Positional, mobility and reference effects: How does social class affect life satisfaction in Europe?†

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Abstract

In this study, we analyse the effects of social class on life satisfaction. We develop a theoretical framework that shows how social class affects life satisfaction through five different pathways. Informed by this framework, we estimate the direct effects of class destination and class origin, the effect of own intergenerational class mobility, as well as the effects of others' class position and mobility. To do so, we utilize European Social Survey (ESS) waves 1 to 5 (2002-2010) and obtain information on life satisfaction as well as destination and origin class for about 80,000 respondents in 32 European countries. We find (1) class destination consistently and strongly structures life satisfaction across Europe, (2) own class mobility has a significant impact on life satisfaction in Eastern Europe, as does (3) the class mobility of others. The last finding points to the hitherto neglected importance of reference effects when considering the impact of social class on life satisfaction.

Keywords: *subjective well-being, social class, ESeC, diagonal reference models, social mobility, reference effects*

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1 Introduction

The strong association between social class and life outcomes has been recognised as an enduring feature of advanced market societies. Past research shows that the upper classes enjoy a clear advantage over those towards the bottom of the class distribution: They are more economically successful (Goldthorpe and McKnight, 2006), better educated (Bernardi and Ballarino, 2016; Shavit and Blossfeld, 1993), lead healthier and longer lives (White et al., 2007), and offer their children greater opportunities for a self-determined life (Bukodi and Goldthorpe, 2019). Consequently, occupying a sufficiently high class position, by either being born into it or attaining it through upward mobility, should truly matter for individuals' lives and their own personal evaluation thereof.

Nevertheless, quantitative scholarship has had only limited interest in the effects of social class, including the effect of class mobility, on life satisfaction. Few notable exceptions provide evidence for a class gradient in life satisfaction, finding that across various countries those in the working classes are less satisfied than those in the upper classes (Chan, 2018; Hadjar and Samuel, 2015; Haller and Hadler, 2006; Iveson and Deary, 2017; Lipps and Oesch, 2018; Zhao, Li, Heath, and Shryane, 2017). By contrast, results on the effect of intergenerational class mobility on life satisfaction appear mixed. Marshall and Firth (1999), Iveson and Deary (2017) as well as Zhao et al. (2017) do not find a robust relationship, while Hadjar and Samuel (2015) argue that intergenerational downward mobility decreases life satisfaction at least in the UK. Studies conceptualising mobility in terms of income (Dolan and Lordan, 2013), education (Nikolaev and Burns, 2014; Schuck and Steiber, 2017) or status (Clark and D'Angelo, 2015; Nikolaev and Burns, 2014; Zang and de Graaf, 2016) also report a negative effect of downward and a positive effect of upward mobility.

Moreover, theoretical as well as methodological shortcomings appear to limit the ability of existing research to shed light on the complex relationship. An encompassing theorisation of how class position and mobility might affect life satisfaction is still lacking. Studies also struggle to distinguish between the effects of class position and mobility in their empirical analyses, while the direct effects of own and parental class position that go beyond the effect of class mobility are still to be examined.

Against this background, the aim of this study is to offer a comprehensive account of how social class affects life satisfaction in Europe. Until now, the effect of social class on life satisfaction has been conceptualized narrowly, focusing on the effect of *own* social class. However, when societies change their class structure or become more mobile over time, these macro-level changes may have effects that go beyond the individual's own experience of social class. To allow for such macro-level impacts, we include so-called *reference effects* into our framework, which relate to outcomes of others. Since the notion of 'relative deprivation' was introduced by Stouffer (1949), social comparison theory (Festinger, 1954) and reference group theory (Merton and Rossi, 1968) have become highly influential in sociological scholarship, and feature prominently in other domains of the wellbeing literature (Alderson & Katz-Gerro, 2016; Präg et al., 2014; van Deurzen et al., 2015). Furthermore, we analyse Western and Eastern Europe separately. Given the different political and economic trajectories of these two country groups, social class may structure inequalities in these societies differently, and consequently exert heterogenous effects on life satisfaction.

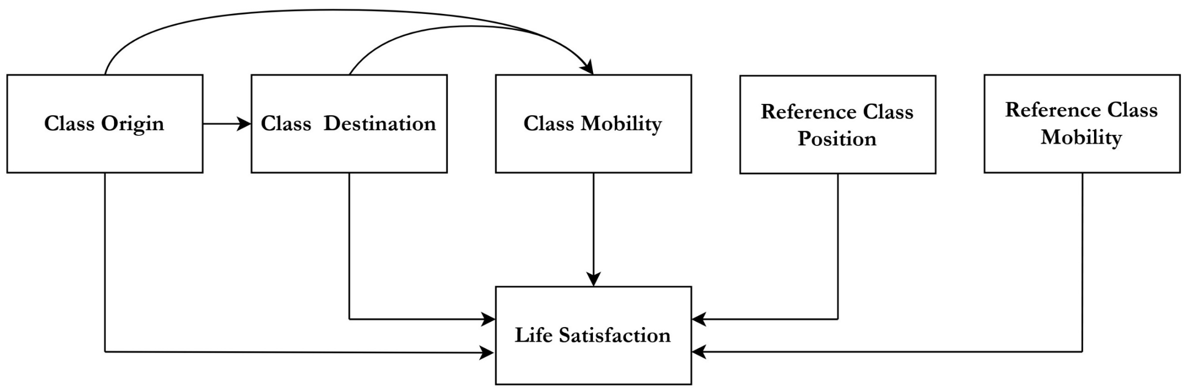
The remainder of the paper continues as follows. The next section outlines the theoretical framework for our analysis. Section 3 elaborates on our empirical approach. In section 4, we present our results before concluding in the final section.

2 Theoretical framework

We understand life satisfaction as a subjective and cognitive evaluation of a person's life (Pavot and Diener, 2008). Regarding social class, we employ a conception based on employment relations (Erikson et al., 1979, Bukodi and Goldthorpe, 2019). According to this conception, the service relationship and wage contract constitute ends of a class schema with the salariat at the top and the working class at the bottom. Self-employment is a third ideal type of employment relations (Rose et al., 2009).

As summarised in Figure 1, social class may affect life satisfaction through five pathways: (1) one's own social class (*class destination*), (2) the social class of one's parents (*class origin*), (3) the difference between class destination and origin, i.e. one's experience of intergenerational *class mobility*, (4) other's class position (*reference class position*), and (5) other's class mobility (*reference class mobility*). These aspects of social class are interrelated. Class origins influence destinations, and class origin and destination jointly define class mobility. Nevertheless, each aspect may also independently determine life satisfaction.

Figure 1. Theoretical framework of the relationship between social class and life satisfaction



2.1 Effects of own class destination, origin, and mobility

Members of the working class are exposed to greater economic instability, experience lower income increases over the life course, and are more likely to be unemployed than those in the salariat (Goldthorpe and McKnight, 2006; Lucchini and Schizzerotto, 2010). Income (Kahneman and Deaton, 2010) and unemployment (Luechinger et al., 2010; Wulfgramm, 2014) are important socio-economic outcomes in determining life satisfaction. *Class destination* should hence affect life satisfaction through these outcomes.

Social class is further related to material deprivation (Nolan and Whelan, 2011), and predicts exposure to health hazards (Melchior et al., 2005). Higher class destinations may also increase individuals' social status, especially when considered in terms of the level of respect and admiration that individuals receive from others (Alderson and Katz-Gerro, 2016; Anderson, et al., 2012;

Connolly and Sevä, 2018). As elaborated below, this suggests a role for social comparisons in explaining the relationship between social class and life satisfaction. We thus hypothesise:

> **H1:** Individuals whose *class destination* is better characterised by a service relationship (higher social class) report higher levels of life satisfaction than those whose social class is better described by a wage contract (lower social class).

Parents tend to pass on class-based inequalities to their children and thereby shape their opportunities and outcomes in life. A strong association between class origin and destination has been found in many countries (Breen, 2004; Erikson and Goldthorpe, 1992). Class origin hence likely affects life satisfaction positively through its impact on class destination. It is nevertheless conceivable that parental class exerts effects that go beyond its effect on class destination.

Children of the working classes are more likely to grow up in an unstable home environment and experience stressful events such as financial hardship, parental unemployment or lone parenthood (Bukodi and Goldthorpe, 2019; Rowlingson and McKay, 2002). These have detrimental effects on children's wellbeing (Bubonya et al. 2017; Ermisch et al. 2004) that will likely figure in later life. As parental resources are available to compensate for undesirable outcomes, individuals with higher class origins can afford to take greater risks and are more encouraged to pursue their aspirations. Parents also directly transmit health-related behaviours such as smoking (Gugushvili, 2016).

Direct effects of class origin on life satisfaction are thus possible. However, since some class origin effects run via class destination, we expect class origin effects on life satisfaction to be smaller once controlling for the latter. Therefore:

> **H2:** Individuals with higher *class origins* report higher life satisfaction than individuals with lower *class origins*, even when controlling for class destination. When controlling for class destination, the effect of class origin is smaller than the effect of class destination.

Most theoretical advances have so far been made concerning the effects of intergenerational class mobility on life satisfaction. Two hypotheses received particular attention: Sorokin's (1959) 'dissociative hypothesis' and Newman's (1999) 'falling from grace hypothesis' (Houle, 2011; Houle and Martin, 2011; Zang and de Graaf, 2016; Zhao et al., 2017).[1] According to the former, moving between classes regardless of the direction is an inherently stressful experience as one leaves contexts of cultural familiarity that one has grown used to since childhood. Thus, ending up in a class that is different from one's origin may lead to disorientation, distress and lower life satisfaction.

By contrast, Newman's hypothesis predicts that only individuals who experience downward mobility evaluate their life as worse. Underlying this conception is the notion of loss aversion: Individuals prefer avoiding losses over making gains and thus gear efforts towards maintaining what they already have – such as the class position they were born and raised in (Breen and Goldthorpe 1997). Falling down to a lower class than one's parents should thus exert a negative effect.

[1] Although Sorokin and Newman were concerned with *intra*generational mobility, we take their arguments to also apply to the *inter*generational case.

Although Newman remains silent on upward mobility, it is then also conceivable that attaining a class destination that is higher than one's origin leads to increases in life satisfaction. Exceeding the class of one's parents may install a positive sense of achievement or pride, making the upwardly mobile more content. We therefore formulate two competing hypotheses about the effect of intergenerational class mobility on life satisfaction:

H3a: Individuals who experience upward or downward *class mobility* report lower levels of life satisfaction than individuals who remain in their class origin.

H3b: Individuals who experience downward *class mobility* report lower levels of life satisfaction, while individuals who experience upward *class mobility* report higher levels of life satisfaction than individuals who remain in their class origin.

2.2 Reference effects

People compare themselves to others. They are thus affected by others' outcomes and achievements (Festinger 1954). In the context of life satisfaction, the presence of such *reference effects* has been most notably discussed with respect to income (Delhey and Kohler, 2006; Ferrer-i-Carbonell, 2005; McBride, 2001), and unemployment (Clark, 2003; Heggebø and Elstad, 2018). Social class has not been considered so far. However, due to its strong association with socio-economic (dis-)advantage, social class is likely to provoke similar effects.

Others' class position and class mobility provide an observable benchmark against which one's own social class and class mobility can be assessed. If those in one's reference group predominantly occupy higher class positions or achieve more upward mobility, one can be expected to evaluate one's life as worse. This is because seeing others doing better may subjectively devalue one's own achievement, potentially eliciting feelings of envy, self-blame, and shame. Analogously, if those in one's reference group predominantly occupy lower class destinations or experience greater downward mobility, it becomes easier to evaluate one's life as being successful, and thus better overall. Moreover, one could feel lucky (or relieved) not to share the same destiny as one's peers (Heggebø & Elstad, 2018). We thus expect that both the average class position and the average class mobility in a reference group impact individuals' life satisfaction.

The previous literature suggests that individuals mostly compare themselves with those who are similar to themselves, particularly with colleagues, friends, and family members (Alderson and Katz-Gerro, 2016; Clark and Senik, 2010; Goerke and Pannenberg, 2015). These groups of people likely occupy the same class destination (e.g. current colleagues and friends) or have similar class backgrounds (e.g. family members and childhood pals) as oneself. We therefore assume that the relevant reference group for reference mobility is composed of individuals from the same class destination. Regarding reference position, we assume that the relevant reference group is composed of individuals from the same class origin.[2] Section 3.4 elaborates further on our chosen definitions of reference groups. As individuals are more likely to interact and compare themselves with current

[2] Defining the reference group for reference position as those within a respondent's class destination would mean that respondents of the same class destinations are compared to each other. This would result in no variation, making an estimation of the reference class position effect impossible. Moreover, taking respondents with the same class origin to form the reference group for reference mobility, would yield a term for reference mobility that is given by reference position minus own origin. Reference mobility would then be perfectly collinear with reference position and class origin, and thus not identifiable.

peers and colleagues rather than with childhood friends, reference mobility effects might be stronger than reference position effects.

We therefore hypothesise:

H4a: Higher levels of *reference class position* negatively affect life satisfaction, while lower levels of *reference class position* positively affect life satisfaction.

H4b: Higher levels of upward *reference class mobility* negatively affect life satisfaction, while higher levels of downward *reference class mobility* positively affect life satisfaction. The effect of reference class mobility is larger than the effect of reference class position.

2.3 Eastern and Western Europe

Concerning several domains, social class appears to have different effects across Eastern and Western Europe. For example, past research indicates a higher class gradient in mortality rates (Bessudnov et al., 2012; Vagerö, 2010), and a greater dependence of political attitudes on the experience of social mobility (Gugushvili, 2016) in Eastern than in Western Europe.

Such differences likely arise due to structural differences across the two regions. In particular, most Eastern European countries experienced large increases in income inequality (Grosfeld and Senik, 2010; Solt, 2019), have smaller welfare states (Kuitto, 2018) and are less economically developed. Thus, Eastern Europeans face greater economic uncertainty and a greater risk of poverty. As explained above, class destination and origin mitigate or exacerbate such economic risks. Following Haller and Hadler (2006), who find stronger effects of subjective social class on life satisfaction in post-socialist compared to traditionally capitalist countries, we thus expect:

H5: The effects of *class destination* and *class origin* on life satisfaction are larger in Eastern than in Western Europe.

Moreover, prior to Eastern Europe's economic transition to capitalism, working in white-collar professions did not result in markedly better economic outcomes than blue-collar jobs. However, during the transition, blue-collar and manual labour became relatively more disadvantaged over time (Gerber and Hout, 1998; Slomczyński and Shabad, 1996). Thus, social classes are currently more stratified than in the past, making differences between one's class destination and one's class origin more salient. Consequently:

H6: The effect of intergenerational *class mobility* on life satisfaction is larger in Eastern than in Western Europe.

Third, Eastern European countries today exhibit lower relative social mobility ("social fluidity") than the West (Paskov and Bukodi, 2018). In such environments, reference class mobility gives individuals a stronger signal about their relative performance than environments with weaker origin-destination associations. Our last hypothesis therefore states:

H7: The effect of *reference class mobility* on life satisfaction is larger in Eastern than in Western Europe.

3 Empirical approach

3.1 Data

We use waves 1-5 of the European Social Survey (ESS), covering the period 2002-2010 with repeated cross-sections. Later waves cannot be used, since data to construct class origin is unavailable. The 32 countries included are roughly evenly split between Eastern and Western Europe.[3] A list of countries is given in appendix Table A1.

Our dependent variable are responses to the question *"All things considered, how satisfied are you with your life as a whole nowadays?"*, which are scored on a scale from 0 (dissatisfied) to 10 (satisfied). See Diener et al. (2013) for a review on the validity of this measure. For social class, we use the European Socio-Economic classification (ESeC; Rose et al., 2014). Unlike previous studies, we do not collapse the 9-category class scheme, allowing for more fine-grained analyses (see Table 1). We assume that social classes are hierarchically ordered across employment relations. Occupations with the same employment relation are assumed to be ordered from blue-collar to white-collar work. However, regarding life satisfaction, the self-employed classes do not easily fall into a hierarchical ordering. See Section 4 for descriptive evidence on this. We therefore exclude the self-employed from analyses that require assumptions about the ordering of classes.

For both class destination and class origin, we construct the "full" version of ESeC based on 3-digit ISCO-88 occupational codes, employment status, number of employees and supervisory functions. We use parental ISCO codes as provided in Ganzeboom (2014). When variables other than ISCO codes are missing, we assign the weighted mode of ESeC class within that ISCO code. As a refinement of the official "simplified" version, we determine modes separately for destinations and origins based on respondents for whom the "full" version is available. Class origin refers to parental class when respondents were 14 years old. We use the "dominance approach" (Erikson,

Table 1. Description and hierarchical ordering of ESeC classes (adapted from Rose et al., 2009)

	ESeC Class	Common term	Employment relation
I	Large employers, higher grade professional, administrative and managerial occupations	Higher salariat	Service relationship
II	Lower grade professional, administrative and managerial occupations and higher grade technician and supervisory occupation	Lower salariat	Service relationship (modified)
III	Intermediate occupations	Higher grade white collar workers	Mixed
IV	Lower supervisory and lower technician occupations	Higher grade blue collar workers	Mixed
V	Lower services, sales and clerical occupations	Lower grade white collar workers	Labour contract (modified)
VI	Lower technical occupations	Skilled workers	Labour contract (modified)
VII	Routine occupations	Semi- and non-skilled workers	Labour contract
SEI	Small employers and self-employed occupations (excl. agriculture.)	Petit bourgeoisie or independents	-
SEII	Self-employed occupations (agriculture)	Petit bourgeoisie or independents	-

Note: Classes SEI and SEII are assumed to fall outside any hierarchical ordering. Those that never worked are not included in this study.

[3] Blasius and Thiessen (2018) note that data quality is worse in Eastern than in Western Europe. This is problematic if data quality is correlated with the association between class and life satisfaction, which may occur via interviewers/interviewees providing answers at random. If so, the association between class and life satisfaction is biased towards zero. Our results for Eastern Europe may therefore be conservative compared to Western Europe.

1984), which assigns the higher class when parental class positions differ. To accurately capture intergenerational mobility trajectories, we only include respondents of working age, and who can be assumed to have reached "occupational maturity", i.e. those between ages 35 and 65 (Bukodi, Paskov, and Nolan, 2019).

3.2 Model choice

A general model for the effects of class destination, origin, and mobility, including further covariates such as reference position and reference mobility, is given by:

$$LS_{idom} = \delta_d dest_{id} + \omega_o orig_{io} + \gamma_m mob_{im} + \beta' X_i + \varepsilon_i \,, \qquad (1)$$

with parameters δ_d for class destinations d, ω_o for class origins o, and γ_m for mobility levels m.[4] $dest_{id}$, $orig_{io}$, mob_{im} are sets of dummies, indicating origin, destination, and mobility of respondent i. Destination class d and origin class o are reversely coded from 1 to 7. Thus, 1 refers to Class VII and 7 to Class I. Mobility levels are given by the difference between destination and origin, i.e. $m = d - o$. Therefore, higher levels of m indicate greater upward mobility. X_i is a vector of covariates, including a constant and terms for reference mobility and position. ε_i denotes the error term.

