of log hourly wages (cf. Chiswick et al. 2005) in Stata 14.0 (StatCorp, College Station, TX). The UK analyses account for sampling design; the German models use standard weights, which account for non-response adjusting for demographic factors, namely age and nationality in broad groups, both separately for men and women. To assess the relative contribution of our variables, we start with a baseline model of region-of-origin differences, subsequently adding

 <sup>&</sup>lt;sup>14</sup> The German and UK data do not have sufficient case numbers to include both variables in one model.
 <sup>15</sup> To this end, we make use of standard routines available here: http://www.gesis.org/en/missy/metadata/MZ/

<sup>(</sup>GESIS 2017).

demographic and household characteristics as well as job characteristics. All analyses are restricted to the working-age population (aged 16–66, excluding students and retirees). The analysis syntax for the German and UK case is available at <u>www.osf.io/mbe84</u>.

#### Results: Division of labour by region of origin?

#### Demographic characteristics of EU migrants in the UK, Germany and Denmark

Table 1 shows that recent EU migrants are on average around 10 years younger than the national working-age population. In Denmark and Germany, recent EU migrants are also more likely to be men, although gender differences are not very pronounced. Men historically have tended to dominate flows of labour migrants (Castles et al. 2013). In the UK, by contrast, the gender share is almost equal and for EU2 migrants is in favour of women. The average time since arrival does not differ substantially across either the three destination countries or the regions of origin: EU-South migrants have arrived somewhat more recently, which is in line with the more recent crisis-driven migration trends from the South.

### [Table 1 near here]

#### **Regression results**

#### Quantitative labour market integration: Labour force participation

Table 2 reports the results of two logit regression models, where labour force participation (employed or unemployed vs. inactive) is the dependent variable. Model 1 on labour force participation shows the baseline regions-of-origin model, while model 2 controls for demographic characteristics and partners' employment status.

According to the models with demographic controls (model 2), all recent EU migrant groups in Denmark and Germany have significantly lower labour market participation than nationals. Whereas in Denmark, EU2 and EU8 display higher labour force participation than EU-West/EEA and EU-South migrants, in Germany, EU-West/EEA and EU8 are somewhat better off than EU-South and EU2 migrants. In the UK, by contrast, controlling for demographics, differences in labour market participation compared to nationals are not significant for any of the EU migrant groups, but do indicate lower participation for EU-West, EU-South and EU2 migrants relative to nationals, in contrast to higher participation rates for EU8 migrants.

Overall, the results support hypothesis 1 that EU migrant groups have relatively labour force participation relative to nationals, but also that in Denmark and Germany they do worse than nationals. In the UK, we find no significant differences between nationals and any of the migrant groups. These results support hypothesis 1a.

[Table 2 near here]

#### Qualitative labour market integration: Hourly wages

Log hourly wages as our measure of qualitative labour market integration – using nationals as the reference – are analysed in three steps (for results, see table 3). We first run a baseline model (1). In model 2, we add demographic information (age, gender, household composition and employment status of partner). This is particularly relevant given the strong variation in average age between nationals and migrants (table 1) and thus the fact that some of the potential disadvantages experienced in terms of wages are simply due to age differences. The previous literature on CEE migrants' labour market integration has found that their poor performance in terms of wages compared to nationals is due to labour market segmentation (e.g., Johnston et al. 2015). In model 3, we therefore also add control variables related to the type of job the individual holds, including the length of employment with the current employer in months, employment in the public as compared to the private sector, and controls for broad occupation groups. In table 3A in the appendix, we repeat model 3, substituting occupational groups with broad industry groups. For Germany and the UK, we repeat model 3 with additional information on education/qualification, which leaves the results unchanged in terms of both direction of effects and significance level except for the effect on EU-South which now becomes significant in the UK model (see table 3B, appendix).

Table 3 reports the results of the three linear regression models for each of the three destination countries separately. The baseline model (1) shows a clear ordering of intra-EU migrants according to region of origin, with EU-West/EEA migrants outperforming all other migrant groups and nationals in all three countries of destination. EU-South migrants rank second in the ordering, with CEE migrants occupying the bottom of the ranking in terms of hourly wages, with no consistent

ordering between EU8 and EU2 migrants across the three destination countries. Controlling for demographic characteristics (model 2) does not change the overall ordering in any of the destination countries. By contrast, table 3 shows that controlling for job characteristics and occupations (model 3) significantly reduces the differences in hourly wages between the different migrant groups and nationals, indicating that occupational segmentation between different groups of migrants is at play. The latter finding is also confirmed by the considerably stronger explanatory power of the models including occupations compared to those including industry sectors (table 3A). In the UK, all differences become statistically insignificant, except for the EU-West/EEA migrants, who still outperform all other groups, including nationals. In Denmark and Germany, the ordering found in models 1 and 2 also stays robust when job characteristics and occupations are included. The baseline models and the models with demographic controls (model 2) confirm hypothesis 2, in which EU-West/EEA migrants earn higher wages than CEE migrants - with no consistent ranking between EU8 and EU2 migrants across destination countries, and EU-South migrants taking an intermediate position. The fact that most of the differences in hourly wages disappear once we control for occupational attainment clearly demonstrates that the main part of the differences is in fact caused by a division of labour, with EU migrant groups varying with regard to occupations, supporting hypothesis 3. Finally, the fact that EU8 and EU2 migrants in Denmark and Germany receive lower hourly wages than natives - even when we control for differences in job characteristics and occupations - suggests that a share of their earnings disadvantage also derives from the fact that they are paid less – regardless of which occupations they hold.

#### [Table 3 near here]

#### **Discussion and conclusions**

This paper provides evidence of a division of labour between different groups of recent intra-EU migrants in three destination countries with different labour market and welfare state regimes. It uses country-level micro data from the UK, Germany and Denmark, distinguishing between broad groups of different intra-EU migrants, namely EU-West, EU-South, EU8 and EU2. The paper is novel in that it tests propositions of 'racialisation' and a resulting division of labour amongst four different groups of recent EU migrants (e.g., Favell & Nebe 2009) across different country-of-destination settings. It thereby goes beyond previous research that usually focuses on a single destination country – the UK or Ireland – and only distinguishes between CEE migrants and EU-West (EU15)

migrants, representing affluent and less affluent countries of origin (e.g., Clark & Drinkwater 2008). The rationale for treating EU-South migrants as a distinct group in our paper is underpinned by the considerable labour market disruption that has followed the economic crisis, whereas contrasting EU8 and EU2 migrants recognises the latter's later EU entry but also their distinctly different economic and political trajectories during the post-socialist transformation.

We separately analyse and contrast the models on quantitative and qualitative labour market integration so as to capture differential selection into and within labour markets.

#### Potential explanations and mechanisms

A complex set of factors affects intra-EU migrants' access to the labour markets of their destination countries. The relative importance of motivations behind migration (Mau & Verwiebe 2010) and the types of (labour) migration (Castles 2000) are likely to vary across destination countries and countries of origin. Likewise, the extent of established migrant social networks (Waldinger & Lichter 2003) and employers' recruitment strategies (Friberg & Midtbøen 2018) vary between countries/regions of origin and destination countries. Job search through social networks has also been shown to have negative impacts on qualitative labour market outcomes (e.g., Kalter & Kogan 2014). We predicted that the labour force participation of all intra-EU migrant groups would be lower than that of their national peers because of remaining barriers (also in an EU labour mobility context), such as a lack of recognition of qualifications, language challenges or discrimination by employers. We were able to demonstrate this for Denmark and Germany with no systematic ordering of the country groups of origin, whereas for the UK we did not find significant differences in labour force participation between nationals and any of the migrant groups. The latter results may be explained by the UK's reliance on general rather than specific skills (Hall & Soskice 2001) and its consequently more permeable labour market. This possible explanation is also supported by recent empirical research stressing the general openness of the UK labour market (Algan et al. 2010), not least as a result of the status of English as a lingua franca.

We were particularly interested in qualitative labour market integration, which – notwithstanding other relevant measures of integration such as contract type or skills–occupation match (Spreckelsen et al. 2019) – we captured using log hourly wages.

### [Table 4 near here]

Our most clear-cut result is that recent migrants from EU-West/EEA consistently do better than all other recent migrants and also all nationals (see table 4 with stylised results for model 3). Recent EU-South migrants seem to take a middle position, doing worse than EU-West/EEA migrants in terms of wages but better than EU8 and EU2 migrants. We do not find a clear ranking of the latter two regional groups; whereas EU2 migrants are at the bottom of the wage ranking in Denmark and Germany, they are doing better than EU8 migrants in the UK.

Our results show that the main part of the differences in hourly wages is a result of a division of labour, where EU-West/EEA migrants on average occupy the 'top' occupations, while CEE migrants occupy the bottom occupations, with EU-South migrants taking a middle position. Importantly, the general findings also hold when we control for qualification/education (only possible for the UK and Germany) and the negative effect for EU-South migrants becomes significant for the UK, which reiterates the fact that recent EU migrants have similar education patterns to nationals but experience a smaller pay-off than nationals (Fries-Tersch et al. 2018).

We are unable to disentangle the exact mechanisms behind the division of labour, but based on previous research, a combination of three mechanisms is likely at play. First, a positive selection process where – amongst those migrants primarily moving for labour reasons – only EU-West/EEA migrants who are able to compete on equal terms in the destination labour market or even improve their position vis-à-vis their country of origin migrate in the first place. EU-South migrants, in particular, and to a lesser extent CEE migrants, will be responding more to push factors in their migration decision given the overall economic conditions in their home countries and will consequently be more likely to take sub-standard jobs.