Unfortunately, Eq.(1) is not identified due to the perfect collinearity of m with d and o (Blalock, 1966). We must therefore place constraints on the relationships between δ_d, ω_o, and γ_m. One possibility is to assume $\omega_o = 0$ for all levels of o, i.e. that there are no origin effects (e.g. Hadjar and Samuel, 2015). However, if any ω_o is in fact different from zero, δ_d and γ_m will pick up these effects, and hence be biased. Similar reasoning applies to excluding terms for destination.

Models without mobility terms may yet be instructive. Origin may have a direct effect, an effect via destination, and an effect via mobility. Likewise, class destination might impact life satisfaction directly, as well as indirectly via class mobility (see Figure 1). Since mobility is defined by the difference between destination and origin, a one-step increase in origin deterministically decreases mobility by one step[5], whereas a one-step increase in destination deterministically increases mobility by one step. Thus, in a model that only contains terms for origins, its coefficients provide the total origin effects, i.e. direct effects and the effects that run via destination and mobility. By adding terms for destinations, the origin effects that run via destinations are removed from the origin coefficients. In such a model, where both sets of terms are included, the coefficients for origins and destinations consequently contain their respective direct effects and the indirect effects via mobility.[6]

Still, such models cannot fully separate the mobility from the origin and destination effects. We hence employ a model proposed by Sobel (1981; 1985):

$$LS_{idom} = p\lambda_d dest_{id} + (1-p)\lambda_o orig_{io} + \gamma_m mob_{im} + \beta' \boldsymbol{X_i} + \varepsilon_i \qquad (2)$$

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[4] An even more general model not considered here would further allow for interactions of origins and destinations with levels of mobility.

[5] This only holds when controlling for class destination, since higher origins may also cause higher destinations.

[6] Due to space constraints, we do not perform a formal mediation analysis for the degree to which the origin effect runs via destination. Besides challenges posed by mobility effects, this is because the effect of origin on entering particular destinations is probably non-linear (exploratory analyses are available upon request). Therefore, how destinations mediate the effect of origin differs across origins.

Here, p is a parameter that is constrained to take values between 0 and 1. It may be interpreted as indicating the importance of destinations *versus* origins (Hendrickx et al., 1993). In baseline specifications and to ease interpretation, we replace the full set of mobility parameters γ_m by a simpler linear term:

$$LS_{idom} = p\lambda_d dest_{id} + (1-p)\lambda_o orig_{io} + \dot{\gamma}m + \beta' X_i + \varepsilon_i \quad (3)$$

Such models are called *diagonal reference models* (DRMs), because the λs are interpreted as positional effects of the immobile, i.e. individuals who remain on the diagonal of a mobility table (e.g. Zhao et al. 2017). Substantively, we assume that the life satisfaction of intergenerationally mobile individuals is a weighted sum of three main components: (1) the life satisfaction of the immobile in individuals' class origin (λ_o), (2) the life satisfaction of the immobile in individuals' class destination (λ_d), and (3) a further effect of having moved between origin and destination by a certain number of steps (γ_m or $\dot{\gamma}$).

Mathematically, the DRM is a constrained version of (1). It constrains the destination effects to be positive linear transformations of the origin effects. To see this, note that the effect of being in class destination k rather than $k-1$ is given by $p(\lambda_k - \lambda_{k-1})$. Likewise, the effect of being in class origin k rather than $k-1$ is given by $(1-p)(\lambda_k - \lambda_{k-1})$. Thus, origin and destination effects may only differ due to parameter p. So long as p lies between 0 and 1, destination effects are *positive* transformations of origin effects.[7] Consequently, relative differences between each step among class origins and destinations are assumed to be the same, while the absolute magnitude of these steps may differ. See section 4.3 and appendix C for tests on the sensitivity of our results to these assumptions.

3.3 Selection of controls

We always control for NUTS 1 region and wave dummies, age(-squared), ethnic minority status, and whether a respondent was born in the country of residence. The ESS provides additional controls. Some of these are pre-treatment variables with respect to class destination, and thus potential confounders, while also being post-treatment variables with respect to class origin. Their inclusion could therefore induce post-treatment bias (Montgomery et al. 2018). Education is an example. Origin determines education, which may directly affect life satisfaction. Including education thus blocks the effect of origin that may run via education. Yet, education is also a strong predictor of class destination (Bukodi and Goldthorpe, 2016), so its exclusion confounds the destination effect.

Similarly, religiosity, marital status, residence in rural versus urban areas, and household size are post-treatment variables with respect to class origin. Regarding class destination, the causal direction is ambiguous, making these variables either confounders or terms inducing post-treatment bias. We therefore report results with and without these variables.

To gauge the degree to which origin and destination effects are mediated by unemployment and income, we additionally provide results with these variables. Household income is always entered as its natural logarithm.

[7] When $p = 1$, DRMs are equivalent to an OLS regressions that exclude origin terms. Likewise, when $p = 0$, DRMs are equivalent to OLS models without destination terms.

One key limitation is that our data is observational and cross-sectional. Our estimates could therefore be subject to further omitted variable bias (e.g. personality traits (Boyce, 2010)). Nevertheless, these may provide a useful baseline against which to compare past and future evidence. Even if one was reluctant to engage in causal interpretation, the estimates still provide information on conditional mean differences in life satisfaction between origin, destination and mobility levels. Given the normative significance and vigorous debate surrounding class-based inequalities, such differences are likely to have worthwhile independent political or moral implications.

3.4 Operationalizing reference effects

Given our discussion above, we take respondents with the same class origin to constitute the reference group for reference position, and respondents occupying the same class destination to form the reference group for reference mobility. Following Vendrik and Woltjer (2007) and Ferrer-i-Carbonell (2005), we further restrict reference groups to those up to five years older or younger than the respondent.

To find the 'typical' level of class position in the reference group, we compute the average class position of those in the reference group, where class positions are coded in their rank-order (as in section 3.2). More formally, our measure of reference class position is given by:

$$REFP_{ioct} = \frac{\sum_{j \in POS_{oct}} w_j d_j}{\sum_{j \in POS_{oct}} w_j}, \tag{4}$$

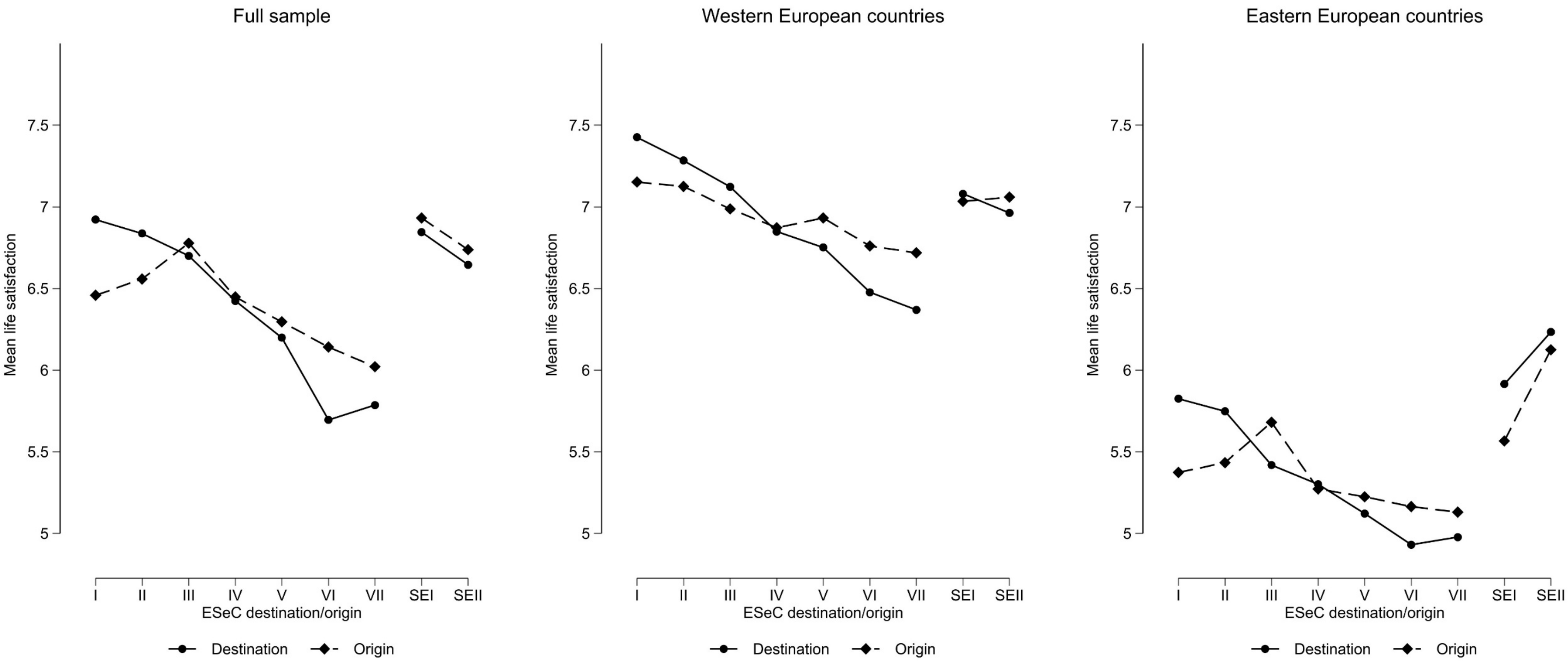
where POS_{oct} is the set of respondents $j \neq i$ that are observed in the same wave, country, class origin, and are up to five years younger or older than respondent i. d_j indicates class destination. w_j indicates the combined post-stratification and population weight of j. Reference class mobility is defined analogously as the average class mobility of those in the reference group:

$$REFM_{idct} = \frac{\sum_{j \in MOB_{dct}} w_j m_j}{\sum_{j \in MOB_{dct}} w_j}, \tag{5}$$

where MOB_{dct} refers to those respondents $j \neq i$ that are observed in the same wave, country, class destination, and are up to five years younger or older than respondent i. m_j indicates class mobility.

Some individual-level controls will be correlated with these measures. For example, individuals with higher incomes are likely situated in environments where others also have higher incomes. However, apart from network effects, it is unlikely that variables like income are strongly affected by our measures of reference position and mobility. Instead, such variables may proxy for other reference group characteristics (e.g. average incomes). They should therefore be included to prevent reference mobility and position from picking up spurious effects from correlated individual-level characteristics.

Figure 2. Mean life satisfaction by destination and origin classes in Europe



4 Results

Figure 2 shows mean life satisfaction by destination and origin classes. In the full sample, we observe a negative gradient for destination that follows the ordering of ESeC classes. Respondents in the salaried classes have the highest level of life satisfaction and respondents in the working classes have the lowest. However, the pattern is different when origin is considered: Children of the intermediate classes are on average slightly more satisfied than respondents of both working class and salariat origins.

Splitting the sample into Eastern and Western Europe reveals that this pattern is pre-dominantly driven by the East. There, mean life satisfaction is substantially lower. Those in origin and destination I are even less satisfied than Western members of origin and destination VII. Strikingly, the self-employed (SEI) and farmers (SEII) are the most satisfied in Eastern Europe. One possible reason is that following the collapse of socialism, many who were in state-managerial positions entered careers as entrepreneurs (Slomczyński and Shabad, 1996). This vindicates our view that distinguishing between East and West is crucial, and that the self-employed classes cannot be straightforwardly placed in a hierarchical ordering for the present purposes.

Unfortunately, these figures can neither directly show mobility effects nor indicate the presence of reference effects. Effects of confounders are also not cancelled out. We therefore turn to our regression results.

4.1 Western Europe

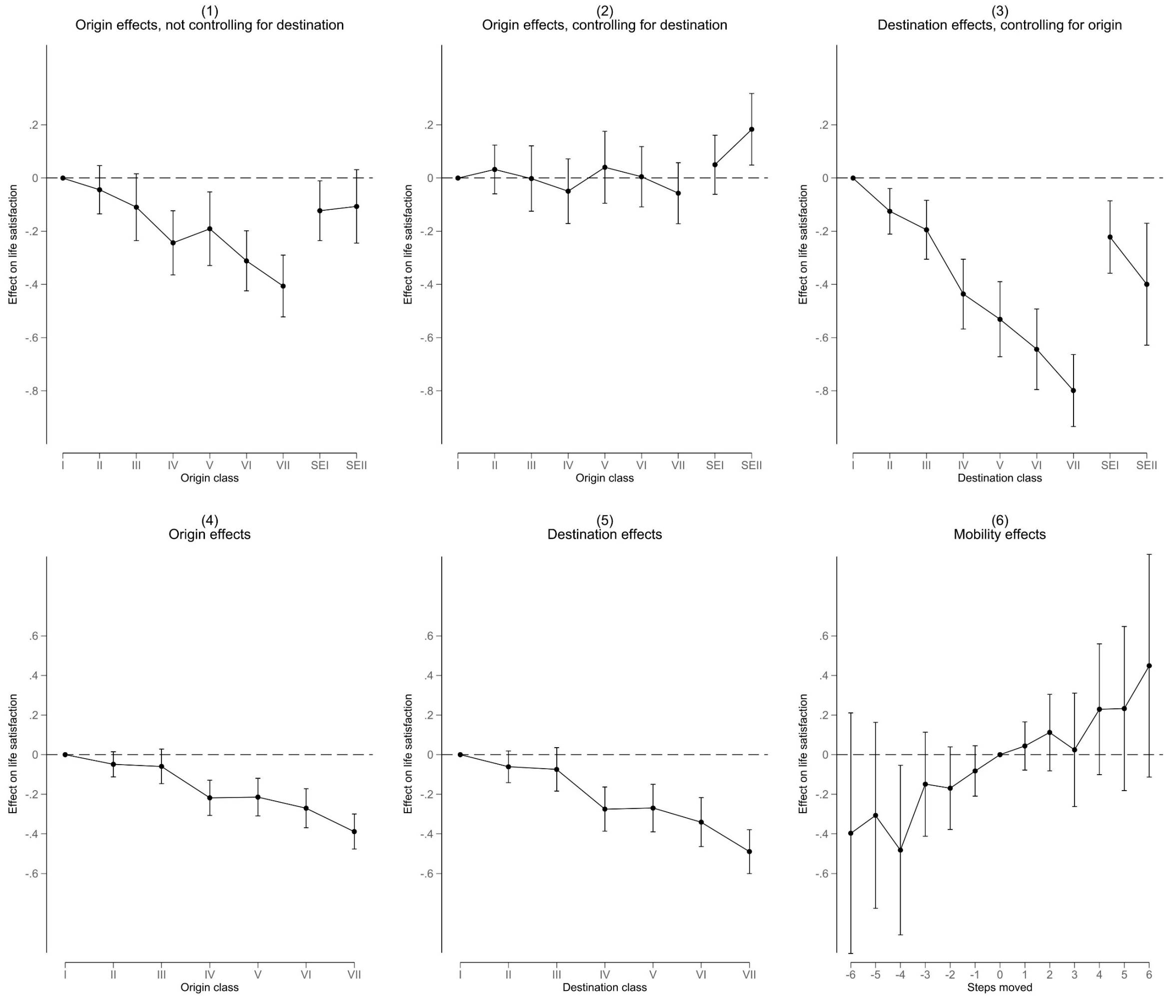
We begin our analysis using OLS regressions, excluding terms for class mobility. Results from these are summarised in the top panels of Figure 3.

Panel (1) shows results in which only class origin and our set of basic controls are entered. As explained in section 3.2, such estimates are informative about the total effect of origin, i.e. its direct and indirect effects via destination and mobility. We observe a clear and substantial gradient across origins, with a difference between Class I and VII of about 0.4 on our 11-point life satisfaction scale (see appendix Tables B1-B6 for all coefficients). Interestingly, Classes IV and V do not follow the presumed hierarchical ordering. The two self-employed classes SEI and SEII fall between Classes III and IV. In panel (2), class destination is added to the model. The estimates for origin are now close to zero. Recall that when controlling for destination, a one-step higher origin implies a one-step lower level of upward mobility. Thus, assuming that mobility effects themselves are positive (i.e. the higher upward mobility, the higher life satisfaction, and the higher downward mobility, the lower life satisfaction), the indirect effect of origin via mobility is negative. Therefore, these results suggest that origin and mobility effects cancel.[8]

Panel (3) shows the estimated effects of class destination. As expected, we see a strong gradient across destinations. However, we do not know whether this is driven by class mobility (when controlling for class origin, a one-step increase in destination implies a one-step increase in mobility) or by actual class destination effects.

[8] However, we obtain a positive and significant estimate for origin SEII. This is striking, since it implies that children of farmers are more satisfied than those who grew up in the presumably most socio-economically advantaged social class.

Figure 3. Origin, destination, and mobility effects in Western Europe with 95% confidence intervals



Note: Panels (1)-(3) are based on OLS estimates. See appendix Table B1 for full results. Panels 4-6 are based on DRM estimates of Table 2 column (4).

Thus, in order to disentangle positional effects from mobility effects, we now turn to using DRMs. Our results are illustrated in the bottom panels of Figure 3 and are given in Table 2. Since we now require assumptions about the ordering of social classes, we exclude the self-employed. DRMs constrain the shape, but not the magnitude, of the origin and destination effects to be equal. Consequently, Table 2 only presents one set of coefficients for class position. The relative magnitudes of destination and origin effects are determined by p. To discern the effect of e.g. being in destination VII rather than I, we need to take the coefficient for class VII and multiply it by p. Similarly, for origin effects, we take the coefficient for a particular class and multiply by $1 - p$.

In all specifications, we observe that p is larger than 0.5, indicating that destination effects are somewhat larger in magnitude than origin effects. Column (1) of Table 2 only contains basic controls that we consider predetermined with respect to class destination and class origin. However, a control for education is not part of these. As discussed in section 3.3, education likely confounds the effects of class destination. In column (2), we therefore include a term for education. As expected, this marginally reduces the magnitudes of the overall effects of class

Table 2. DRM estimates for Western Europe

	(1) Linear mobility	(2) Linear mobility, controls for education	(3) Linear mobility, controls for educ., further demographics, UE & income	(4) Non-linear mobility, controls for educ.	(5) Non-linear mobility, controls for educ., further demographics, UE & income
Class II	-0.160** (0.071)	-0.109 (0.073)	0.004 (0.063)	-0.110 (0.073)	0.007 (0.066)
Class III	-0.266*** (0.082)	-0.167* (0.092)	0.028 (0.089)	-0.134 (0.101)	0.061 (0.094)
Class IV	-0.661*** (0.089)	-0.510*** (0.095)	-0.286*** (0.092)	-0.493*** (0.102)	-0.261** (0.105)
Class V	-0.663*** (0.100)	-0.506*** (0.102)	-0.203** (0.095)	-0.484*** (0.110)	-0.177* (0.101)
Class VI	-0.833*** (0.118)	-0.628*** (0.118)	-0.245** (0.108)	-0.611*** (0.113)	-0.228** (0.108)
Class VII	-1.096*** (0.088)	-0.879*** (0.098)	-0.420*** (0.098)	-0.877*** (0.101)	-0.420*** (0.100)
Steps mobile	0.056 (0.064)	0.059 (0.047)	0.031 (0.019)		
6 Steps down				-0.396 (0.310)	-0.142 (0.215)
5 Steps down				-0.306 (0.240)	-0.162 (0.150)
4 Steps down				-0.482** (0.218)	-0.323** (0.146)
3 Steps down				-0.149 (0.134)	-0.076 (0.086)
2 Steps down				-0.169 (0.106)	-0.101 (0.080)
1 Step down				-0.082 (0.065)	-0.048 (0.050)
1 Step up				0.044 (0.062)	0.012 (0.049)
2 Steps up				0.112 (0.098)	0.055 (0.070)
3 Steps up				0.024 (0.146)	-0.044 (0.094)
4 Steps up				0.229 (0.168)	0.132 (0.097)
5 Steps up				0.233 (0.212)	0.103 (0.114)
6 Steps up				0.449 (0.287)	0.288* (0.157)
p	0.601* (0.355)	0.560* (0.321)	0.575** (0.243)	0.557** (0.271)	0.578** (0.227)
Log likelihood	-83710.896	-83670.845	-82212.744	-83657.160	-82201.708
AIC	167609.793	167533.689	164643.488	167528.320	164643.416
N	40,342	40,342	40,342	40,342	40,342

Note: * p<0.10, ** p<0.05, *** p<0.01. Reference category is Class I. Region- and wave-clustered standard errors in parentheses. All models include controls for region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

position and reduces the weight on class destinations *versus* origins.[9] In column (3) of Table 2 we additionally enter unemployment and log household income. These variables are mediators of the class position effect. Compared to column (2), the overall gradient in class position is reduced by about 50%. Importantly, in that specification, we find no statistically significant difference between Classes II and III *versus* Class I. Therefore, differences between Classes I to III seem to be driven by income and unemployment rather than other benefits of Class I.[10]

Our key conclusions regarding hypotheses **H1** and **H2** are best assessed using panels (4) and (5) of Figure 3. There, we observe significant gradients in life satisfaction for both class destination and origin, with the destination gradient being somewhat steeper. Hypotheses **H1** and **H2** are thus corroborated.

[9] We observe a similar pattern in our analogous OLS results of appendix Table B1. Moreover, the inclusion of further "ambiguous" demographic controls makes little difference to our results. See column (3) of appendix Table B2.

[10] Our coefficients on unemployment and income are respectively -1.061 and 0.364 in the specification of Table 2 (see appendix Table B2 for all coefficients). In column (3) of appendix Table D1, we find that the coefficients of Classes II and III on income are respectively 0.216 and 0.318. The corresponding coefficients for unemployment are -0.001 for Class II and 0.021 for Class III. Taking products of coefficients, this suggests that more of the indirect effect of these class destinations runs via income than unemployment. Similar statements apply to the other classes.

Regarding our hypotheses concerning class mobility (**H3a** and **H3b**), columns (1)-(3) contain a simple linear term for mobility. This mobility term is not precisely estimated and thus insignificant in all specifications. In columns (4)-(5), we use a full specification as given in Eq.(2). Most of the dummies for each mobility level are not significantly different from non-mobility. The only exceptions are those indicating moving down by four steps and moving up by six steps. Further tests on whether moving down by six steps is significantly different from moving up by six steps are insignificant.

With these estimates, we reject both **H3a** and **H3b** for Western Europe. However, given the coefficient signs of column (4) and (5), we reject **H3a** (mobility in any direction is harmful) more firmly than **H3b** (upward mobility is beneficial and downward mobility is harmful). Indeed, our evidence to reject **H3b** is marginal and depends on a p-value of 0.1 to determine statistical significance.

Table 3 presents results on reference effects to evaluate **H4a** and **H4b**. As discussed earlier, it seems implausible that our measures of reference position and mobility strongly affect our individual-level controls. Instead, these controls may act as proxies for wider macro-level factors. We hence prefer models with a full set of controls (columns (2) and (4)) when considering reference effects.

Table 3. DRM estimates for Western Europe (including reference effects)

	(1) Basic controls	(2) Controls for educ., further demographics., UE & income	(3) Basic controls; positive. vs. negative ref. mobility	(4) Controls for educ., further demographics., UE & income; pos. vs. neg. ref. mobility
Class II	-0.151** (0.076)	-0.021 (0.065)	-0.138* (0.071)	-0.006 (0.063)
Class III	-0.269*** (0.099)	-0.025 (0.096)	-0.235** (0.102)	0.017 (0.094)
Class IV	-0.653*** (0.121)	-0.361*** (0.117)	-0.611*** (0.118)	-0.297** (0.126)
Class V	-0.674*** (0.146)	-0.337** (0.139)	-0.629*** (0.143)	-0.286** (0.140)
Class VI	-0.830*** (0.183)	-0.404** (0.178)	-0.805*** (0.180)	-0.386** (0.184)
Class VII	-1.123*** (0.196)	-0.633*** (0.185)	-1.125*** (0.194)	-0.651*** (0.184)
Steps mobile	0.082 (0.069)	0.049* (0.030)	0.076 (0.055)	0.039 (0.030)
Ref. position	0.053 (0.040)	0.014 (0.038)	0.051 (0.040)	0.011 (0.038)
Ref. mobility	-0.036 (0.040)	-0.064* (0.037)		
Ref. mob. up			-0.004 (0.043)	-0.022 (0.043)
Ref. mob. down			0.071 (0.056)	0.116** (0.058)
p	0.570 (0.347)	0.592** (0.233)	0.596** (0.284)	0.685*** (0.247)
Log likelihood	-83707.526	-82208.695	-83705.955	-82205.913
AIC	167607.053	164639.389	167605.910	164635.826
N	40,342	40,342	40,342	40,342

Note: All notes as in Table 2.

Reference position is insignificant and positive throughout, thus contradicting **H4a**. By contrast, although reference mobility is initially insignificant in column (1), it turns significant in column (2).[11] The negative coefficient implies that greater upward (downward) mobility in individuals' reference group has a negative (positive) effect on their life satisfaction. This is similar to the negative reference effects found in the literature on relative income. Given seven hierarchically

[11] Appendix Table B3 with additional specifications and coefficients for all controls shows that this difference in coefficients is primarily driven by the inclusion of unemployment and income. In column (2) of Table 3, we also find that own mobility is just significant, underlining our earlier rejection of **H3b** as marginal.

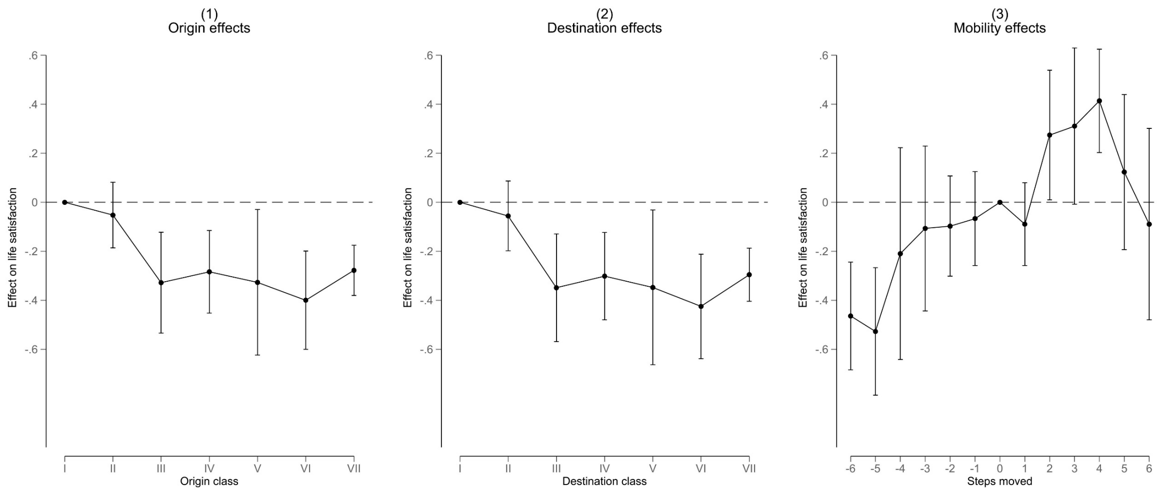
ordered classes, our measure of reference mobility is theoretically bounded between -6 and 6. In practice, we observe a range of -5.02 and 5.13, and a standard deviation of 1.31. Thus, moving from the lowest observed value of reference mobility to the highest value implies a decrease in life satisfaction by -0.65 points on a 0-10 scale. Alternatively, a one standard deviation increase implies a 0.08 point decrease in life satisfaction.

In columns (3) and (4), we define separate terms for predominant upward or downward mobility[12] to disentangle which of these drive the observed effects. It turns out that cases with predominant downward mobility drive the result of column (2). Consequently, individuals who observe greater downward mobility around them are more satisfied, while those who observe greater upward mobility are not less satisfied. We thus obtain evidence in favour of **H4b**.

4.2 Eastern Europe

Using DRMs, Table 4 and Table 5 present our results for Eastern Europe. Figure 4 provides a graphical illustration. The presented specifications are analogous to those given in Tables 2 and 3. Overall, we find a sizable gradient across class positions. As was the case for Western Europe, we again find a reduction in estimated effects when controlling for education (compare columns (1) and (2) of Table 4). However, unlike Western Europe, we observe a large difference between Classes II and III, but no significant difference between Classes I and II. It therefore appears that Classes I and II (i.e. the salariat) are particularly more advantaged than white-collar and blue-collar workers, resulting in higher life satisfaction.

Figure 4. Origin, destination, and mobility effects in Eastern Europe with 95% confidence intervals



Note: All panels are based on DRM estimates of Table 4 column (4).

Including unemployment and income as mediators reduces the magnitudes of the class position coefficients by much less than in Western Europe. Characteristics of class destination other than

[12] We define predominant upward reference mobility as $REFM^{+}_{idct} = REFM_{idct} I(REFM_{idct} > 0)$ and predominant downward reference mobility as $REFM^{-}_{idct} = -REFM_{idct}\, I(REFM_{idct} < 0)$, where $I(.)$ is the indicator function.

current income and unemployment may hence matter more in the East.[13] Similar to Western Europe, however, our estimate of p is typically larger than 0.5, indicating that destination effects are larger in magnitude than origin effects. Parameter p only falls below 0.5 when income and unemployment are entered, suggesting that these variables mediate destination effects more than origin effects.

Thus, hypotheses **H1** and **H2** are again largely confirmed. However, because the magnitudes of class position effects are not larger in Eastern than in Western Europe, hypothesis **H5** is rejected.

The effect of class mobility, entered linearly in columns (1) to (3) of Table 4, is of similar magnitude as for Western Europe. However, the coefficient is estimated more precisely and significant at the 1% level. Our non-linear estimates in columns (4) and (5) yield a striking inverted U-shaped pattern for upward mobility. We find large positive effects for moving up by two to four steps, yet a slightly negative (albeit insignificant) effect for moving up by six steps. Although this does not corroborate Sorokin's dissociative hypothesis, it nevertheless shows that long-range upward mobility in Eastern Europe is less beneficial than medium-range upward mobility.

Table 4. DRM estimates for Eastern Europe

	(1) Linear mobility	(2) Linear mobility, controls for education	(3) Linear mobility, controls for educ., further demographics, UE & income	(4) Non-linear mobility, controls for educ.	(5) Non-linear mobility, controls for educ., further demographics, UE & income
Class II	-0.127 (0.113)	-0.030 (0.132)	-0.046 (0.150)	-0.108 (0.141)	-0.118 (0.148)
Class III	-0.661*** (0.181)	-0.462** (0.183)	-0.459*** (0.164)	-0.677*** (0.217)	-0.639*** (0.202)
Class IV	-0.611*** (0.144)	-0.357** (0.170)	-0.300* (0.168)	-0.585*** (0.177)	-0.512*** (0.181)
Class V	-0.797*** (0.284)	-0.501 (0.326)	-0.416 (0.325)	-0.674** (0.312)	-0.593* (0.311)
Class VI	-1.113*** (0.155)	-0.753*** (0.207)	-0.588*** (0.208)	-0.824*** (0.211)	-0.658*** (0.212)
Class VII	-0.932*** (0.123)	-0.538*** (0.117)	-0.314*** (0.092)	-0.573*** (0.107)	-0.346*** (0.089)
Steps mobile	0.060*** (0.018)	0.053*** (0.015)	0.054*** (0.012)		
6 Steps down				-0.464*** (0.112)	-0.461*** (0.113)
5 Steps down				-0.527*** (0.133)	-0.448*** (0.130)
4 Steps down				-0.209 (0.220)	-0.129 (0.202)
3 Steps down				-0.107 (0.172)	-0.096 (0.174)
2 Steps down				-0.097 (0.104)	-0.103 (0.098)
1 Step down				-0.066 (0.098)	-0.089 (0.107)
1 Step up				-0.089 (0.086)	-0.081 (0.084)
2 Steps up				0.275** (0.135)	0.288** (0.138)
3 Steps up				0.311* (0.163)	0.286 (0.177)
4 Steps up				0.414*** (0.108)	0.311*** (0.108)
5 Steps up				0.124 (0.161)	0.130 (0.154)
6 Steps up				-0.089 (0.199)	-0.197 (0.252)
p	0.627*** (0.101)	0.599*** (0.121)	0.475*** (0.116)	0.515*** (0.064)	0.483*** (0.068)
Log likelihood	-52056.414	-51999.934	-51447.841	-51975.353	-51423.802
AIC	104198.828	104089.869	103013.683	104062.706	102985.604
N	19,152	19,152	19,152	19,152	19,152

Note: All notes as in Table 2.

[13] Coefficients on unemployment and income in Eastern Europe are respectively 0.807 and 0.361 (see appendix Table B5), and hence slightly smaller than for Western Europe. Columns (4) and (6) of Tables D1 and D2 in the appendix reveal that the effects of class destination on income are stronger in Western than in Eastern Europe, while the effects of destination on unemployment are similar. It therefore appears that differences in income effects drive differences in mediation across Eastern and Western Europe.

Concerning downward mobility, we find a significant effect of -0.464 for moving down by six steps. Importantly, since we only have -0.573*(1-0.515)=-0.278 for the origin effect of Class VII (column (4)), those who move down from Class I to Class VII are expected to be less satisfied than those who started in Class VII and remained there.

Table 5 provides reference effect estimates. Given our reasoning in sections 3.4 and 4.1., we take columns (2) and (4) to be the preferred specifications. Our estimate of reference mobility is consistently significant at the 1%-level. Importantly, the size of the mobility effect is roughly three times the estimated effect for Western Europe (-0.176 *versus* -0.064). We thus find support for **H4b** and **H7**. As becomes evident in columns (3) and (4), cases where upward rather than downward reference mobility dominates, drive the effect. This contrasts the result for Western Europe and may be driven by those in higher destination classes feeling devalued by an influx of those from lower origins in an otherwise less socially fluid environment.

The effect of own class mobility become larger upon entering the reference mobility term (compare Tables 4 and 5). Both reference and own mobility are positively correlated with class destination. The negative reference mobility effect may therefore partly confound the positive effect of own mobility. However, the own mobility estimate is still smaller than the reference mobility coefficient (-0.141 *versus* -0.176). Hence, if every member of the reference group were upwardly mobile to the same degree, no one would benefit from such mobility. This conclusion on the relativity of mobility effects stands in line with previous findings which showed that life satisfaction gains from income are largely relative (e.g McBride, 2001).

Finally, because DRMs require an assumption over the ordering of social classes, the results of Tables 4 and 5 exclude members of the self-employed classes (SEI and SEII). OLS regressions that include these classes are given in Table B4 of the appendix. These regressions show that in Eastern Europe the self-employed classes are associated with similar levels of life satisfaction as the salariat. This is in line with the descriptive evidence provided earlier.

Table 5. DRM estimates for Eastern Europe (including reference effects)

	(1) Basic controls	(2) Controls for educ., further demographics., UE & income	(3) Basic controls; positive. vs. negative ref. mobility	(4) Controls for educ., further demographics., UE & income; pos. vs. neg. ref. mobility
Class II	-0.199 (0.134)	-0.153 (0.178)	-0.215* (0.124)	-0.143 (0.167)
Class III	-0.748*** (0.180)	-0.563*** (0.155)	-0.767*** (0.172)	-0.584*** (0.164)
Class IV	-0.917*** (0.175)	-0.622*** (0.184)	-0.980*** (0.220)	-0.658*** (0.190)
Class V	-1.175*** (0.303)	-0.843** (0.342)	-1.254*** (0.305)	-0.872*** (0.334)
Class VI	-1.576*** (0.203)	-1.098*** (0.269)	-1.604*** (0.201)	-1.103*** (0.259)
Class VII	-1.545*** (0.260)	-0.973*** (0.244)	-1.500*** (0.231)	-0.921*** (0.210)
Steps mobile	0.157*** (0.040)	0.141*** (0.043)	0.131*** (0.042)	0.120*** (0.036)
Ref. position	0.110* (0.062)	0.032 (0.060)	0.112* (0.059)	0.034 (0.057)
Ref. mobility	-0.203*** (0.051)	-0.176*** (0.047)		
Ref. mob. up			-0.253*** (0.090)	-0.214*** (0.075)
Ref. mob. down			0.122 (0.104)	0.110 (0.098)
p	0.538*** (0.108)	0.358** (0.171)	0.626*** (0.126)	0.468*** (0.129)
Log likelihood	-52036.254	-51435.163	-52034.249	-51433.651
AIC	104162.509	102990.326	104160.498	102991.303
N	19,152	19,152	19,152	19,152

Note: All notes as in Table 2.

4.3 Robustness

Since the DRM of Eq.(2) is a constrained version of the general model given in Eq.(1), we may be worried about the degree to which the DRM deviates from an unconstrained OLS model. To assess this, we follow two recent papers by Fosse and Winship (2019b; 2019a) that were written in the context of age-period-cohort models.[14] Borrowing from these and an extended abstract by Fosse and Pfeffer (2019), we show in the appendix how an OLS model without mobility terms already includes mobility effects in the coefficients on destination and origin (informally we already used this point in our interpretation of panels (1)-(3) in Figure 3). This analysis also allows us to distinguish between linear effects of destination, origin, and mobility on the one hand, and deviations from these on the other hand. We then investigate how far the estimated linear components of the DRM are inconsistent with the implied estimates of an unconstrained OLS regression. In all specifications, the DRM model deviates only marginally from the OLS model. The largest deviation occurs for the result of Table 2 column (1), where the constrained DRM estimate for origin minus mobility is 0.004 points smaller than the implied unconstrained OLS estimate.[15] See pages 12f. and Tables C5-C6 in the appendix.