Second, and closely intertwined with the above, the difference in wage levels (and also to some degree welfare benefits) in the country of origin vis-à-vis the country of destination across different EU migrant regions likely affects the migration groups' reservation wages differently. CEE migrants, in particular, will have lower reservation wages, in general, and likewise limited resources (value of savings and portable unemployment benefits, if any) to carry out a lengthy job search for a suitable job. Indeed, our results show clearly that CEE migrants take occupations found at the bottom of the hierarchy. EU-South migrants will have intermediate reservation wages, and their placement between CEE migrants and EU-West/EEA migrants according to our findings seems to confirm this. EU-West/EEA migrants will have the highest reservation wages. Our results, which show higher

wages for EU-West/EEA nationals in all three destination countries than all other migrant groups and even than natives, seem to support this explanation. Our finding that EU-South migrants in Denmark – in contrast to the UK and Germany – are somewhat better off than natives in terms of wages, though worse off than EU-West/EEA migrants, could possibly be explained by Denmark being a much less 'natural' migration destination than the UK and Germany. This applies in terms both of the size of the economy and established migrant networks, and potential language advantages, which in turn might mean that EU-South migrants moving because of the pressure of unemployment would have chosen Denmark only in view of the prospect of a well-paying job.

Third, differences in racial visibility to employers (Diehl et al. 2016) and the resulting differences in employer discrimination and recognition of skills lead to variations in the jobs that the different migrant groups are found to be eligible for. In this division of labour, EU-West/EEA migrants are able to move more or less 'invisibly' (Favell & Nebe 2009) between jobs in the top occupations within the area of the North-Western EU, regardless, for example, of cultural and language differences. EU-South migrants who have – at least in recent decades – enjoyed the same 'invisible' mobility in the aftermath of the crisis seem to take up a middle position, faring less well than EU-West/EEA migrants but better than CEE migrants who, in turn, seem to be perceived as distinct in terms of language and culture, in line with what Favell & Nebe (2009) suggest. Our findings for CEE migrants support previous findings that employers see this group as a reliable and flexible source of labour, especially for low-pay, low-skilled jobs in specific occupations and sectors (Hopkins & Dawson 2016; McCollum & Findlay 2015).

Crucially, we can observe a division of labour by region of origin despite variations in labour market and welfare state arrangements, as repeatedly postulated since Esping-Andersen's seminal work (Arts & Gelissen 2002), and irrespective of the demographic characteristics of the EU migrants. This suggests that country/region-of-origin differences are at least as important as country-of-destination differences.

#### Limitations

In addition to limitations regarding the empirical identification of mechanisms, a number of methodological caveats should be mentioned. The key caveat is the absence of crucial control variables, namely language proficiency, which is likely to be important particularly when contrasting

the UK with Germany and Denmark. Also sample sizes, in particular for the UK and to a lesser degree also for Germany, limit any detailed analysis, including interactions between sectors and occupations. Our measure of qualitative labour market integration (wages) is somewhat limited. Alternatives such as measures of skills-occupation mismatch are, however, very heterogeneous (Spreckelsen et al. 2019). Also, the complex comparative set-up with three countries of destination and four regions of origin makes analysis across a larger range of measures capturing qualitative labour market integration impractical.

More generally, given the cross-national nature of the research, issues of comparability are potentially present. This concerns the different types of data collection and sample sizes (from register, microcensus and survey data) and differences in the measures used. While we cannot harmonise or adjust for the mode of data collection, measurement issues should be mitigated as far as possible through the use of standardised classifications such as ILO definitions on labour market status and international standard classifications such as ISCO and NACE.

### Directions for future research

Our paper underlines the fact that legal or formal equality is no guarantee of equal labour market outcomes. In the case of EU labour migration, the division of labour seems determined less by overall legal provisions and more by persistent differences in wage (and welfare) levels across the EU and by employer discrimination affecting different groups of EU migrants to varying degrees. Future research should therefore consider the country-level and EU-wide mechanisms through which the purported country/regional differences are replicated in the destination countries for EU migrants.

Similarly, future research should consider changes in integration over time. This need is compounded by recent studies finding that CEE migrants are increasingly settling long term in their destination countries (Janicka & Kaczmarczyk 2016), challenging the overall notion of short-term intra-EU mobility, where migrants move according to the overall mechanisms of supply and demand. Length of stay improves migrants' specific human capital in the destination country (Chiswick 1978), their social (recruitment) networks (e.g., Andersen & Felbo-Kolding 2013) and their language skills (Chiswick & Miller 2007). Finally, the intermediate position of EU-South migrants found in this article marks an interesting topic for future research to see if their current position is transitory and if, when economic conditions in their home countries improve, their outcomes will be aligned with those of EU-West/EEA migrants in the destination country labour markets.

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		Averageage	% Female	Yearssince arrival	e Case numbers	Sample:
DK	Danish nationals	s 46.9	50%	n.a.	2,586,544	n=2,627,368 (2014)
	EU-West/EEA	35.2	49%	2.7	11,443	
	EU-South	32.9	43%	2.4	3,654	
	EU8	33.4	45%	2.8	15,589	
	EU2	31.9	40%	2.6	10,138	
GER	German	44.4	50%	n.a.	318,200	n = 320,889
	nationals					(2013)
	EU-West/EEA	36.6	42%	2.9	576	
	EU-South	35.1	38%	2.3	418	
	EU8	34.8	47%	2.4	1,089	
	EU2	34.0	47%	2.6	606	
UK	UK nationals	41.4	50%	n.a.	246,711	n=248,978 (2012-14)
	EU-West/EEA	31.7	48%	2.7	467	
	EU-South	29.7	50%	2.4	531	
	EU8	29.6	49%	2.8	847	
	EU2	31.9	55%	2.9	422	

Table 1: Demographic characteristics of natives and recent immigrants in the data from Denmark, Germany and the UK for individuals aged 16–66, excluding active students.

Source: Authors' calculations based on Danish administrative register 2014, German Microcensus 2013 and UK quarterly Labour Force Survey (UK-LFS) 2012–2014, pooled.

Note: The table only contains information on individuals between the ages of 16 and 66 who are not active as students and only information on immigrants who have settled within the last five years, excluding immigrants who settled during the last year.

		Denmark (coeff (SE))	Ger	Germany		К
Models	(1)	(2)	(1)	(2)	(1)	(2)
Natives EU- West/EEA	(Reference) -0.710 <sup>***</sup> (0.019)	(Reference) -1.025*** (0.022)	(Reference) -0.123 (0.121)	(Reference) -0.478*** (.123)	(Reference) 0.064 (-0.191)	(Reference) -0.369 (-0.199)
EU-South	-0.766***	-1.057***	-0.319*	-0.836***	0.13	-0.271
EU8	(0.034) -0.049 <sup>**</sup> (0.019)	(0.036) -0.299*** (0.021)	(0.131) -0.229** (0.083)	(.134) -0.582*** (0.084)	(-0.168) 0.456*** (-0.122)	(-0.183) 0.174 (-0.118)
EU2	0.086 <sup>***</sup> (0.024)	-0.121*** (0.027)	-0.575*** (0.102)	-0.936*** (0.105)	0.355* (-0.152)	-0.086 (-0.155)
Age	. ,	0.351***		0.248***		0.35*** (-0.004)
Age squared		-0.004*** (0.000)		-0.003*** (0.000)		-0.005*** (0)
Men		0.467***		0.884***		0.717***
Dep. child		0.125***		$-0.753^{***}$		-0.506*** (-0.019)
No partner		(Reference) 0.220***		(Reference)		(Reference) 0.257***
partn. Part-time		(0.005) 0.980***		-0.206 (0.017) 0.871***		(-0.025) -1.006***
emp. partn. Full-time		(0.005) 1.2474 <sup>***</sup>		(0.025) 0.184***		(-0.042) 0.6***
emp. partn.		(0.005)		(0.014)		(-0.021)
Constant	1.156 <sup>***</sup> (0.002)	-5.727*** (0.020)	1.898 (0.005)	-2.116**** (0.074)		-4.694*** (-0.067)
Pseudo R2	0.001	0.198	0.002	0.104	(NA survey logistic	(NA survey logistic
Observations	2,627,368	2,627,368	320,889	319,119	226,326	226,326

Table 2: Logit estimates of being active on the labour market (labour force participation) for individuals aged 1 students, in Denmark, Germany and the UK.

Standard errors in parentheses

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

		Denmark (coeff (SE))	Germany			UK
Models	(1)	(2)	(1)	(2)	(1)	(2)
EU-West/EEA	(Reference)	(Reference)	(Reference)	(Reference)	(Reference)	(Reference)
EU-South	-0.056	-0.108**	-0.197	-0.335	0.065	0.105
	(0.039)	(0.040)	(0.178)	(0.201)	(0.252)	(0.298)
EU8	0.661***	0.655***	-0.106	-0.051	0.392	0.678**
EUO	(0.027)	(0.028)	0.146	(0.160)	(0.224)	(0.245)
EU2	0.796	0.782	-0.452*	-0.360*	0.29	0.405
Age	(0.031)	0.273***	(0.158)	0.231***	(0.232)	(0.26) 0.442***
8-		(0.008)		(0.042)		(0.054)
Age squared		-0.003***		-0.003***		-0.006***
		(0.000)		(0.001)		(0.001)
Men		$0.752^{***}$		1.983***		1.006***
		(0.024)		(0.171)		(0.189)
Dep. child		-0.274***		-1.141***		-1.061***
		(0.033)		(0.129)		(0.169)
No partner	(Reference)	(Reference)		(Reference)		(Reference)
Non-emp.partn.		0.443		-1.429***		0.77*
Deut time energy menter		(0.042)		(0.219)		(0.381)
Part-time emp. partn.		0.095		-1.000		-1.41/****
Full-time emp. partn.		0.442***		-1.350***		-0.129
I I I		(0.034)		(0.166)		(0.197)
Years since 1 <sup>st</sup> arrival in		0.066***		0.052		0.053
host country		(0.008)		(0.042)		(0.065)
Constant	$0.446^{***}$	-5.304***	1.775***	-1.317	1.199***	-6.809***
	(0.019)	(0.149)	(0.121)	(0.776)	(0.191)	(0.962)
Pseudo R2	0.022	0.084	0.004	0.234	(NA survey	(NA survey
					logistic	logistic
01 (	40.924	40.924	2 ( 9 0	0 (72	regression)	regression)
Observations	40,824	40,824	2,089	2,0/3	1,508	1,508

Table 2b: Logit estimates of being active on the labour market (labour force participation) for individuals aged students, in Denmark, Germany and the UK – controlling for migrants' length of stay in country.