We also examine to what extent our results from the DRM depend on constraining the deviation of each origin and destination class from an overall linear effect to be equal. Using the preferred specifications of columns (2) and (4) of Tables 2 and 4 as our baseline, we do so by sequentially relaxing this constraint for each class position. See p.13 of the appendix and Tables C7-C10. Our results are largely robust to this exercise. However, when relaxing the constraint on Class III we obtain a significant positive mobility effect for Western Europe. Hence, our rejection of **H3b** from section 4.2 remains doubtful.

Regarding the robustness of our reference position and mobility estimates, we first run DRMs with non-linear own mobility terms rather than the linear specifications presented in Tables 3 and 5. To investigate whether our results depend on DRMs in particular, we also run OLS specifications. Moreover, as an alternative to the asymmetric specifications of columns (3) and (4) in Tables 3 and 5, we run models with separate terms for the mean number of classes travelled by the downwardly and upwardly mobile in the reference group. Our main results are robust to each of these tests. See appendix Tables C11-C16 for full results.

Furthermore, our reference mobility measure weighs each difference in mobility levels equally. The robustness test of column (3) in appendix Tables C15-C16 already relaxes this equal-weight assumption by allowing for different effect sizes for reference upward and downward mobility. To gauge the sensitivity of our results to this assumption, Tables C17-C18 present results where we define alternative measures of upward (downward) reference mobility as the proportion of individuals in the reference group that moved up (down) by at least 1, 2, …, or 6 steps. For Western Europe, these alternative downward reference mobility measures all yield positive coefficients. For measures with proportions of individuals who are upwardly mobile by 4 to 6 steps, we find negative

[14] These papers are largely concerned with outlining an altogether different empirical strategy, which relies on finding bounds for age, period and cohort effects on the basis of *a priori* beliefs. In general, such a strategy could also be applicable to the case of estimating the effects of origin, destination, and mobility. However, pursuing this strategy here goes beyond the scope of the present paper.

[15] In most other cases, these deviations are even smaller. This suggests that there may be a tighter relationship between the DRM and OLS model that we are unable to discern. If so, future research would strongly benefit from analysing such relationships.

coefficients. However, for proportions of individuals who are upwardly mobile by 1-3 steps, we find positive coefficients, which may explain the insignificance of the respective coefficients in columns (3) and (4) of Table 5. For Eastern Europe, all of our alternative reference mobility specifications have the expected sign.

With respect to reference position, we perform a similar robustness test. We define alternative reference position measures as the proportion of individuals in the reference group with destination I *versus* VII, and the combined share of individuals in the reference group occupying destinations I+II *versus* VI+VII. Coefficient signs in all of these specifications are in line with the main results but remain insignificant. See columns (1) and (2) of appendix Tables C15 and C16.

It may be that reference mobility effects also run via own mobility, i.e. that higher (lower) levels of reference mobility dampen any positive (negative) effects of own upward (downward) mobility. Although interaction terms have the expected negative sign, none are statistically significant. See Tables C19-C20.

Finally, from appendix Table A1 we observe that relatively more countries in Western Europe are observed in ESS waves 1-3 than Eastern European countries. Our conclusions concerning **H5**-**H7** on differences across Europe may therefore be driven by a period effect. To assess this concern, we re-estimate Tables 2-5, but restrict the observation window to waves 4-5 for both regions (see Tables C21-C26). For Eastern Europe we obtain slightly smaller and sometimes marginally insignificant mobility estimates. Regarding Western Europe, we generally find smaller coefficients on origin, mobility and reference mobility. In one case, our estimate of reference mobility is no longer significant. Moreover, parameter p is constrained to 1 in some specifications for Western Europe, implying a zero origin effect. Overall, we find a larger difference between Eastern and Western Europe for this restricted time period.

5 Conclusion

This paper made four contributions. First, we developed a theoretical framework, bringing together all the pathways through which social class may impact life satisfaction. Second, we sought to clarify the assumptions underlying diagonal reference models and further motivated their use in analyses of social mobility. Third, we considered how reference class position and mobility affect life satisfaction. Fourth, we comparatively examined the relationship between social class and life satisfaction across two major European regions.

In terms of our hypotheses, our results can be summarised as follows: Class destinations and class origins structure life satisfaction in both East and West (**H1** and **H2** are confirmed). Own upward mobility improves life satisfaction and own downward mobility reduces life satisfaction (**H3a** is rejected and **H3b** is confirmed). Contrastingly, higher reference mobility leads to declines in life satisfaction (corroborating **H4b**), while no clear evidence for an impact of reference class position is found (rejecting **H4a**). For these hypotheses, our evidence is much stronger for Eastern than for Western Europe.

Our finding that there are own intergenerational mobility effects at all stands in contrast to previous studies that use diagonal reference models such as Marshall and Firth (1999) or Zhao et al. (2017). Furthermore, regarding our rejection of **H4a** and confirmation of **H4b**, we noted that individuals are mostly in contact with other people that share the same destination class (i.e. colleagues and friends). Therefore, observing the class mobility of one's direct peers may be easier and thus appear more salient than the outflux from one's origin class into other destinations. Indeed, in both European regions, the magnitude of the negative reference mobility effect is similar or even larger than the magnitude of the positive own mobility effect. Hence, while mobility may increase an *individual*'s satisfaction with her life, there seems to be no *societal* benefit to intergenerational class mobility per se.

Regarding regional variation, reference mobility effects are much stronger in Eastern Europe, confirming **H7**. We also find some support that own mobility effects are stronger in the East, endorsing **H6**. Surprisingly, destination and origin effects are stronger in the West. **H5** is therefore rejected. Since hypotheses **H5**-**H7** depend on macro-level differences between Eastern and Western Europe, future research may attempt to test these hypotheses using multi-level models.

Other limitations of this paper may also be usefully addressed in future research. First, even though our results largely remain robust to several tests, the DRM rests on strong assumptions. Supplementing DRMs with other strategies to separate origin, destination and mobility effects may therefore be informative. Adopting the bounding approach of Fosse and Winship (2019b) could be one such avenue.

Second, irrespective of using DRMs, our estimated mobility and destination effects could be contaminated by unobserved heterogeneity. It would hence be useful to either extend the present analysis using fixed-effects panel regressions (although analysing time-invariant *inter*generational mobility is then not possible) or using cross-sectional data with detailed information on personality traits (Boyce, 2010), which may alleviate problems of selection into mobility. Yet, unless clear exogenous variation is available for *both* origin and destination, concerns regarding selection may persist.

Third, we showed only informally how origin effects are mediated by education and destination, and how both effects are potentially mediated by income and unemployment. Extending this by means of a formal mediation analysis could further elucidate all the mechanisms by which social class affects life satisfaction.

Nevertheless, we conclude that in Europe social class matters greatly to life satisfaction and in more complex ways than previously considered. Not only does current class position enter into such evaluations. For being satisfied with one's life, it also matters in which class one was raised, whether one experienced intergenerational mobility, and where those with whom one now shares a class originate from.

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Appendix / Supplementary material for

Positional, mobility and reference effects: How does social class affect life satisfaction in Europe?

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Contents

A. Descriptives

Table A1. List of countries and observed years

ESS wave (year)	1 (2002)	2 (2004)	3 (2006)	4 (2008)	5 (2010)
			Western Europe		
Austria	x	x	x	x	
Belgium	x	x	x	x	x
Cyprus			x		x
Denmark	x	x	x	x	x
Finland	x		x	x	x
France		x	x	x	x
Germany	x	x	x	x	x
Greece	x	x		x	x
Iceland		x			
Ireland		x	x	x	x
Italy	x	x			
Luxemburg	x	x			
Netherlands	x	x	x	x	x
Norway	x	x	x	x	x
Portugal	x	x	x	x	
Spain	x	x	x	x	x
Sweden	x	x	x	x	x
Switzerland	x	x	x	x	x
United Kingdom	x	x	x	x	x
			Eastern Europe		
Bulgaria			x		x
Croatia				x	x
Czech Republic	x	x		x	x
Estonia				x	x
Hungary		x		x	x
Latvia			x	x	
Lithuania				x	x
Poland	x	x	x	x	x
Romania				x	
Russia			x	x	x
Slovakia		x	x		x
Slovenia	x		x	x	x
Ukraine				x	x

Table A2. Number of observations and shares of ESeC class origin and destination combinations, Western Europe

		Destination									
		I	II	III	IV	V	VI	VII	SEI	SEII	Total
Origin	I	1711 (2.9%)	2010 (3.3%)	659 (1.2%)	432 (0.8%)	381 (0.7%)	147 (0.3%)	324 (0.6%)	435 (0.9%)	19 (0.0%)	6118 (10.6%)
	II	1830 (3.0%)	3288 (5.2%)	1091 (1.9%)	792 (1.6%)	817 (1.4%)	344 (0.6%)	756 (1.5%)	663 (1.3%)	55 (0.1%)	9636 (16.5%)
	III	588 (1.1%)	1064 (1.8%)	529 (1.0%)	299 (0.6%)	357 (0.6%)	168 (0.4%)	288 (0.6%)	262 (0.5%)	13 (0.0%)	3568 (6.6%)
	IV	507 (0.9%)	1188 (2.2%)	521 (1.0%)	679 (1.4%)	539 (1.0%)	312 (0.6%)	587 (1.2%)	352 (0.8%)	15 (0.0%)	4700 (9.2%)
	V	304 (0.5%)	751 (1.2%)	410 (0.7%)	365 (0.7%)	443 (0.8%)	247 (0.4%)	457 (1.0%)	205 (0.4%)	13 (0.0%)	3195 (5.7%)
	VI	575 (0.9%)	1382 (2.5%)	858 (1.6%)	934 (2.0%)	980 (1.9%)	1045 (2.0%)	1703 (3.7%)	516 (1.0%)	43 (0.1%)	8036 (15.8%)
	VII	517 (0.9%)	1283 (2.1%)	761 (1.4%)	853 (1.7%)	1080 (1.9%)	931 (1.7%)	2255 (4.6%)	586 (1.2%)	40 (0.1%)	8306 (15.6%)
	SEI	922 (1.4%)	1661 (2.5%)	794 (1.3%)	672 (1.0%)	742 (1.2%)	447 (0.8%)	916 (1.7%)	1071 (1.8%)	107 (0.2%)	7332 (11.9%)
	SEII	538 (0.6%)	1251 (1.2%)	523 (0.6%)	597 (0.7%)	684 (0.7%)	688 (0.8%)	1294 (1.7%)	646 (0.9%)	756 (0.9%)	6977 (8.1%)
	Total	7492 (12.0%)	13878 (22.1%)	6146 (10.8%)	5623 (10.6%)	6023 (10.2%)	4329 (7.6%)	8580 (16.7%)	4736 (8.8%)	1061 (1.4%)	57,868 (100%)

Note: Design and population weights are applied to shares.

Table A3. Number of observations and shares of ESeC class origin and destination combinations, Eastern Europe

		Destination									
		I	II	III	IV	V	VI	VII	SEI	SEII	Total
Origin	I	541 (3.2%)	712 (3.5%)	231 (1.0%)	168 (1.3%)	203 (1.3%)	150 (0.8%)	275 (1.7%)	163 (0.7%)	8 (0.0%)	2451 (13.4%)
	II	518 (2.7%)	986 (4.3%)	302 (1.1%)	268 (1.2%)	338 (1.5%)	392 (2.2%)	572 (2.6%)	195 (0.8%)	20 (0.1%)	3591 (16.5%)
	III	105 (0.3%)	212 (0.6%)	97 (0.2%)	59 (0.2%)	74 (0.2%)	89 (0.2%)	119 (0.4%)	60 (0.2%)	2 (0.0%)	817 (2.5%)
	IV	165 (0.8%)	337 (1.3%)	119 (0.5%)	203 (0.9%)	138 (0.6%)	222 (1.0%)	291 (1.1%)	83 (0.4%)	12 (0.0%)	1570 (6.6%)
	V	108 (0.6%)	259 (1.0%)	133 (0.7%)	105 (0.6%)	189 (0.9%)	226 (0.9%)	352 (1.6%)	77 (0.2%)	7 (0.0%)	1456 (6.7%)
	VI	316 (1.4%)	730 (3.0%)	345 (1.5%)	342 (1.1%)	550 (2.2%)	1001 (3.9%)	1503 (5.9%)	226 (0.7%)	29 (0.1%)	5042 (19.9%)
	VII	281 (1.3%)	687 (2.9%)	330 (1.4%)	342 (1.8%)	592 (3.0%)	1000 (4.9%)	1875 (8.0%)	193 (0.8%)	37 (0.1%)	5337 (24.3%)
	SEI	53 (0.2%)	94 (0.3%)	40 (0.1%)	54 (0.2%)	31 (0.1%)	86 (0.3%)	104 (0.4%)	39 (0.1%)	5 (0.0%)	506 (1.8%)
	SEII	82 (0.4%)	165 (0.9%)	94 (0.5%)	103 (0.6%)	123 (0.7%)	246 (1.3%)	422 (2.1%)	66 (0.4%)	237 (1.7%)	1538 (8.4%)
	Total	2169 (10.9%)	4182 (18.0%)	1691 (7.0%)	1644 (7.9%)	2238 (10.4%)	3412 (15.4%)	5513 (23.8%)	1102 (4.4%)	357 (2.1%)	22,308 (100%)

Note: Design and population weights are applied to shares.

Table A4. Variable descriptions

Continuous variables	Mean	SD	Min-Max
Life satisfaction	6.41	2.42	0
Own mobility	0.30	2.48	-6-6
Reference position	3.09	1.85	0-7
Reference mobility	0.22	1.31	-5.02 -5.13
Age	49.13	8.57	35-65
Age squared	2,487.69	853.75	1,225-4,225
Years of education	12.71	3.70	0-56
Years of education squared	175.32	104.25	0-3,136
Household size	2.99	1.35	1-15
Household size squared	10.75	10.20	1-255
Ln real HH income	10.62	1.42	6.15-18.56
Categorical variables	Category	N	Share **(%)**
Unemployed	No	74,905	93.63
	Yes	5,271	6.37
Gender	Female	38,445	49.28
	Male	41,731	50.72
Ethnic minority	No	75,737	93.01
	Yes	3,578	6.18
	Missing/No answers	861	0.81
Born in country	No	73511	91.82
	Yes	6585	8.14
	Missing/No answers	80	0.04
Religious	No	32,139	40.37
	Yes	46,795	58.75
	Missing/No answers	1242	0.89
Married/cohabitation	No	26,196	28.59
	Yes	52,211	70.73
	Missing/No answers	1,769	0.67
Place of domicile	Big city	14,807	19.81
	Suburbs	10,109	11.37
	Town	24,742	34.59
	Country/Village	24,599	30.25
ESS round	2002	5,776	3.86
	2004	12,824	13.97
	2006	15,286	16.26
	2008	15,061	21.06
	2010	18,661	24.45
NUTS I region	102 fixed effects		

Note: Overall N=80,176. Mean, SD and shares are computed using population and design weights. Ns are unweighted. ESeC origin and destination class are described in Tables A2-D3. To derive individual incomes we took, for each wave and country, mid-points from the show cards on income in the ESS questionnaire and converted these values into 2010 Euros. For the highest income category, where no upper bound is given, we use the method of Hout (2004, see equation 1).

B. Main results with coefficients on controls and further specifications

Table B1. Origin and destination estimates for Western Europe (OLS), all coefficients

	(1) Basic model	(2) Class destination added	(3) Controls for education	(4) Controls for educ. & further demographics	(5) Controls for educ., further demographics, UE & income
Origin=II	-0.044 (0.046)	0.021 (0.046)	0.032 (0.047)	0.023 (0.047)	0.041 (0.046)
Origin=III	-0.110* (0.064)	-0.025 (0.062)	-0.002 (0.063)	0.004 (0.061)	0.020 (0.061)
Origin=IV	-0.244*** (0.062)	-0.081 (0.061)	-0.049 (0.062)	-0.085 (0.060)	-0.050 (0.059)
Origin=V	-0.191*** (0.070)	0.005 (0.068)	0.040 (0.069)	0.022 (0.067)	0.062 (0.066)
Origin=VI	-0.312*** (0.058)	-0.046 (0.055)	0.005 (0.058)	-0.033 (0.055)	0.039 (0.055)
Origin=VII	-0.406*** (0.059)	-0.117** (0.056)	-0.057 (0.058)	-0.088 (0.058)	-0.021 (0.056)
Origin=SEI	-0.123** (0.057)	0.020 (0.056)	0.050 (0.057)	0.020 (0.056)	0.051 (0.055)
Origin=SEII	-0.107 (0.070)	0.129* (0.069)	0.183*** (0.069)	0.060 (0.068)	0.076 (0.067)
Destination=II		-0.149*** (0.043)	-0.125*** (0.044)	-0.114*** (0.042)	-0.025 (0.040)
Destination=III		-0.247*** (0.054)	-0.195*** (0.056)	-0.167*** (0.055)	-0.026 (0.055)
Destination=IV		-0.529*** (0.064)	-0.436*** (0.067)	-0.418*** (0.065)	-0.218*** (0.067)
Destination=V		-0.624*** (0.071)	-0.531*** (0.072)	-0.496*** (0.070)	-0.259*** (0.067)
Destination=VI		-0.773*** (0.072)	-0.644*** (0.077)	-0.600*** (0.075)	-0.297*** (0.073)
Destination=VII		-0.932*** (0.066)	-0.799*** (0.069)	-0.717*** (0.068)	-0.398*** (0.069)
Destination=SEI		-0.303*** (0.068)	-0.222*** (0.069)	-0.210*** (0.067)	-0.071 (0.063)
Destination=SEII		-0.520*** (0.117)	-0.399*** (0.117)	-0.458*** (0.113)	-0.224** (0.113)
Wave=2	-0.072 (0.048)	-0.074 (0.046)	-0.077* (0.046)	-0.068 (0.047)	0.081 (0.050)
Wave=3	0.023 (0.045)	0.007 (0.044)	-0.011 (0.045)	-0.004 (0.043)	0.283*** (0.048)
Wave=4	-0.087** (0.041)	-0.100** (0.040)	-0.121*** (0.041)	-0.099** (0.041)	0.384*** (0.053)
Wave=5	-0.003 (0.051)	-0.012 (0.049)	-0.034 (0.049)	0.006 (0.049)	0.582*** (0.056)
Gender=female	0.054* (0.029)	0.063* (0.032)	0.069** (0.032)	0.077** (0.032)	0.099*** (0.031)
Age	-0.114*** (0.021)	-0.121*** (0.021)	-0.122*** (0.021)	-0.144*** (0.020)	-0.159*** (0.020)
Age²	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
Ethnic minority=yes	-0.309*** (0.092)	-0.282*** (0.089)	-0.282*** (0.090)	-0.301*** (0.090)	-0.233*** (0.086)
Ethnic minority=n.a.	-0.689*** (0.259)	-0.596** (0.256)	-0.570** (0.253)	-0.557** (0.253)	-0.484* (0.250)
Non-migrant=yes	0.129** (0.064)	0.037 (0.062)	0.037 (0.062)	0.084 (0.061)	0.010 (0.061)
Non-migrant =n.a.	0.708 (0.669)	0.515 (0.683)	0.507 (0.704)	0.577 (0.744)	0.829 (0.755)
Years of education			0.068*** (0.016)	0.069*** (0.015)	0.049*** (0.015)
Years of education²			-0.001*** (0.000)	-0.001*** (0.000)	-0.001** (0.000)
Religious=yes				0.193*** (0.034)	0.190*** (0.033)
Religious=n.a.				-0.042 (0.224)	-0.009 (0.224)
Married/Cohab.=yes				0.614*** (0.042)	0.454*** (0.042)
Married/Cohab.=n.a.				0.118 (0.127)	0.063 (0.103)
Domicile=suburb.				0.046 (0.049)	0.035 (0.047)
Domicile=town				0.095** (0.044)	0.097** (0.043)
Domicile=village				0.219*** (0.045)	0.208*** (0.044)
Domicile=farm				0.267*** (0.075)	0.275*** (0.076)
Domicile=n.a.				-0.222 (0.401)	-0.081 (0.331)
HH size				0.237*** (0.050)	0.099** (0.048)
HH size²				-0.024*** (0.007)	-0.009 (0.007)
Unemployed=yes					-0.979*** (0.092)
Ln HH income					0.373*** (0.023)
Constant	10.173*** (0.513)	10.655*** (0.505)	9.924*** (0.517)	9.137*** (0.511)	5.648*** (0.570)
Log likelihood	-124485.221	-123899.862	-123842.369	-122815.933	-121736.466
AIC	249156.442	248001.724	247890.737	245859.866	243704.933
N	57,868	57,868	57,868	57,868	57,868

* p<0.10, ** p<0.05, *** p<0.01. 75 NUTS I fixed effects additionally included. Panel (1) of figure 2 is based on column (1) of this table. Panel (2) and (3) of figure 2 are based on column (3) of this table.

Table B2. Mobility estimates for Western Europe (DRM), all coefficients

	(1) Linear mobility	(2) Linear mobility, controls for education	(3) Linear mobility, controls for educ. & further demographics	(4) Linear mobility, controls for educ., further demographics, UE & income	(5) Non-linear mobility, controls for educ.	(6) Non-linear mobility, controls for educ., further demographics, UE & income
Class=II	-0.160** (0.071)	-0.109 (0.073)	-0.097 (0.068)	0.004 (0.063)	-0.110 (0.073)	0.007 (0.066)
Class=III	-0.266*** (0.082)	-0.167* (0.092)	-0.131 (0.085)	0.028 (0.089)	-0.134 (0.101)	0.061 (0.094)
Class=IV	-0.661*** (0.089)	-0.510*** (0.095)	-0.518*** (0.089)	-0.286*** (0.092)	-0.493*** (0.102)	-0.261** (0.105)
Class=V	-0.663*** (0.100)	-0.506*** (0.102)	-0.480*** (0.100)	-0.203** (0.095)	-0.484*** (0.110)	-0.177* (0.101)
Class=VI	-0.833*** (0.118)	-0.628*** (0.118)	-0.607*** (0.113)	-0.245** (0.108)	-0.611*** (0.113)	-0.228** (0.108)
Class=VII	-1.096*** (0.088)	-0.879*** (0.098)	-0.812*** (0.094)	-0.420*** (0.098)	-0.877*** (0.101)	-0.420*** (0.100)
Steps mobile	0.056 (0.064)	0.059 (0.047)	0.049 (0.038)	0.031 (0.019)		
Steps down=6					-0.396 (0.310)	-0.142 (0.215)
Steps down=5					-0.306 (0.240)	-0.162 (0.150)
Steps down=4					-0.482** (0.218)	-0.323** (0.146)
Steps down=3					-0.149 (0.134)	-0.076 (0.086)
Steps down=2					-0.169 (0.106)	-0.101 (0.080)
Steps down=1					-0.082 (0.065)	-0.048 (0.050)
Steps up=1					0.044 (0.062)	0.012 (0.049)
Steps up=2					0.112 (0.098)	0.055 (0.070)
Steps up=3					0.024 (0.146)	-0.044 (0.094)
Steps up=4					0.229 (0.168)	0.132 (0.097)
Steps up=5					0.233 (0.212)	0.103 (0.114)
Steps up=6					0.449 (0.287)	0.288* (0.157)
Wave=2	-0.083 (0.053)	-0.081 (0.053)	-0.069 (0.053)	0.079 (0.054)	-0.083 (0.053)	0.078 (0.054)
Wave=3	-0.019 (0.051)	-0.037 (0.052)	-0.033 (0.051)	0.246*** (0.054)	-0.039 (0.052)	0.244*** (0.054)
Wave=4	-0.082* (0.046)	-0.102** (0.046)	-0.086* (0.047)	0.379*** (0.058)	-0.103** (0.046)	0.378*** (0.058)
Wave=5	0.006 (0.054)	-0.013 (0.054)	0.033 (0.053)	0.582*** (0.061)	-0.012 (0.054)	0.582*** (0.061)
Gender=female	0.038 (0.039)	0.046 (0.038)	0.051 (0.038)	0.076** (0.036)	0.043 (0.038)	0.073** (0.036)
Age	-0.139*** (0.024)	-0.138*** (0.024)	-0.154*** (0.023)	-0.169*** (0.022)	-0.138*** (0.024)	-0.169*** (0.022)
Age^2	0.001*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.001*** (0.000)	0.002*** (0.000)
Ethnic minority=yes	-0.248** (0.100)	-0.250** (0.100)	-0.257** (0.101)	-0.195* (0.101)	-0.249** (0.100)	-0.194* (0.101)
Ethnic minority=n.a.	-0.673** (0.315)	-0.650** (0.313)	-0.660** (0.311)	-0.602* (0.311)	-0.649** (0.311)	-0.599* (0.310)
Non-migrant=yes	0.078 (0.073)	0.082 (0.073)	0.130* (0.072)	0.044 (0.074)	0.084 (0.072)	0.046 (0.073)
Non-migrant =n.a.	0.629 (0.470)	0.600 (0.485)	0.742 (0.530)	0.778 (0.510)	0.610 (0.489)	0.785 (0.514)
Years of education		0.059*** (0.019)	0.060*** (0.019)	0.039** (0.018)	0.060*** (0.019)	0.038** (0.018)
Years of education^2		-0.001* (0.001)	-0.001* (0.001)	-0.001 (0.001)	-0.001* (0.001)	-0.001 (0.001)
Religious=yes			0.171*** (0.038)	0.163*** (0.038)		0.162*** (0.038)
Religious=n.a.			-0.063 (0.290)	-0.043 (0.293)		-0.049 (0.296)
Married/Cohab.=yes			0.638*** (0.051)	0.476*** (0.051)		0.476*** (0.051)
Married/Cohab.=n.a.			-0.077 (0.180)	-0.114 (0.144)		-0.107 (0.144)
Domicile=suburb.			0.025 (0.056)	0.015 (0.054)		0.014 (0.053)
Domicile=town			0.094* (0.053)	0.095* (0.053)		0.095* (0.052)
Domicile=village			0.203*** (0.051)	0.184*** (0.051)		0.184*** (0.051)
Domicile=farm			0.303*** (0.088)	0.311*** (0.089)		0.310*** (0.088)
Domicile=n.a.			-0.297 (0.437)	-0.128 (0.365)		-0.131 (0.366)
HH size			0.289*** (0.061)	0.133** (0.059)		0.132** (0.058)
HH size^2			-0.036*** (0.008)	-0.018** (0.008)		-0.018** (0.008)
Unemployed=yes				-1.061*** (0.100)		-1.059*** (0.100)
Ln HH income				0.364*** (0.025)		0.364*** (0.025)
Constant	10.678*** (0.683)	9.893*** (0.638)	9.029*** (0.606)	5.805*** (0.659)	10.323*** (0.591)	6.042*** (0.666)
ρ	0.601* (0.355)	0.560* (0.321)	0.561** (0.276)	0.575** (0.243)	0.557** (0.271)	0.578** (0.227)
Log likelihood	-83710.896	-83670.845	-82975.781	-82212.744	-83657.160	-82201.708
AIC	167609.793	167533.689	166165.562	164643.488	167528.320	164643.416
N	40,342	40,342	40,342	40,342	40,342	40,342

* $p<0.10$, ** $p<0.05$, *** $p<0.01$. 75 NUTS I fixed effects additionally included.

Table B3. Reference estimates for Western Europe (DRM), all coefficients and additional specifications

	(1) Basic controls	(2) Controls for education	(3) Controls for education and further demographics	(4) Controls for educ., further demographics., UE & income	(5) Basic controls; positive. vs. negative ref. Mobility	(6) Controls for education; positive vs. negative. ref. Mobility	(7) Controls for educ. and further demographics., pos. vs. neg. ref. mobility	(8) Controls for educ., further demographics., UE & income; pos. vs. neg. ref. mobility
Class=II	-0.151** (0.076)	-0.101 (0.077)	-0.095 (0.072)	-0.021 (0.065)	-0.138* (0.071)	-0.096 (0.074)	-0.085 (0.069)	-0.006 (0.063)
Class=III	-0.269*** (0.099)	-0.168 (0.105)	-0.143 (0.097)	-0.025 (0.096)	-0.235** (0.102)	-0.149 (0.107)	-0.118 (0.101)	0.017 (0.094)
Class=IV	-0.653*** (0.121)	-0.500*** (0.123)	-0.525*** (0.116)	-0.361*** (0.117)	-0.611*** (0.118)	-0.479*** (0.121)	-0.494*** (0.117)	-0.297** (0.126)
Class=V	-0.674*** (0.146)	-0.510*** (0.145)	-0.513*** (0.143)	-0.337** (0.139)	-0.629*** (0.143)	-0.488*** (0.144)	-0.481*** (0.141)	-0.286** (0.140)
Class=VI	-0.830*** (0.183)	-0.620*** (0.186)	-0.634*** (0.179)	-0.404** (0.178)	-0.805*** (0.180)	-0.610*** (0.185)	-0.617*** (0.178)	-0.386** (0.184)
Class=VII	-1.123*** (0.196)	-0.891*** (0.196)	-0.871*** (0.190)	-0.633*** (0.185)	-1.125*** (0.194)	-0.894*** (0.196)	-0.875*** (0.189)	-0.651*** (0.184)
Steps mobile	0.082 (0.069)	0.077 (0.051)	0.071 (0.044)	0.049* (0.030)	0.076 (0.055)	0.072 (0.046)	0.068* (0.040)	0.039 (0.030)
Ref. position	0.053 (0.040)	0.045 (0.040)	-0.049 (0.039)	0.014 (0.038)	0.051 (0.040)	0.043 (0.040)	-0.047 (0.039)	0.011 (0.038)
Ref. mobility	-0.036 (0.040)	-0.027 (0.039)	-0.042 (0.039)	-0.064* (0.037)				
Ref. mob. up					-0.004 (0.043)	-0.009 (0.043)	-0.017 (0.043)	-0.022 (0.043)
Ref. mob. down					0.071 (0.056)	0.047 (0.057)	0.069 (0.054)	0.116** (0.058)
Wave=2	-0.081 (0.053)	-0.080 (0.053)	-0.068 (0.053)	0.078 (0.054)	-0.081 (0.053)	-0.079 (0.053)	-0.068 (0.053)	0.080 (0.054)
Wave=3	-0.025 (0.051)	-0.042 (0.052)	-0.039 (0.050)	0.241*** (0.054)	-0.026 (0.051)	-0.042 (0.052)	-0.039 (0.050)	0.242*** (0.054)
Wave=4	-0.091** (0.045)	-0.109** (0.046)	-0.095** (0.046)	0.372*** (0.058)	-0.088* (0.045)	-0.107** (0.046)	-0.091* (0.047)	0.378*** (0.059)
Wave=5	-0.006 (0.054)	-0.021 (0.055)	0.021 (0.054)	0.567*** (0.061)	-0.006 (0.054)	-0.021 (0.055)	0.021 (0.054)	0.567*** (0.061)
Gender=female	0.040 (0.039)	0.047 (0.038)	0.052 (0.038)	0.076** (0.036)	0.041 (0.038)	0.047 (0.038)	0.053 (0.038)	0.076** (0.036)
Age	-0.138*** (0.024)	-0.138*** (0.024)	-0.153*** (0.023)	-0.166*** (0.022)	-0.138*** (0.024)	-0.138*** (0.024)	-0.153*** (0.023)	-0.166*** (0.022)
Age²	0.001*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
Ethnic minority=yes	-0.246** (0.100)	-0.249** (0.100)	-0.255** (0.101)	-0.193* (0.101)	-0.245** (0.100)	-0.249** (0.100)	-0.255** (0.101)	-0.193* (0.101)
Ethnic minority=n.a.	-0.668** (0.315)	-0.647** (0.313)	-0.656** (0.311)	-0.599* (0.312)	-0.669** (0.315)	-0.647** (0.313)	-0.657** (0.311)	-0.599* (0.311)
Non-migrant=yes	0.078 (0.073)	0.082 (0.073)	0.129* (0.072)	0.044 (0.073)	0.077 (0.073)	0.081 (0.073)	0.129* (0.072)	0.043 (0.073)
Non-migrant =n.a.	0.599 (0.465)	0.576 (0.481)	0.713 (0.524)	0.756 (0.504)	0.615 (0.467)	0.585 (0.481)	0.726 (0.525)	0.776 (0.506)
Years of education		0.059*** (0.019)	0.059*** (0.019)	0.037** (0.018)		0.058*** (0.019)	0.058*** (0.019)	0.035* (0.018)
Years of education²		-0.001* (0.001)	-0.001* (0.001)	-0.001 (0.001)		-0.001* (0.001)	-0.001* (0.001)	-0.001 (0.001)
Religious=yes			0.172*** (0.038)	0.164*** (0.038)			0.173*** (0.038)	0.165*** (0.038)
Religious=n.a.			-0.061 (0.289)	-0.042 (0.292)			-0.059 (0.289)	-0.038 (0.292)
Married/Cohab.=yes			0.639*** (0.051)	0.477*** (0.051)			0.639*** (0.051)	0.477*** (0.051)
Married/Cohab.=n.a.			-0.075 (0.180)	-0.115 (0.144)			-0.076 (0.181)	-0.117 (0.144)
Domicile=suburb.			0.025 (0.056)	0.016 (0.054)			0.025 (0.056)	0.015 (0.054)
Domicile=town			0.094* (0.053)	0.095* (0.053)			0.093* (0.053)	0.094* (0.053)
Domicile=village			0.203*** (0.051)	0.185*** (0.051)			0.204*** (0.051)	0.185*** (0.051)
Domicile=farm			0.304*** (0.088)	0.314*** (0.089)			0.304*** (0.088)	0.314*** (0.089)
Domicile=n.a.			-0.291 (0.434)	-0.123 (0.363)			-0.292 (0.432)	-0.123 (0.361)
HH size			0.289*** (0.061)	0.131** (0.059)			0.289*** (0.061)	0.131** (0.059)
HH size²			-0.036*** (0.008)	-0.018** (0.008)			-0.036*** (0.008)	-0.018** (0.008)
Unemployed=yes				-1.061*** (0.100)				-1.064*** (0.100)
Ln HH income				0.365*** (0.026)				0.365*** (0.026)
Constant	10.660*** (0.689)	9.913*** (0.643)	9.035*** (0.616)	5.734*** (0.670)	10.639*** (0.648)	9.920*** (0.631)	9.027*** (0.611)	5.744*** (0.676)
ρ	0.570 (0.347)	0.546* (0.318)	0.550** (0.275	0.592** (0.233)	0.596** (0.284)	0.575** (0.293)	0.573** (0.252)	0.685*** (0.247)
Log likelihood	-83707.526	-83668.609	-82972.229	-82208.695	-83705.955	-83668.122	-82971.243	-82205.913
AIC	167607.053	167533.217	166162.458	164639.389	167605.910	167534.243	166162.486	164635.826
N	40,342	40,342	40,342	40,342	40,342	40,342	40,342	40,342

* p<0.10, ** p<0.05, *** p<0.01. 75 NUTS I fixed effects additionally included.