Standard errors in parentheses

Table 3: OLS estimates of logged hourly wages for employed individuals aged 16–66, excluding active students, 2014 (2013 for DE) (coeff (SE))

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			Denmark			Germany			UK	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Models	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Natives	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	EU-West/EEA	0.123***	0.183***	0.121***	$0.140^{***}$	0.213***	$0.148^{***}$	0.246**	0.308***	$0.177^{**}$
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		(0.007)	(0.006)	(0.005)	(0.029)	(0.026)	(0.025)	(0.077)	(0.064)	(0.054)
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	EU-South	0.018	0.094***	0.038***	-0.150***	-0.084*	-0.035	-0.238***	-0.109*	-0.071
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		(0.011)	(0.010)	(0.009)	(.0392)	(0.039)	(0.030)	(0.051)	(0.045)	(0.036)
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	EU8	-0.221***	-0.127***	-0.028***	-0.273***	-0.201***	-0.048***	-0.403***	-0.279***	-0.043
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	FU2	(0.003) -0.298***	(0.003)	(0.003)	(0.016)	(0.016)	(0.015)	(0.067)	(0.058)	(0.038)
Age $0.034^{***}$ $0.023^{***}$ $0.042^{***}$ $0.036^{***}$ $0.084^{***}$ $0.052^{***}$ $(0.000)$ $(0.000)$ $(0.001)$ $(0.001)$ $(0.001)$ $(0.001)$ $(0.001)$ $(0.001)$ Age squared $-0.000^{***}$ $-0.000^{***}$ $-0.000^{***}$ $-0.001^{***}$ $-0.001^{***}$ $-0.001^{***}$ $(0.000)$ $(0.000)$ $(0.000)$ $(9.32e)$ $(8.74e-1)$ $(0.001)$ $(0.000)$ Male $0.166^{***}$ $0.130^{***}$ $0.107^{***}$ $0.125^{***}$ $0.189^{***}$ $0.161^{***}$ $(0.001)$ $(0.001)$ $(0.001)$ $(0.002)$ $(0.002)$ $(0.004)$ $(0.004)$ Dep. child <16	202	(0.004)	(0.004)	(0.004)	(0.026)	(0.025)	(0.023)	(0.068)	(0.064)	(0.050)
$(0.000)$ $(0.000)$ $(0.001)$ $(0.001)$ $(0.001)$ $(0.001)$ $(0.001)$ Age squared $-0.000^{***}$ $-0.000^{***}$ $-0.000^{***}$ $-0.000^{***}$ $-0.001^{***}$ $-0.001^{***}$ $(0.000)$ $(0.000)$ $(0.000)$ $(9.32e)$ $(8.74e-1)$ $(0.001)$ $(0.000)$ Male $0.166^{***}$ $0.130^{***}$ $0.107^{***}$ $0.125^{***}$ $0.189^{***}$ $0.161^{***}$ $(0.001)$ $(0.001)$ $(0.001)$ $(0.002)$ $(0.002)$ $(0.004)$ $(0.004)$ Dep. child <16	Age	()	0.034***	0.023***		0.042***	0.036***	(,	0.084***	0.052***
Age squared $-0.000^{***}$ $-0.000^{***}$ $-0.000^{***}$ $-0.000^{***}$ $-0.001^{***}$ $-0.02^{*}$ $-0.01^{***}$ $-0.02^{*}$ $-0.02^{*}$ $-0.02^{*}$ $-0.02^{*}$ $-0.02^{***}$	-		(0.000)	(0.000)		(0.001)	(0.001)		(0.001)	(0.001)
Male $(0.000)$ $(0.000)$ $(9.32e)$ $(8.74e-1)$ $(0.001)$ $(0.000)$ Male $0.166^{***}$ $0.130^{***}$ $0.107^{***}$ $0.125^{***}$ $0.189^{***}$ $0.161^{***}$ $(0.001)$ $(0.001)$ $(0.001)$ $(0.002)$ $(0.002)$ $(0.004)$ $(0.004)$ Dep. child <16	Age squared		-0.000***	-0.000****		-0.000***	-0.000***		-0.001***	-0.001***
Male $0.166$ $0.130$ $0.107$ $0.125$ $0.189$ $0.161$ $(0.001)$ $(0.001)$ $(0.002)$ $(0.002)$ $(0.004)$ $(0.004)$ Dep. child <16	M-1-		(0.000)	(0.000)		(9.32e)	(8.74e-1)		(0.001)	(0.000)