Table B4. Destination and Origin estimates for Eastern Europe (OLS), all coefficients

	(1) Basic model	(2) Class destination added	(3) Controls for education	(4) Controls for educ. & further demographics	(5) Controls for educ., further demographics, UE & income
Origin=II	-0.115 (0.101)	-0.028 (0.098)	-0.011 (0.103)	-0.015 (0.089)	-0.027 (0.095)
Origin=III	-0.178 (0.141)	-0.085 (0.141)	-0.054 (0.135)	-0.046 (0.136)	-0.059 (0.127)
Origin=IV	-0.275** (0.111)	-0.129 (0.108)	-0.088 (0.116)	-0.108 (0.099)	-0.062 (0.096)
Origin=V	-0.269* (0.158)	-0.048 (0.150)	-0.003 (0.155)	-0.039 (0.152)	-0.046 (0.149)
Origin=VI	-0.414*** (0.110)	-0.149 (0.101)	-0.077 (0.114)	-0.106 (0.109)	-0.082 (0.099)
Origin=VII	-0.338*** (0.062)	-0.031 (0.055)	0.052 (0.058)	0.035 (0.053)	0.115** (0.049)
Origin=SEI	-0.370 (0.256)	-0.179 (0.257)	-0.125 (0.256)	-0.165 (0.242)	-0.117 (0.231)
Origin=SEII	-0.058 (0.118)	0.215* (0.117)	0.329*** (0.123)	0.288** (0.112)	0.298*** (0.102)
Destination=II		-0.118* (0.060)	-0.045 (0.064)	-0.074 (0.078)	-0.040 (0.078)
Destination=III		-0.519*** (0.099)	-0.364*** (0.097)	-0.407*** (0.108)	-0.340*** (0.104)
Destination=IV		-0.590*** (0.130)	-0.382*** (0.126)	-0.425*** (0.141)	-0.325** (0.135)
Destination=V		-0.751*** (0.182)	-0.512** (0.204)	-0.501** (0.215)	-0.385* (0.212)
Destination=VI		-0.933*** (0.075)	-0.648*** (0.103)	-0.620*** (0.120)	-0.457*** (0.126)
Destination=VII		-0.915*** (0.091)	-0.607*** (0.091)	-0.603*** (0.106)	-0.437*** (0.097)
Destination=SEI		-0.132 (0.137)	0.047 (0.144)	0.023 (0.144)	0.027 (0.130)
Destination=SEII		-0.392** (0.161)	-0.072 (0.175)	-0.100 (0.184)	-0.042 (0.180)
Wave=2	0.423** (0.169)	0.446*** (0.167)	0.442*** (0.164)	0.455*** (0.161)	0.516*** (0.172)
Wave=3	0.878*** (0.157)	0.877*** (0.155)	0.840*** (0.153)	0.865*** (0.148)	0.657*** (0.190)
Wave=4	0.916*** (0.164)	0.902*** (0.161)	0.856*** (0.157)	0.864*** (0.154)	1.246*** (0.189)
Wave=5	1.189*** (0.166)	1.193*** (0.164)	1.136*** (0.161)	1.157*** (0.157)	2.075*** (0.221)
Gender=female	0.110 (0.091)	0.020 (0.076)	0.037 (0.080)	0.125* (0.072)	0.178*** (0.064)
Age	-0.028 (0.027)	-0.027 (0.027)	-0.040 (0.026)	-0.055** (0.028)	-0.054** (0.027)
Age²	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Ethnic minority=yes	0.048 (0.141)	0.034 (0.142)	0.056 (0.142)	0.025 (0.133)	0.066 (0.123)
Ethnic minority=n.a.	0.094 (0.289)	0.063 (0.284)	0.063 (0.277)	0.099 (0.269)	0.097 (0.276)
Non-migrant=yes	0.174 (0.165)	0.168 (0.166)	0.200 (0.179)	0.211 (0.187)	0.214 (0.187)
Non-migrant =n.a.	-0.673 (0.562)	-0.645 (0.605)	-0.632 (0.624)	-0.482 (0.603)	-0.336 (0.587)
Years of education			0.058 (0.062)	0.042 (0.060)	0.019 (0.057)
Years of education²			0.001 (0.002)	0.001 (0.002)	0.001 (0.002)
Religious=yes				0.120* (0.069)	0.141* (0.072)
Religious=n.a.				-0.460 (0.332)	-0.436 (0.305)
Married/Cohab.=yes				0.672*** (0.068)	0.550*** (0.069)
Married/Cohab.=n.a.				0.659*** (0.151)	0.525*** (0.136)
Domicile=suburb.				0.090 (0.132)	0.180 (0.144)
Domicile=town				-0.018 (0.078)	0.127* (0.071)
Domicile=village				0.062 (0.101)	0.308*** (0.083)
Domicile=farm				-0.797* (0.477)	-0.453 (0.452)
Domicile=n.a.				0.266 (0.298)	0.161 (0.280)
HH size				0.011 (0.057)	-0.076 (0.061)
HH size²				-0.000 (0.005)	0.004 (0.007)
Unemployed=yes					-0.839*** (0.139)
Ln HH income					0.367*** (0.033)
Constant	4.398*** (0.627)	4.862*** (0.653)	4.083*** (0.718)	3.799*** (0.767)	0.639 (0.705)
Log likelihood	-51280.739	-51050.728	-50996.867	-50792.039	-50405.175
AIC	102645.478	102201.457	102097.734	101710.078	100940.350
N	22,308	22,308	22,308	22,308	22,308

* p<0.10, ** p<0.05, *** p<0.01. 27 NUTS I fixed effects additionally included.

Table B5. Mobility estimates for Eastern Europe (DRM), all coefficients

	(1) Linear mobility	(2) Linear mobility, controls for education	(3) Linear mobility, controls for educ. & further demographics	(4) Linear mobility, controls for educ., further demographics, UE & income	(5) Non-linear mobility, controls for educ.	(6) Non-linear mobility, controls for educ., further demographics, UE & income
Class=II	-0.127 (0.113)	-0.030 (0.132)	-0.065 (0.133)	-0.046 (0.150)	-0.108 (0.141)	-0.118 (0.148)
Class=III	-0.661*** (0.181)	-0.462** (0.183)	-0.538*** (0.181)	-0.459*** (0.164)	-0.677*** (0.217)	-0.639*** (0.202)
Class=IV	-0.611*** (0.144)	-0.357** (0.170)	-0.426** (0.178)	-0.300* (0.168)	-0.585*** (0.177)	-0.512*** (0.181)
Class=V	-0.797*** (0.284)	-0.501 (0.326)	-0.520 (0.337)	-0.416 (0.325)	-0.674** (0.312)	-0.593* (0.311)
Class=VI	-1.113*** (0.155)	-0.753*** (0.207)	-0.755*** (0.219)	-0.588*** (0.208)	-0.824*** (0.211)	-0.658*** (0.212)
Class=VII	-0.932*** (0.123)	-0.538*** (0.117)	-0.551*** (0.128)	-0.314*** (0.092)	-0.573*** (0.107)	-0.346*** (0.089)
Steps mobile	0.060*** (0.018)	0.053*** (0.015)	0.053*** (0.015)	0.054*** (0.012)		
Steps down=6					-0.464*** (0.112)	-0.461*** (0.113)
Steps down=5					-0.527*** (0.133)	-0.448*** (0.130)
Steps down=4					-0.209 (0.220)	-0.129 (0.202)
Steps down=3					-0.107 (0.172)	-0.096 (0.174)
Steps down=2					-0.097 (0.104)	-0.103 (0.098)
Steps down=1					-0.066 (0.098)	-0.089 (0.107)
Steps up=1					-0.089 (0.086)	-0.081 (0.084)
Steps up=2					0.275** (0.135)	0.288** (0.138)
Steps up=3					0.311* (0.163)	0.286 (0.177)
Steps up=4					0.414*** (0.108)	0.311*** (0.108)
Steps up=5					0.124 (0.161)	0.130 (0.154)
Steps up=6					-0.089 (0.199)	-0.197 (0.252)
Wave=2	0.348* (0.209)	0.343* (0.204)	0.377* (0.201)	0.417* (0.217)	0.344* (0.202)	0.418* (0.215)
Wave=3	0.749*** (0.200)	0.708*** (0.195)	0.752*** (0.191)	0.495** (0.231)	0.706*** (0.195)	0.492** (0.231)
Wave=4	0.730*** (0.204)	0.682*** (0.198)	0.711*** (0.195)	1.072*** (0.231)	0.677*** (0.197)	1.069*** (0.229)
Wave=5	1.066*** (0.207)	1.007*** (0.202)	1.039*** (0.198)	1.941*** (0.259)	1.007*** (0.200)	1.943*** (0.255)
Gender=female	-0.007 (0.079)	0.012 (0.083)	0.098 (0.074)	0.148** (0.072)	-0.001 (0.084)	0.135** (0.069)
Age	-0.038 (0.028)	-0.050* (0.028)	-0.064** (0.030)	-0.062** (0.031)	-0.051* (0.028)	-0.063** (0.031)
Age²	0.000 (0.000)	0.000 (0.000)	0.001* (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Ethnic minority=yes	-0.040 (0.146)	-0.016 (0.147)	-0.050 (0.138)	-0.006 (0.127)	-0.014 (0.141)	-0.003 (0.122)
Ethnic minority=n.a.	0.018 (0.322)	0.021 (0.311)	0.032 (0.309)	0.046 (0.317)	0.033 (0.303)	0.057 (0.307)
Non-migrant=yes	0.180 (0.209)	0.209 (0.221)	0.224 (0.228)	0.225 (0.226)	0.210 (0.222)	0.228 (0.226)
Non-migrant =n.a.	-0.750 (0.652)	-0.750 (0.672)	-0.587 (0.657)	-0.416 (0.650)	-0.781 (0.681)	-0.438 (0.660)
Years of education		0.057 (0.060)	0.042 (0.059)	0.013 (0.056)	0.058 (0.060)	0.014 (0.056)
Years of education²		0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)
Religious=yes			0.138* (0.072)	0.155** (0.076)		0.152** (0.075)
Religious=n.a.			-0.276 (0.270)	-0.280 (0.256)		-0.284 (0.257)
Married/Cohab.=yes			0.616*** (0.074)	0.492*** (0.074)		0.486*** (0.077)
Married/Cohab.=n.a.			0.574*** (0.085)	0.476*** (0.081)		0.482*** (0.079)
Domicile=suburb.			0.090 (0.159)	0.186 (0.172)		0.180 (0.172)
Domicile=town			-0.048 (0.083)	0.100 (0.074)		0.101 (0.072)
Domicile=village			0.068 (0.101)	0.312*** (0.091)		0.308*** (0.091)
Domicile=farm			-0.769 (0.521)	-0.435 (0.509)		-0.432 (0.515)
Domicile=n.a.			0.354 (0.293)	0.245 (0.281)		0.279 (0.280)
HH size			0.003 (0.061)	-0.082 (0.065)		-0.080 (0.068)
HH size²			0.000 (0.006)	0.004 (0.007)		0.003 (0.007)
Unemployed=yes				-0.801*** (0.150)		-0.807*** (0.148)
Ln HH income				0.360*** (0.031)		0.361*** (0.030)
Constant	4.804*** (0.680)	4.090*** (0.744)	3.820*** (0.835)	0.755 (0.714)	4.568*** (0.737)	1.227* (0.725)
ρ	0.627*** (0.101)	0.599*** (0.121)	0.555*** (0.113)	0.475*** (0.116)	0.515*** (0.064)	0.483*** (0.068)
Log likelihood	-52056.414	-51999.934	-51818.216	-51447.841	-51975.353	-51423.802
AIC	104198.828	104089.869	103748.433	103013.683	104062.706	102985.604
N	19,152	19,152	19,152	19,152	19,152	19,152

* $p<0.10$, ** $p<0.05$, *** $p<0.01$. 27 NUTS I fixed effects additionally included.

Table B6. Reference estimates for Eastern Europe (DRM), all coefficients

	(1) Basic controls	(2) Controls for education	(3) Controls for education and further demographics	(4) Controls for educ., further demographics., UE & income	(5) Basic controls; positive. vs. negative ref. Mobility	(6) Controls for education; positive vs. negative. ref. Mobility	(7) Controls for educ. and further demographics., pos. vs. neg. ref. mobility	(8) Controls for educ., further demographics., UE & income; pos. vs. neg. ref. mobility
Class=II	-0.199 (0.134)	-0.114 (0.161)	-0.147 (0.151)	-0.153 (0.178)	-0.215* (0.124)	-0.127 (0.140)	-0.155 (0.140)	-0.143 (0.167)
Class=III	-0.748*** (0.180)	-0.561*** (0.182)	-0.628*** (0.167)	-0.563*** (0.155)	-0.767*** (0.172)	-0.582*** (0.165)	-0.649*** (0.169)	-0.584*** (0.164)
Class=IV	-0.917*** (0.175)	-0.684*** (0.194)	-0.747*** (0.180)	-0.622*** (0.184)	-0.980*** (0.220)	-0.753*** (0.208)	-0.801*** (0.200)	-0.658*** (0.190)
Class=V	-1.175*** (0.303)	-0.902*** (0.350)	-0.926*** (0.348)	-0.843** (0.342)	-1.254*** (0.305)	-0.993*** (0.330)	-0.990*** (0.342)	-0.872*** (0.334)
Class=VI	-1.576*** (0.203)	-1.239*** (0.244)	-1.241*** (0.252)	-1.098*** (0.269)	-1.604*** (0.201)	-1.271*** (0.230)	-1.262*** (0.240)	-1.103*** (0.259)
Class=VII	-1.545*** (0.260)	-1.177*** (0.254)	-1.189*** (0.232)	-0.973*** (0.244)	-1.500*** (0.231)	-1.120*** (0.218)	-1.139*** (0.206)	-0.921*** (0.210)
Steps mobile	0.157*** (0.040)	0.146*** (0.044)	0.156*** (0.040)	0.141*** (0.043)	0.131*** (0.042)	0.121*** (0.035)	0.130*** (0.039)	0.120*** (0.036)
Ref. position	0.110* (0.062)	0.096 (0.062)	-0.098* (0.059)	0.032 (0.060)	0.112* (0.059)	0.099* (0.060)	-0.100* (0.057)	0.034 (0.057)
Ref. mobility	-0.203*** (0.051)	-0.201*** (0.050)	-0.202*** (0.045)	-0.176*** (0.047)				
Ref. mob. up					-0.253*** (0.090)	-0.264*** (0.087)	-0.252*** (0.079)	-0.214*** (0.075)
Ref. mob. down					0.122 (0.104)	0.104 (0.100)	0.120 (0.101)	0.110 (0.098)
Wave=2	0.322 (0.208)	0.317 (0.203)	0.351* (0.200)	0.392* (0.219)	0.331 (0.207)	0.328 (0.202)	0.360* (0.199)	0.399* (0.218)
Wave=3	0.741*** (0.198)	0.701*** (0.194)	0.745*** (0.189)	0.493** (0.232)	0.748*** (0.196)	0.709*** (0.192)	0.751*** (0.187)	0.498** (0.231)
Wave=4	0.699*** (0.202)	0.652*** (0.197)	0.681*** (0.193)	1.044*** (0.232)	0.702*** (0.201)	0.655*** (0.196)	0.683*** (0.192)	1.044*** (0.231)
Wave=5	1.041*** (0.204)	0.982*** (0.200)	1.014*** (0.196)	1.909*** (0.259)	1.052*** (0.204)	0.995*** (0.199)	1.024*** (0.195)	1.915*** (0.259)
Gender=female	-0.003 (0.079)	0.016 (0.083)	0.102 (0.075)	0.152** (0.075)	-0.008 (0.077)	0.010 (0.080)	0.096 (0.072)	0.147** (0.069)
Age	-0.021 (0.029)	-0.034 (0.029)	-0.048 (0.032)	-0.050 (0.032)	-0.023 (0.029)	-0.036 (0.029)	-0.050 (0.032)	-0.052 (0.032)
Age^2	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Ethnic minority=yes	-0.044 (0.146)	-0.020 (0.147)	-0.056 (0.139)	-0.010 (0.128)	-0.044 (0.147)	-0.020 (0.148)	-0.055 (0.139)	-0.010 (0.128)
Ethnic minority=n.a.	0.004 (0.319)	0.006 (0.308)	0.016 (0.306)	0.032 (0.313)	0.004 (0.320)	0.006 (0.309)	0.016 (0.306)	0.031 (0.313)
Non-migrant=yes	0.177 (0.209)	0.205 (0.221)	0.220 (0.227)	0.222 (0.224)	0.176 (0.209)	0.204 (0.220)	0.220 (0.226)	0.222 (0.224)
Non-migrant =n.a.	-0.763 (0.664)	-0.760 (0.684)	-0.597 (0.669)	-0.419 (0.660)	-0.773 (0.663)	-0.774 (0.683)	-0.610 (0.667)	-0.432 (0.657)
Years of education		0.057 (0.061)	0.042 (0.059)	0.014 (0.056)		0.058 (0.061)	0.043 (0.059)	0.014 (0.056)
Years of $education^2$		0.001 (0.002)	0.001 (0.002)	0.001 (0.002)		0.001 (0.002)	0.001 (0.002)	0.001 (0.002)
Religious=yes			0.145** (0.069)	0.160** (0.074)			0.143** (0.069)	0.159** (0.074)
Religious=n.a.			-0.281 (0.271)	-0.283 (0.259)			-0.280 (0.269)	-0.282 (0.256)
Married/Cohab.=yes			0.612*** (0.073)	0.490*** (0.073)			0.611*** (0.073)	0.489*** (0.074)
Married/Cohab.=n.a.			0.572*** (0.088)	0.477*** (0.084)			0.569*** (0.085)	0.474*** (0.085)
Domicile=suburb.			0.092 (0.162)	0.186 (0.174)			0.088 (0.164)	0.182 (0.177)
Domicile=town			-0.051 (0.084)	0.096 (0.073)			-0.051 (0.083)	0.095 (0.073)
Domicile=village			0.069 (0.100)	0.313*** (0.088)			0.070 (0.099)	0.313*** (0.087)
Domicile=farm			-0.754 (0.520)	-0.425 (0.508)			-0.756 (0.518)	-0.429 (0.508)
Domicile=n.a.			0.314 (0.285)	0.211 (0.277)			0.321 (0.285)	0.218 (0.275)
HH size			0.006 (0.060)	-0.079 (0.064)			0.005 (0.060)	-0.079 (0.063)
HH $size^2$			0.000 (0.006)	0.003 (0.007)			0.000 (0.006)	0.003 (0.007)
Unemployed=yes				-0.802*** (0.151)				-0.802*** (0.151)
Ln HH income				0.357*** (0.032)				0.356*** (0.031)
Constant	4.508*** (0.755)	3.794*** (0.842)	3.437*** (0.950)	0.343 (0.907)	4.833*** (0.861)	4.129*** (0.852)	3.757*** (0.994)	0.606 (0.785)
p	0.538*** (0.108)	0.500*** (0.149)	0.435*** (0.131)	0.358** (0.171)	0.626*** (0.126)	0.609*** (0.122)	0.549*** (0.143)	0.468*** (0.129)
Log likelihood	-52036.254	-51980.875	-51798.764	-51435.163	-52034.249	-51977.636	-51796.480	-51433.651
AIC	104162.509	104055.751	103715.528	102990.326	104160.498	104051.271	103710.960	102991.303
N	19,152	19,152	19,152	19,152	19,152	19,152	19,152	19,152

* p<0.10, ** p<0.05, *** p<0.01. 27 NUTS I fixed effects additionally included.

C. Robustness tests

C1. Comparing DRMs with OLS regressions

In contrast to OLS regressions, the diagonal reference model (DRM) imposes a severe constraint on the shape of the origin and destination effects. In particular, it constrains the destination effects to be positive linear transformations of the origin effects. Doing so entails that the ratio of the effect of coming from e.g. origin II rather than III *versus* the effect of coming from e.g. origin IV rather than V is forced to be the same as the ratio of the effect of attaining destination II rather than III *versus* the effect of attaining destination IV rather than V. We may therefore be worried that these constraints cause estimates of the overall magnitude and direction of the origin, destination, and mobility effects to be misleading.

To assess this worry, we borrow from two papers by Fosse and Winship (2019b; 2019a) and an extended abstract by Fosse and Pfeffer (2019), and show that an OLS regression which omits linear terms for mobility is nevertheless informative about such linear effects. We then compare estimates from this OLS regression with our DRM estimates. Finally, we check the sensitivity of our main DRM results against relaxing constraints on the non-linear class effects in a stepwise manner.