Dep. child <16 $(0.001)^{**}$ $(0.001)^{***}$ $(0.001)^{***}$ $(0.001)^{***}$ $(0.001)^{***}$ $(0.001)^{***}$ No partner(Ref)(Ref)(Ref.)(Ref.)(Ref.) $(0.003)^{***}$ $(0.003)^{***}$ $(0.005)^{***}$ Non-emp. $0.040^{***}$ $0.024^{***}$ $0.093^{***}$ $0.094^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.005)^{***}$ partner $(0.001)$ $(0.001)$ $(0.001)$ $(0.004)$ $(0.004)$ $(0.007)$ $(0.006)$ partner $(0.001)$ $(0.001)$ $(0.003)$ $(0.003)$ $(0.021)$ $(0.017)$ partn. $(0.001)$ $(0.001)$ $(0.003)$ $(0.002)$ $(0.006)$ $(0.005)$ Length of $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ employment $(0.000)$ $(0.000)$ $(8.87e-1)$ $(0.000)$	Male		(0.100)	(0.001)		(0.002)	(0.023)		(0.189)	(0.161)
$1$ $(0.001)$ $(0.001)$ $(0.003)$ $(0.003)$ $(0.005)$ $(0.004)$ No partner $(Ref)$ $(Ref.)$ $(Ref.)$ $(Ref.)$ $(Ref.)$ $(Ref.)$ $(Ref.)$ Non-emp. $0.040^{***}$ $0.024^{***}$ $0.093^{***}$ $0.094^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.093^{***}$ $0.005^{***}$ partner $(0.001)$ $(0.001)$ $(0.001)$ $(0.003)$ $(0.003)$ $(0.007)$ $(0.006)$ partn. $(0.001)$ $(0.001)$ $(0.003)$ $(0.003)$ $(0.021)$ $(0.017)$ Full-time emp. $0.058^{***}$ $0.018^{***}$ $-0.018^{***}$ $-0.029^{***}$ $0.152^{***}$ $0.067^{***}$ partn. $(0.001)$ $(0.001)$ $(0.003)$ $(0.002)$ $(0.006)$ $(0.005)$ Length of $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ employment $(0.000)$ $(8.87e-1)$ $(0.000)$	Dep. child <16		0.075***	0.039***		0.137***	0.128***		-0.052***	-0.016***
No partner(Ref)(Ref.)(0.093***0.05***0.05***0.05***0.005***0.001(0.001)(0.001)(0.001)(0.001)(0.003)(0.003)(0.001) <td>1</td> <td></td> <td>(0.001)</td> <td>(0.001)</td> <td></td> <td>(0.003)</td> <td>(0.003)</td> <td></td> <td>(0.005)</td> <td>(0.004)</td>	1		(0.001)	(0.001)		(0.003)	(0.003)		(0.005)	(0.004)
Non-emp. $0.040^{-11}$ $0.024^{-11}$ $0.093^{-11}$ $0.094^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.093^{-11}$ $0.006$ partner $0.001^{+++}$ $0.016^{+++}$ $0.122^{+++}$ $0.099^{+++}$ $-0.027$ $0.008$ partn. $(0.001)$ $(0.001)$ $(0.003)$ $(0.003)$ $(0.021)$ $(0.017)$ Full-time emp. $0.058^{+++}$ $0.018^{+++}$ $-0.029^{+++}$ $0.152^{+++}$ $0.067^{+++}$ partn. $(0.001)$ $(0.001)$ $(0.003)$ $(0.002)$ $(0.006)$ $(0.005)$ Length of $0.001^{+++}$ $0.001^{+++}$ $0.001^{+++}$ $0.001^{+++}$ employment $(0.000)$ $(8.87e-1)$ $(0.000)$	No partner		(Ref)	(Ref.)		(Ref.)	(Ref.)		(Ref.)	(Ref.)
partner $(0.001)$ $(0.001)$ $(0.004)$ $(0.004)$ $(0.004)$ $(0.007)$ $(0.008)$ Part-time emp. $0.030^{***}$ $0.016^{***}$ $0.122^{***}$ $0.099^{***}$ $-0.027$ $0.008$ partn. $(0.001)$ $(0.001)$ $(0.003)$ $(0.003)$ $(0.021)$ $(0.017)$ Full-time emp. $0.058^{***}$ $0.018^{***}$ $-0.018^{***}$ $-0.029^{***}$ $0.152^{***}$ $0.067^{***}$ partn. $(0.001)$ $(0.001)$ $(0.003)$ $(0.002)$ $(0.006)$ $(0.005)$ Length of $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ employment $(0.000)$ $(8.87e-1)$ $(0.000)$	Non-emp.		$(0.040^{-1})$	0.024		0.093	0.094		0.093***	0.05