Equation (1) can be rewritten as:

$$\begin{aligned} LS_{idom} &= \dot{\delta}d + \dot{\omega}o + \dot{\gamma}(d-o) + \tilde{\delta}_d dest_{id} + \tilde{\omega}_o orig_{io} + \tilde{\gamma}_m mob_{im} + \beta' X_i + \varepsilon_i \\ &= (\dot{\delta} + \dot{\gamma})d + (\dot{\omega} - \dot{\gamma})o + \tilde{\delta}_d dest_{id} + \tilde{\omega}_o orig_{io} + \tilde{\gamma}_m mob_{im} + \beta' X_i + \varepsilon_i \qquad (A1) \\ &= \theta_1 d + \theta_2 o + \tilde{\delta}_d dest_{id} + \tilde{\omega}_o orig_{io} + \tilde{\gamma}_m mob_{im} + \beta' X_i + \varepsilon_i \end{aligned}$$

Where we define $\dot{\delta} + \dot{\gamma} = \theta_1$ and $\dot{\omega} - \dot{\gamma} = \theta_2$. We further set the constraint $\tilde{\delta}_1 = \tilde{\delta}_7 = \tilde{\omega}_1 = \tilde{\omega}_7 = \tilde{\gamma}_{-6} = \tilde{\gamma}_6 = 0$.[1] In this rewritten form, we interpret $\dot{\delta}$, $\dot{\omega}$ and $\dot{\gamma}$ as linear components of the destination, origin and mobility effects, from which there may be non-linear deviations as given by $\tilde{\delta}_d$, $\tilde{\omega}_o$ and $\tilde{\gamma}_m$. From the first and second line of equation (A1), it again becomes evident that an unconstrained OLS regression, which includes all origin, destination and mobility terms, is not identified. The second and third lines additionally show that a regression in which such linear destination and origin terms are entered but no term for mobility is included, yields estimates for the linear destination and origin terms that include mobility effects (as given by θ_1 and θ_2). Indeed, in Tables 2 and 5 we already make use of this point informally when interpreting the coefficients on destination and origin.

Similarly, the DRM presented in equation (2) can be rewritten as:

$$LS_{idom} = p\dot{\lambda}d + (1-p)\dot{\lambda}o + \dot{\gamma}(d-o) + p\tilde{\lambda}_d dest_{id} + (1-p)\tilde{\lambda}_o orig_{io} + \tilde{\gamma}_m mob_{im} + \beta' \boldsymbol{X_i} + \varepsilon_i \qquad (A2)$$

With the constraint $\tilde{\lambda}_1 = \tilde{\lambda}_7 = \tilde{\gamma}_{-6} = \tilde{\gamma}_6 = 0$. Analogous to the case of equation (A1), we respectively interpret $p\dot{\lambda}$, $(1-p)\dot{\lambda}$, and $\dot{\gamma}$ as linear components of the destination, origin and

[1] It would have been possible to choose any other combination of levels for destination and origin to be set to zero, which would all yield different estimates of the "linear" components. Alternatively, one could also set the effect of one level to zero and let the effects of all other levels sum to zero. Fosse & Winship (2019b) use a more sophisticated "orthogonal" decomposition to separate linear and non-linear components (p. 1979). Our present choice appeared attractive for its ease of interpretation.

mobility effects, from which there may be non-linear deviations as given by $p\tilde{\lambda}_d$, $(1-p)\tilde{\lambda}_o$, and $\tilde{\gamma}_m$.

It is thus possible to evaluate whether the constraints we place on the non-linear parts of the destination and origin effects in equation (A2) result in estimates of the linear trend components that are inconsistent with the linear estimates of the unconstrained model in (A1).[2] To do so, we simply compare estimates of θ_1 with estimates of $p\dot{\lambda} + \dot{\gamma}$ and estimates of θ_2 with estimates of $(1-p)\dot{\lambda} - \dot{\gamma}$.

We perform this exercise for all presented results based on the DRM. As can be discerned from appendix Tables C5-C6, it turns out that our DRM estimates only deviate marginally from the implied linear estimates of the unconstrained OLS regression. The largest deviation is found for the result of Table B2 column (2), where the constrained DRM estimate for origin minus mobility is 0.004 points smaller than the implied unconstrained OLS estimate.

Hence, although the DRM imposes a severe constraint on the non-linear parts of the origin and destination effects (i.e. that these are equal in shape), this constraint does not make estimates of the overall trends of the effects of destination, origin and class mobility inconsistent with those implied by an OLS regression.

Given the specification of equation (A2), we can also evaluate the degree to which our results depend on constraining the non-linear components of the origin and destination effect to be positive linear transformations. We do so by relaxing the constraints on each non-linearity in a stepwise manner. More precisely, we first allow $\tilde{\lambda}_{o=2} \neq \tilde{\lambda}_{d=2}$, we then allow $\tilde{\lambda}_{o=3} \neq \tilde{\lambda}_{d=3}$, etc. Tables C7-C10 provide such results corresponding to our preferred specifications of the main text (i.e. columns (2) and (4) of Tables 2 and 4).

We find that our linear class position term $\dot{\lambda}$ is largely unaffected from relaxing these constraints. Moreover, in most cases our estimated mobility effects are also not strongly affected. The only noteworthy exception to this stems from relaxing the constraint on Class III (i.e. allowing $\tilde{\lambda}_{o=5} \neq \tilde{\lambda}_{d=5}$; note the reverse coding of social class) for Western Europe. Doing so, yields a statistically significant coefficient for own class mobility, again underlining our only marginal rejection of **H3b** for Western Europe. However, since most of our robustness estimates are in line with our main results, we maintain our conclusion to reject **H3a** and **H3b** for Western Europe, while seeing **H3b** for Eastern Europe, as well as **H5** as corroborated.

[2] Note that $\dot{\lambda}$ and $\dot{\gamma}$ from eq.(A2) can be obtained directly from eq.(2) by respectively calculating $\dot{\lambda} = \frac{\lambda_7}{C-1}$ and $\dot{\gamma} = \frac{\gamma_{C-1} - \gamma_{-C+1}}{2C-2}$ for C social classes.

C2. Robustness tables

Table C1. Unconstrained mobility estimates for Western Europe (OLS model on basis of eq.(A1))

	(1) Linear mobility	(2) Linear mobility, controls for education	(3) Linear mobility, controls for educ. & further demographics	(4) Linear mobility, controls for educ., further demographics, UE & income	(5) Non-linear mobility, controls for educ.	(6) Non-linear mobility, controls for educ., further demographics, UE & income
Origin linear	0.018* (0.010)	0.007 (0.010)	0.012 (0.010)	0.002 (0.010)	-0.006 (0.020)	-0.006 (0.019)
Destination linear	0.165*** (0.012)	0.140*** (0.013)	0.123*** (0.013)	0.069*** (0.013)	0.152*** (0.021)	0.076*** (0.020)
Dest. non-linear						
Destination=II	0.033 (0.045)	0.037 (0.045)	0.036 (0.046)	0.038 (0.045)	0.020 (0.048)	0.028 (0.047)
Destination=III	0.010 (0.061)	0.017 (0.061)	0.034 (0.060)	0.022 (0.059)	0.012 (0.066)	0.021 (0.065)
Destination=IV	-0.019 (0.058)	-0.016 (0.057)	-0.038 (0.055)	-0.037 (0.055)	-0.026 (0.059)	-0.041 (0.057)
Destination=V	0.053 (0.069)	0.051 (0.069)	0.055 (0.067)	0.049 (0.066)	0.076 (0.072)	0.074 (0.068)
Destination=VI	0.076 (0.054)	0.078 (0.054)	0.065 (0.053)	0.074 (0.054)	0.088 (0.055)	0.084 (0.054)
Orig. non-linear						
Origin=II	-0.001 (0.042)	0.007 (0.042)	0.008 (0.041)	0.040 (0.039)	0.022 (0.046)	0.054 (0.042)
Origin=III	0.072 (0.053)	0.091* (0.054)	0.093* (0.053)	0.125** (0.052)	0.127** (0.060)	0.158*** (0.057)
Origin=IV	-0.088 (0.064)	-0.054 (0.065)	-0.073 (0.064)	-0.042 (0.062)	-0.029 (0.069)	-0.017 (0.068)
Origin=V	0.026 (0.070)	0.035 (0.069)	0.017 (0.067)	0.038 (0.064)	0.035 (0.073)	0.040 (0.068)
Origin=VI	-0.006 (0.080)	0.009 (0.080)	-0.012 (0.078)	0.014 (0.075)	0.013 (0.080)	0.020 (0.076)
Steps down=5					0.024 (0.210)	-0.045 (0.207)
Steps down=4					-0.183 (0.186)	-0.208 (0.186)
Steps down=3					0.055 (0.160)	-0.018 (0.158)
Steps down=2					-0.053 (0.154)	-0.101 (0.152)
Steps down=1					-0.050 (0.126)	-0.098 (0.125)
No steps					-0.024 (0.117)	-0.071 (0.115)
Steps up=1					-0.042 (0.114)	-0.084 (0.109)
Steps up=2					-0.056 (0.117)	-0.091 (0.110)
Steps up=3					-0.241* (0.123)	-0.255** (0.118)
Steps up=4					-0.114 (0.125)	-0.123 (0.116)
Steps up=5					-0.157 (0.133)	-0.164 (0.122)
Log likelihood	-86648.287	-86607.153	-85887.887	-85097.669	-86592.379	-85085.381
AIC	173490.575	173412.306	171995.774	170419.337	173404.759	170416.761
N	40,342	40,342	40,342	40,342	40,342	40,342

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C2. Unconstrained mobility and reference estimates for Eastern Europe (OLS model on basis of eq.(A1))

	(1) Basic controls	(2) Controls for education	(3) Controls for educ., further demographics., UE & income	(4) Basic controls; positive. vs. negative ref. Mobility	(5) Controls for education; positive vs. negative. ref. Mobility	(6) Controls for educ., further demographics., UE & income; pos. vs. neg. ref. mobility
Origin linear	-0.002 (0.017)	-0.011 (0.017)	-0.005 (0.017)	-0.002 (0.017)	-0.010 (0.017)	-0.004 (0.017)
Destination linear	0.185*** (0.028)	0.156*** (0.029)	0.110*** (0.027)	0.187*** (0.029)	0.157*** (0.029)	0.114*** (0.027)
Dest. non-linear						
Destination=II	0.041 (0.044)	0.044 (0.045)	0.041 (0.045)	0.040 (0.044)	0.043 (0.045)	0.040 (0.045)
Destination=III	0.005 (0.061)	0.012 (0.061)	0.020 (0.060)	0.003 (0.061)	0.012 (0.061)	0.018 (0.059)
Destination=IV	-0.014 (0.057)	-0.011 (0.057)	-0.034 (0.055)	-0.015 (0.058)	-0.012 (0.058)	-0.036 (0.055)
Destination=V	0.053 (0.069)	0.051 (0.069)	0.048 (0.066)	0.051 (0.069)	0.049 (0.069)	0.045 (0.066)
Destination=VI	0.084 (0.054)	0.085 (0.054)	0.076 (0.054)	0.083 (0.054)	0.084 (0.054)	0.075 (0.054)
Orig. non-linear						
Origin=II	0.004 (0.043)	0.011 (0.043)	0.049 (0.039)	0.019 (0.046)	0.019 (0.046)	0.074* (0.042)
Origin=III	0.080 (0.053)	0.097* (0.054)	0.140*** (0.052)	0.109* (0.062)	0.114* (0.063)	0.189*** (0.060)
Origin=IV	-0.075 (0.066)	-0.044 (0.066)	-0.017 (0.064)	-0.035 (0.078)	-0.022 (0.079)	0.049 (0.074)
Origin=V	0.030 (0.069)	0.038 (0.069)	0.046 (0.064)	0.070 (0.083)	0.061 (0.083)	0.114 (0.077)
Origin=VI	0.006 (0.079)	0.018 (0.079)	0.035 (0.074)	0.037 (0.084)	0.036 (0.084)	0.086 (0.077)
Ref. position	0.053 (0.040)	0.045 (0.040)	0.014 (0.038)	0.051 (0.040)	0.043 (0.040)	0.011 (0.038)
Ref. mobility	-0.036 (0.040)	-0.027 (0.039)	-0.064* (0.037)			
Ref. mob. up				-0.004 (0.043)	-0.009 (0.043)	-0.022 (0.043)
Ref. mob. down				0.071 (0.056)	0.047 (0.057)	0.116** (0.058)
Log likelihood	-86644.427	-86604.473	-85093.318	-86643.245	-86604.099	-85089.807
AIC	173486.854	173410.946	170414.636	173486.490	173412.199	170409.614
N	40,342	40,342	40,342	40,342	40,342	40,342

* $p<0.10$, ** $p<0.05$, *** $p<0.01$. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C3. Unconstrained mobility estimates for Eastern Europe (OLS model on basis of eq.(A1))

	(1) Linear mobility	(2) Linear mobility, controls for education	(3) Linear mobility, controls for educ. & further demographics	(4) Linear mobility, controls for educ., further demographics, UE & income	(5) Non-linear mobility, controls for educ.	(6) Non-linear mobility, controls for educ., further demographics, UE & income
Origin linear	-0.001 (0.008)	-0.015* (0.008)	-0.012 (0.008)	-0.026*** (0.008)	-0.016 (0.017)	-0.009 (0.018)
Destination linear	0.156*** (0.016)	0.104*** (0.016)	0.104*** (0.019)	0.077*** (0.017)	0.081*** (0.018)	0.051** (0.021)
Dest. non-linear						
Destination=II	-0.019 (0.091)	-0.014 (0.095)	-0.009 (0.084)	-0.031 (0.091)	0.037 (0.091)	0.006 (0.084)
Destination=III	-0.082 (0.138)	-0.076 (0.130)	-0.061 (0.123)	-0.077 (0.126)	-0.054 (0.132)	-0.065 (0.129)
Destination=IV	-0.091 (0.121)	-0.094 (0.125)	-0.101 (0.116)	-0.087 (0.106)	-0.170 (0.143)	-0.164 (0.122)
Destination=V	-0.063 (0.126)	-0.073 (0.125)	-0.091 (0.130)	-0.145 (0.133)	-0.151 (0.146)	-0.217 (0.153)
Destination=VI	-0.140 (0.094)	-0.138 (0.096)	-0.151 (0.101)	-0.192** (0.093)	-0.207** (0.104)	-0.253** (0.105)
Orig. non-linear						
Origin=II	0.036 (0.057)	0.063 (0.058)	0.031 (0.071)	0.039 (0.071)	-0.059 (0.069)	-0.082 (0.084)
Origin=III	-0.225*** (0.085)	-0.168** (0.079)	-0.219** (0.086)	-0.200** (0.083)	-0.336*** (0.110)	-0.360*** (0.114)
Origin=IV	-0.070 (0.088)	-0.015 (0.083)	-0.058 (0.092)	-0.054 (0.097)	-0.137* (0.082)	-0.183* (0.098)
Origin=V	-0.110 (0.182)	-0.075 (0.185)	-0.070 (0.176)	-0.066 (0.178)	-0.136 (0.188)	-0.140 (0.184)
Origin=VI	-0.198* (0.102)	-0.167 (0.104)	-0.143 (0.100)	-0.124 (0.104)	-0.124 (0.116)	-0.092 (0.113)
Steps down=5					-0.139 (0.131)	-0.056 (0.120)
Steps down=4					0.112 (0.224)	0.184 (0.210)
Steps down=3					0.231 (0.154)	0.259* (0.152)
Steps down=2					0.233 (0.186)	0.266 (0.220)
Steps down=1					0.273** (0.121)	0.303** (0.135)
No steps					0.276** (0.135)	0.329* (0.169)
Steps up=1					0.126 (0.147)	0.186 (0.171)
Steps up=2					0.503*** (0.159)	0.585*** (0.192)
Steps up=3					0.540*** (0.189)	0.619*** (0.233)
Steps up=4					0.643*** (0.223)	0.651** (0.275)
Steps up=5					0.290* (0.174)	0.403* (0.236)
Log likelihood	-43752.719	-43704.935	-43552.046	-43240.000	-43682.466	-43217.266
AIC	87597.438	87505.869	87222.092	86601.999	87482.932	86578.531
N	19,152	19,152	19,152	19,152	19,152	19,152

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C4. Unconstrained mobility and reference estimates for Eastern Europe (OLS model on basis of eq.(A1))

	(1) Basic controls	(2) Controls for education	(3) Controls for educ., further demographics., UE & income	(4) Basic controls; positive. vs. negative ref. Mobility	(5) Controls for education; positive vs. negative. ref. Mobility	(6) Controls for educ., further demographics., UE & income; pos. vs. neg. ref. mobility
Origin linear	-0.035 (0.024)	-0.044* (0.023)	-0.034 (0.021)	-0.036 (0.023)	-0.046** (0.022)	-0.035* (0.021)
Destination linear	0.294*** (0.043)	0.243*** (0.043)	0.196*** (0.041)	0.287*** (0.039)	0.235*** (0.039)	0.191*** (0.038)
Dest. non-linear						
Destination=II	-0.004 (0.096)	-0.001 (0.100)	-0.029 (0.096)	-0.001 (0.096)	0.002 (0.100)	-0.027 (0.096)
Destination=III	-0.105 (0.143)	-0.099 (0.134)	-0.094 (0.128)	-0.100 (0.141)	-0.092 (0.132)	-0.090 (0.126)
Destination=IV	-0.097 (0.117)	-0.100 (0.122)	-0.091 (0.105)	-0.094 (0.119)	-0.096 (0.124)	-0.088 (0.106)
Destination=V	-0.079 (0.128)	-0.087 (0.127)	-0.153 (0.134)	-0.079 (0.128)	-0.088 (0.126)	-0.153 (0.134)
Destination=VI	-0.140 (0.090)	-0.139 (0.092)	-0.195** (0.092)	-0.140 (0.090)	-0.138 (0.092)	-0.194** (0.092)
Orig. non-linear						
Origin=II	0.060 (0.057)	0.088 (0.059)	0.063 (0.070)	0.030 (0.062)	0.054 (0.065)	0.042 (0.076)
Origin=III	-0.116 (0.071)	-0.058 (0.068)	-0.105 (0.074)	-0.166 (0.110)	-0.116 (0.105)	-0.140 (0.103)
Origin=IV	-0.052 (0.098)	0.003 (0.089)	-0.038 (0.099)	-0.140 (0.181)	-0.099 (0.172)	-0.099 (0.161)
Origin=V	-0.067 (0.188)	-0.030 (0.191)	-0.025 (0.182)	-0.165 (0.188)	-0.145 (0.190)	-0.094 (0.184)
Origin=VI	-0.146 (0.101)	-0.114 (0.102)	-0.079 (0.103)	-0.215** (0.092)	-0.195** (0.090)	-0.127 (0.090)
Ref. position	0.107* (0.063)	0.092 (0.063)	0.026 (0.059)	0.110* (0.062)	0.096 (0.062)	0.028 (0.058)
Ref. mobility	-0.204*** (0.054)	-0.205*** (0.052)	-0.175*** (0.050)			
Ref. mob. up				-0.253** (0.104)	-0.262** (0.102)	-0.209** (0.094)
Ref. mob. down				0.122 (0.107)	0.110 (0.107)	0.118 (0.098)
Log likelihood	-43735.964	-43688.831	-43229.570	-43734.520	-43686.880	-43228.836
AIC	87567.928	87477.661	86585.141	87567.040	87475.761	86585.671
N	19,152	19,152	19,152	19,152	19,152	19,152