Parter $(0.001)$ $(0.001)$ $(0.001)$ $(0.003)$ $(0.003)$ $(0.021)$ $(0.017)$ Full-time emp. $0.058^{***}$ $0.018^{***}$ $-0.018^{***}$ $-0.029^{***}$ $0.152^{***}$ $0.067^{***}$ partn. $(0.001)$ $(0.001)$ $(0.003)$ $(0.002)$ $(0.006)$ $(0.005)$ Length of $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ employment $(0.000)$ $(8.87e-1)$ $(0.000)$	Part-time emp		(0.001) 0.030***	(0.001) 0.016***		(0.004) 0.122***	(0.004) 0.099***		(0.007)	(0.006) 0.008
Full-time emp. $0.058^{***}$ $0.018^{***}$ $-0.018^{***}$ $-0.029^{***}$ $0.152^{***}$ $0.067^{***}$ partn. $(0.001)$ $(0.001)$ $(0.003)$ $(0.002)$ $(0.006)$ $(0.005)$ Length of $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ employment $(0.000)$ $(8.87e-1)$ $(0.000)$	partn.		(0.001)	(0.001)		(0.003)	(0.003)		(0.021)	(0.017)
partn. $(0.001)$ $(0.003)$ $(0.002)$ $(0.006)$ $(0.005)$ Length of $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ employment $(0.000)$ $(8.87e-1)$ $(0.000)$	Full-time emp.		0.058***	0.018***		-0.018***	-0.029***		0.152***	0.067***
Length of $0.001^{***}$ $0.001^{***}$ $0.001^{***}$ employment       (0.000)       (8.87e-1)       (0.000)	partn.		(0.001)	(0.001)		(0.003)	(0.002)		(0.006)	(0.005)
(0,000) (8.87e-1) (0.000)	Length of			0.001***			0.001***			0.001***
with current (0.000)	employment with current			(0.000)			(8.87e-1)			(0.000)
employer	employer									
(month)	(month)									
Work in public         -0.060***         0.079***         0.023***	Work in public			$-0.060^{***}$			0.079***			0.023***
sector $(0.001)$ $(0.002)$ $(0.003)$	sector			(0.001)			(0.002)			(0.003)
Managers $0.600$ $0.489$ $0.739$	Managers			(0.000)			0.489			(0.01)
Professionals $0.394^{***}$ $0.536^{***}$ $0.782^{***}$	Professionals			0.394***			0.536***			0.782***
(0.001) (0.005) (0.007)				(0.001)			(0.005)			(0.007)
Technical and         0.284***         0.280***         0.467***	Technical and			$0.284^{***}$			$0.280^{***}$			0.467***
associate (0.001) (0.005) (0.007)	associate			(0.001)			(0.005)			(0.007)
Clerical sup. $0.128^{***}$ $0.257^{***}$ $0.286^{***}$	Clerical sup.			0.128***			0.257***			0.286***
workers (0.001) (0.005) (0.007)	workers			(0.001)			(0.005)			(0.007)
Services and 0.070*** 0.058*** 0.117***	Services and			0.070***			0.058***			0.117***
sales workers (0.001) (0.005) (0.006)	sales workers			(0.001)			(0.005)			(0.006)
Skilled agric., $0.064^{-10}$ $-0.101^{-10}$ $0.04$	Skilled agric.,			$0.064^{\circ}$			-0.101			0.04
fishery work. (0.004) (0.004) (0.011) (0.024)	fishery work.			(0.004)			(0.011)			(0.024)
Craft and rel 0.138*** 0.096*** 0.25***	Craft and rel			0.138***			0.096***			0.25***
trades workers (0.001) (0.005) (0.009)	trades workers			(0.001)			(0.005)			(0.009)
Plant and         0.040***         0.029***         0.123***	Plant and			$0.040^{***}$			0.029***			0.123***
machine (0.001) (0.005) (0.009)	machine			(0.001)			(0.005)			(0.009)
operators and assemblers	operators and									
Elementary (Ref.)	Elementary			(Ref.)						
occupations (Ref.) (Ref.)	occupations			()			(Ref.)			(Ref.)
Constant 5.356*** 4.3558*** 4.480*** 2.469 1.200*** 2.415*** 0.546*** 0.732***	Constant	5.356***	4.3558***	4.480***	2.469		1.200***	2.415***	0.546***	0.732***

Table 3B: OLS estimates of logged hourly wages for employed individuals aged 16–66, excluding active students, 2014 (2013 for DE) (coeff (SE)) - model 3 with information on economic sectors (NACE) instead of occupations

	Denmark	Germany	UK
Model 3 with sectors			
Natives	(Ref.)	(Ref.)	(Ref.)
EU-West/EEA	0.185***	0.258***	0.311***
EU-South	(0.006)	(0.025)	(0.055)
	$0.100^{***}$	-0.008	-0.045
	(0.010)	(035)	(0.042)
EU8	-0.145***	-0.111 <sup>***</sup>	-0.18 <sup>***</sup>
	(0.003)	(0.016)	(0.047)
EU2	-0.213 <sup>***</sup>	-0.187 <sup>***</sup>	-0.114
	(0.004)	(0.025)	(0.065)
Age	0.029 <sup>***</sup>	0.042 <sup>***</sup>	0.067 <sup>***</sup>
	(0.000)	(0.001)	(0.001)
Age squared	-0.000****	-0.001***	-0.001****
	(0.000)	(9.14e-1)	(0.000)
Male	0.147 <sup>***</sup>	0.122***	0.187***
	(0.001)	(0.002)	(0.004)
Dep. child <16	$(0.076^{-1.0})$	0.139 <sup>-11</sup> (0.003)	-0.039
No partner Non-emp. partner	(Ref.) 0.037*** (0.001)	(Ref.) 0.083*** (0.004)	(Ref.) 0.08 <sup>***</sup> (0.007)
Part-time emp. partn.	(0.001) $0.026^{***}$ (0.001)	0.107***	-0.003
Full-time emp. partn.	0.054*** (0.001)	-0.021*** (0.002)	0.121***
Length of employment with current employer (month)	0.001****	0.001***	0.001 <sup>***</sup>
	(0.000)	(9.33e-1)	(0.000)
Work in public sector	-0.071 <sup>***</sup>	0.1413****	0.053 <sup>***</sup>
	(0.001)	(0.003)	(0.004)
Agriculture, forestry and fishing	-0.136***	-0.450***	-0.315***
	(0.004)	(0.014)	(0.025)
Energy and water, Manufacturing Construction	(Ref.) -0.026*** (0.001)	(Ref.) -0.195*** (0.004)	(Ref.) -0.032*** (0.011)
Wholesale, trade, hotels, restaurants	-0.084 <sup>***</sup>	-0.155***	-0.271***
	(0.001)	(0.003)	(0.008)
Transport and comm.	0.047***	054*** (0.003)	-0.059***
Finance, real estate, prof., adm support	(0.001) $0.087^{***}$ (0.001)	(0.003) $0.041^{***}$ (0.004)	0.199***
Public admin, education and health	0.019 <sup>***</sup>	-0.024 <sup>***</sup>	0.007
	(0.0012)	(0.004)	(0.008)
Other services	-0.142***	-0.165***	-0.114***
	(0.013)	(0.006)	(0.013)
Private households	-0.205***	-0.088***	-0.23**
	(0.011)	(0.024)	(0.077)
Constant	4.460***	1.376 <sup>***</sup>	0.845 <sup>***</sup>
	(0.004)	(0.015)	(0.025)
R squared	0.161	0.1638	0.247
Observations	1,686,995	234,945	154,798

Standard errors in parentheses

## Appendix

Table 3B, appendix: OLS estimates of logged hourly wages for employed individuals aged 16–66, excluding active students, 2014 (2013 for Germany) (coeff (SE)), results with information on education/qualification for Germany and the UK

	Germany		UK	
	Coefficient	Std. Error	Coefficient	Std. Error
Natives (Reference)				
EU-West/EEA	0.134***	-0.024	0.163**	0.053
EU-South	-0.040	-0.030	-0.074*	0.038
EU8	-0.060***	0.015	-0.039	0.038
EU2	-0.114***	0.023	-0.017	0.051
Age	0.035***	0.001	0.051***	0.001
Age squared	0.001***	0.001	-0.001***	< 0.001
Male	0.114***	0.002	0.163***	0.004
Dep. Child	0.126***	0.002	-0.013**	0.004
Non-emp. Partner	0.096***	0.003	0.048***	0.006
Part-time emp. partn.	0. 095***	0.003	0.006	0.017
Full-time emp. partn.	-0.033***	0.002	0.064***	0.005
Length of empl. with current	0.000***	0.001	0.001***	-0.001
employer (month)	0.000***	0.001	0.001***	<u>&lt;0.001</u>
Work in public sector	0.067***	0.002	0.016***	0.003
Managers	0.381***	0.007	0.675***	0.01
Professionals	0. 379***	0.006	0.702***	0.007
Technicians and associate professionals	0. 192***	0.005	0.410***	0.008
Clerical support workers	0.208***	0.005	0.243***	0.007
Service and sales workers	0.022***	0.005	0.085***	0.007
Skilled agricultural, forestry and fishery workers	-0.144***	0.012	0.02	0.023

Table 4: Overview of trends of wage regression models with and without occupational controls – reference category natives

Reference natives	Wage de	≋ (model mograph	2 with ics)	Wages (model 3 with demographic and employment & occupational controls)		
	DK	DE	UK	DK	DE	UK
EU-West/EEA	+	+	+	+	+	+
EU-South	+	-	-	+	not sign.	not sign.
EU8	-	-	-	-	-	not sign.
EU2	-	-	-	-	-	not sign.

Note: Stylised table of regression outcomes based on regression results from table 3 (models 2 & 3) regarding the main explanatory variable (region of origin).