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C5. Comparison of linear component estimates between DRM and OLS models for Western Europe

	Tests for B2 *versus* C1 (mobility estimates for Western Europe)																	
	(1) Basic controls			(2) Controls for education,			(3) Controls for educ. & further demographics,			(4) Controls for educ. & further demographics, UE & income			(5) Controls for education			(6) Controls for educ. & further demographics, UE & income		
	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$
Orig. linear	0.073	n.a.	n.a.	0.064	n.a.	n.a.	0.059	n.a.	n.a.	0.030	n.a.	n.a.	0.065	n.a.	n.a.	0.030	n.a.	n.a.
Dest. linear	0.110	n.a.	n.a.	0.082	n.a.	n.a.	0.076	n.a.	n.a.	0.040	n.a.	n.a.	0.082	n.a.	n.a.	0.040	n.a.	n.a.
Mob. linear	0.056	n.a.	n.a.	0.059	n.a.	n.a.	0.049	n.a.	n.a.	0.031	n.a.	n.a.	0.070	n.a.	n.a.	0.036	n.a.	n.a.
Orig.–mob.	0.017	0.018	-0.002	0.006	0.007	-0.001	0.011	0.012	-0.002	-0.001	0.002	-0.003	-0.006	-0.006	0.000	-0.006	-0.006	0.000
Dest.+mob.	0.166	0.165	0.001	0.141	0.140	0.001	0.125	0.123	0.001	0.071	0.069	0.002	0.152	0.152	0.000	0.076	0.076	0.000
	Tests for Tables B3 *versus* C2 (reference estimates for Western Europe)																	
	(1) Basic controls			(2) Controls for education			(3) Controls for educ., further demographics., UE & income			(4) Basic controls; positive. vs. negative ref. Mobility			(5) Controls for education; positive vs. negative. ref. Mobility			(6) Controls for educ., further demographics., UE & income; pos. vs. neg. ref. mobility		
	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$
Orig. linear	0.080	n.a.	n.a.	0.067	n.a.	n.a.	0.043	n.a.	n.a.	0.076	n.a.	n.a.	0.063	n.a.	n.a.	0.034	n.a.	n.a.
Dest. linear	0.107	n.a.	n.a.	0.081	n.a.	n.a.	0.062	n.a.	n.a.	0.112	n.a.	n.a.	0.086	n.a.	n.a.	0.074	n.a.	n.a.
Mob. linear	0.082	n.a.	n.a.	0.077	n.a.	n.a.	0.049	n.a.	n.a.	0.076	n.a.	n.a.	0.072	n.a.	n.a.	0.039	n.a.	n.a.
Orig.–mob.	-0.001	-0.002	0.001	-0.010	-0.011	0.001	-0.006	-0.005	-0.001	-0.001	-0.002	0.001	-0.009	-0.010	0.001	-0.005	-0.004	-0.001
Dest.+mob.	0.189	0.185	0.004	0.158	0.156	0.002	0.112	0.110	0.002	0.188	0.187	0.002	0.158	0.157	0.001	0.113	0.114	0.000

Table C6. Comparison of linear component estimates between DRM and OLS models for Eastern Europe

	Tests for B5 *versus* C3 (mobility estimates for Eastern Europe)																	
	(1) Basic controls			(2) Controls for education,			(3) Controls for educ. & further demographics,			(4) Controls for educ. & further demographics, UE & income			(5) Controls for education			(6) Controls for educ. & further demographics, UE & income		
	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$
Orig. linear	0.058	n.a.	n.a.	0.036	n.a.	n.a.	0.041	n.a.	n.a.	0.027	n.a.	n.a.	0.046	n.a.	n.a.	0.030	n.a.	n.a.
Dest. linear	0.097	n.a.	n.a.	0.054	n.a.	n.a.	0.051	n.a.	n.a.	0.025	n.a.	n.a.	0.049	n.a.	n.a.	0.028	n.a.	n.a.
Mob. linear	0.060	n.a.	n.a.	0.053	n.a.	n.a.	0.053	n.a.	n.a.	0.054	n.a.	n.a.	0.031	n.a.	n.a.	0.022	n.a.	n.a.
Orig.–mob.	-0.002	-0.001	-0.002	-0.017	-0.015	-0.002	-0.012	-0.012	0.000	-0.026	-0.026	-0.001	0.015	0.016	-0.001	0.008	0.009	-0.001
Dest.+mob.	0.157	0.156	0.001	0.107	0.104	0.002	0.104	0.104	0.000	0.078	0.077	0.001	0.080	0.081	-0.001	0.050	0.051	-0.002
	Tests for Tables B6 *versus* C4 (reference estimates for Eastern Europe)																	
	(1) Basic controls			(2) Controls for education			(3) Controls for educ., further demographics., UE & income			(4) Basic controls; positive. vs. negative ref. Mobility			(5) Controls for education; positive vs. negative. ref. Mobility			(6) Controls for educ., further demographics., UE & income; pos. vs. neg. ref. mobility		
	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$	DRM	OLS	$\Delta_{drm-ols}$
Orig. linear	0.119	n.a.	n.a.	0.098	n.a.	n.a.	0.104	n.a.	n.a.	0.093	n.a.	n.a.	0.073	n.a.	n.a.	0.082	n.a.	n.a.
Dest. linear	0.139	n.a.	n.a.	0.098	n.a.	n.a.	0.058	n.a.	n.a.	0.157	n.a.	n.a.	0.114	n.a.	n.a.	0.072	n.a.	n.a.
Mob. linear	0.157	n.a.	n.a.	0.146	n.a.	n.a.	0.141	n.a.	n.a.	0.131	n.a.	n.a.	0.121	n.a.	n.a.	0.120	n.a.	n.a.
Orig.–mob.	-0.038	-0.035	-0.003	-0.048	-0.044	-0.004	-0.037	-0.034	-0.003	-0.038	-0.036	-0.002	-0.048	-0.046	-0.003	-0.038	-0.035	-0.003
Dest.+mob.	0.295	0.294	0.001	0.245	0.243	0.002	0.199	0.196	0.004	0.288	0.287	0.001	0.235	0.235	0.000	0.192	0.191	0.001

Table C7. Linear mobility estimates for Western Europe, relaxing constraints on origin and destination effects (DRM, on basis of Table 2, column (2))

	(1) Constraint on class VI loosened	(2) Constraint on class V loosened	(3) Constraint on class IV loosened	(4) Constraint on class III loosened	(5) Constraint on class II loosened
Linear position effect	0.148*** (0.016)	0.146*** (0.016)	0.147*** (0.017)	0.147*** (0.016)	0.146*** (0.017)
Dest. non-linearities					
Destination=II	0.025 (0.067)	0.037 (0.070)	0.040 (0.074)	0.047 (0.064)	0.009 (0.072)
Destination=III	0.122* (0.073)	0.125 (0.079)	0.121 (0.105)	0.250 (0.219)	0.123 (0.078)
Destination=IV	-0.071 (0.078)	-0.071 (0.083)	-0.089 (0.171)	-0.061 (0.092)	-0.071 (0.083)
Destination=V	0.061 (0.106)	0.074 (0.120)	0.082 (0.098)	0.089 (0.094)	0.078 (0.098)
Destination=VI	0.014 (0.110)	0.105 (0.119)	0.110 (0.119)	0.108 (0.085)	0.104 (0.118)
Orig. non-linearities					
Origin=II	0.025 (0.067)	0.037 (0.070)	0.040 (0.074)	0.047 (0.064)	0.090 (0.106)
Origin =III	0.122* (0.073)	0.125 (0.079)	0.121 (0.105)	0.017 (0.101)	0.123 (0.078)
Origin =IV	-0.071 (0.078)	-0.071 (0.083)	-0.046 (0.169)	-0.061 (0.092)	-0.071 (0.083)
Origin =V	0.061 (0.106)	0.093 (0.151)	0.082 (0.098)	0.089 (0.094)	0.078 (0.098)
Origin =VI	0.274 (0.399)	0.105 (0.119)	0.110 (0.119)	0.108 (0.085)	0.104 (0.118)
Steps mobile	0.030 (0.057)	0.058 (0.047)	0.066 (0.077)	0.080* (0.048)	0.059 (0.045)
p	0.265 (0.374)	0.435 (0.321)	0.488 (0.525)	0.597* (0.326)	0.431 (0.305)
Log likelihood	-83669.286	-83670.831	-83670.802	-83669.030	-83670.412
AIC	167532.573	167535.663	167535.604	167532.061	167534.824
N	40,342	40,342	40,342	40,342	40,342

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence, linear and squared terms for years of education.

Table C8. Non-linear mobility estimates for Western Europe, relaxing constraints on origin and destination effects (DRM, on basis of Table 2, column (4))

	(1) Constraint on class VI loosened	(2) Constraint on class V loosened	(3) Constraint on class IV loosened	(4) Constraint on class III loosened	(5) Constraint on class II loosened
Linear position effect	0.146*** (0.016)	0.146*** (0.017)	0.146*** (0.018)	0.147*** (0.016)	0.146*** (0.017)
Dest. non-linearities					
Destination=II	0.035 (0.062)	0.035 (0.068)	0.035 (0.069)	0.038 (0.065)	0.012 (0.080)
Destination=III	0.160** (0.080)	0.159* (0.086)	0.161* (0.085)	0.392 (0.404)	0.156* (0.088)
Destination=IV	-0.049 (0.090)	-0.053 (0.090)	-0.040 (0.122)	-0.046 (0.086)	-0.054 (0.090)
Destination=V	0.073 (0.128)	0.073 (0.122)	0.097 (0.118)	0.114 (0.096)	0.101 (0.110)
Destination=VI	0.022 (0.111)	0.120 (0.118)	0.115 (0.139)	0.117 (0.081)	0.120 (0.109)
Orig. non-linearities					
Origin=II	0.035 (0.062)	0.035 (0.068)	0.035 (0.069)	0.038 (0.065)	0.077 (0.104)
Origin =III	0.160** (0.080)	0.159* (0.086)	0.161* (0.085)	0.022 (0.096)	0.156* (0.088)
Origin =IV	-0.049 (0.090)	-0.053 (0.090)	-0.080 (0.202)	-0.046 (0.086)	-0.054 (0.090)
Origin =V	0.073 (0.128)	0.162 (0.173)	0.097 (0.118)	0.114 (0.096)	0.101 (0.110)
Origin =VI	0.305 (0.435)	0.120 (0.118)	0.115 (0.139)	0.117 (0.081)	0.120 (0.109)
Steps down=6	-0.249 (0.387)	-0.376 (0.315)	-0.368 (0.379)	-0.605* (0.352)	-0.398 (0.308)
Steps down=5	-0.172 (0.310)	-0.289 (0.242)	-0.282 (0.302)	-0.485* (0.277)	-0.323 (0.235)
Steps down=4	-0.356 (0.306)	-0.462** (0.221)	-0.462* (0.275)	-0.590*** (0.223)	-0.488** (0.218)
Steps down=3	-0.068 (0.187)	-0.134 (0.131)	-0.134 (0.180)	-0.242 (0.160)	-0.156 (0.135)
Steps down=2	-0.111 (0.143)	-0.166 (0.103)	-0.161 (0.127)	-0.248* (0.131)	-0.174 (0.109)
Steps down=1	-0.071 (0.073)	-0.078 (0.064)	-0.077 (0.076)	-0.127* (0.073)	-0.080 (0.065)
Steps up=1	0.023 (0.064)	0.042 (0.063)	0.040 (0.068)	0.085 (0.066)	0.043 (0.060)
Steps up=2	0.052 (0.115)	0.107 (0.102)	0.103 (0.118)	0.182 (0.111)	0.118 (0.095)
Steps up=3	-0.067 (0.196)	0.009 (0.154)	0.009 (0.189)	0.102 (0.139)	0.030 (0.139)
Steps up=4	0.100 (0.239)	0.214 (0.169)	0.210 (0.225)	0.344* (0.198)	0.240 (0.167)
Steps up=5	0.090 (0.291)	0.217 (0.212)	0.208 (0.286)	0.405 (0.254)	0.245 (0.210)
Steps up=6	0.293 (0.376)	0.429 (0.289)	0.419 (0.383)	0.659** (0.300)	0.453* (0.274)
p	0.270 (0.380)	0.419 (0.275)	0.409 (0.383)	0.681** (0.323)	0.446* (0.263)
Log likelihood	-83655.582	-83656.913	-83657.114	-83654.319	-83656.909
AIC	167527.163	167529.825	167530.229	167524.637	167529.819
N	40,342	40,342	40,342	40,342	40,342

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence, linear and squared terms for years of education.

Table C9. Linear mobility estimates for Eastern Europe, relaxing constraints on origin and destination effects (DRM, on basis of Table 4, column (2))

	(1) Constraint on class VI loosened	(2) Constraint on class V loosened	(3) Constraint on class IV loosened	(4) Constraint on class III loosened	(5) Constraint on class II loosened
Linear position effect	0.089*** (0.020)	0.090*** (0.019)	0.090*** (0.019)	0.090*** (0.020)	0.090*** (0.019)
Dest. non-linearities					
Destination=II	0.064 (0.115)	0.060 (0.122)	0.062 (0.122)	0.055 (0.131)	0.104 (0.084)
Destination=III	-0.265 (0.170)	-0.283* (0.148)	-0.280* (0.154)	-0.325* (0.193)	-0.281* (0.150)
Destination=IV	-0.076 (0.165)	-0.088 (0.153)	-0.039 (0.133)	-0.094 (0.151)	-0.094 (0.151)
Destination=V	-0.133 (0.289)	-0.140 (0.322)	-0.142 (0.288)	-0.147 (0.290)	-0.143 (0.286)
Destination=VI	-0.266 (0.209)	-0.304 (0.192)	-0.303 (0.191)	-0.306 (0.189)	-0.306 (0.190)
Orig. non-linearities					
Origin=II	0.064 (0.115)	0.060 (0.122)	0.062 (0.122)	0.055 (0.131)	-0.019 (0.204)
Origin =III	-0.265 (0.170)	-0.283* (0.148)	-0.280* (0.154)	-0.128 (0.321)	-0.281* (0.150)
Origin =IV	-0.076 (0.165)	-0.088 (0.153)	-0.203 (0.301)	-0.094 (0.151)	-0.094 (0.151)
Origin =V	-0.133 (0.289)	-0.149 (0.282)	-0.142 (0.288)	-0.147 (0.290)	-0.143 (0.286)
Origin =VI	-0.373 (0.302)	-0.304 (0.192)	-0.303 (0.191)	-0.306 (0.189)	-0.306 (0.190)
Steps mobile	0.047* (0.027)	0.053*** (0.014)	0.052*** (0.014)	0.056*** (0.016)	0.054*** (0.013)
p	0.339 (0.269)	0.400*** (0.121)	0.398*** (0.120)	0.427*** (0.132)	0.434*** (0.113)
Log likelihood	-51999.851	-51999.933	-51999.543	-51999.684	-51999.620
AIC	104091.702	104091.866	104091.087	104091.367	104091.239
N	19,152	19,152	19,152	19,152	19,152

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence, linear and squared terms for years of education.

Table C10. Non-linear mobility estimates for Eastern Europe, relaxing constraints on origin and destination effects (DRM, on basis of Table 4, column (4))

	(1) Constraint on class VI loosened	(2) Constraint on class V loosened	(3) Constraint on class IV loosened	(4) Constraint on class III loosened	(5) Constraint on class II loosened
Linear position effect	0.097*** (0.019)	0.096*** (0.018)	0.096*** (0.018)	0.095*** (0.016)	0.096*** (0.018)
Dest. non-linearities					
Destination=II	-0.026 (0.131)	-0.012 (0.137)	-0.013 (0.136)	-0.001 (0.149)	-0.056 (0.122)
Destination=III	-0.482*** (0.186)	-0.486** (0.192)	-0.482** (0.198)	-0.757** (0.363)	-0.495** (0.194)
Destination=IV	-0.289 (0.184)	-0.299 (0.190)	-0.241 (0.154)	-0.297 (0.212)	-0.297 (0.186)
Destination=V	-0.278 (0.289)	-0.292 (0.379)	-0.292 (0.291)	-0.279 (0.289)	-0.293 (0.290)
Destination=VI	-0.252 (0.209)	-0.347* (0.204)	-0.344* (0.205)	-0.333 (0.211)	-0.346* (0.208)
Orig. non-linearities					
Origin=II	-0.026 (0.131)	-0.012 (0.137)	-0.013 (0.136)	-0.001 (0.149)	0.035 (0.195)
Origin =III	-0.482*** (0.186)	-0.486** (0.192)	-0.482** (0.198)	-0.126 (0.227)	-0.495** (0.194)
Origin =IV	-0.289 (0.184)	-0.299 (0.190)	-0.373 (0.313)	-0.297 (0.212)	-0.297 (0.186)
Origin =V	-0.278 (0.289)	-0.292 (0.290)	-0.292 (0.291)	-0.279 (0.289)	-0.293 (0.290)
Origin =VI	-0.458* (0.255)	-0.347* (0.204)	-0.344* (0.205)	-0.333 (0.211)	-0.346* (0.208)
Steps down=6	-0.429*** (0.107)	-0.464*** (0.106)	-0.454*** (0.122)	-0.522*** (0.165)	-0.458*** (0.108)
Steps down=5	-0.502*** (0.146)	-0.527*** (0.122)	-0.518*** (0.139)	-0.589*** (0.167)	-0.539*** (0.134)
Steps down=4	-0.204 (0.218)	-0.209 (0.221)	-0.200 (0.232)	-0.304 (0.264)	-0.215 (0.220)
Steps down=3	-0.091 (0.164)	-0.107 (0.180)	-0.100 (0.186)	-0.160 (0.218)	-0.111 (0.172)
Steps down=2	-0.097 (0.101)	-0.097 (0.121)	-0.094 (0.100)	-0.114 (0.116)	-0.099 (0.103)
Steps down=1	-0.049 (0.100)	-0.066 (0.097)	-0.066 (0.097)	-0.059 (0.102)	-0.062 (0.094)
Steps up=1	-0.103 (0.086)	-0.089 (0.087)	-0.090 (0.087)	-0.100 (0.083)	-0.092 (0.089)
Steps up=2	0.269* (0.142)	0.275* (0.147)	0.274** (0.134)	0.290** (0.126)	0.278** (0.132)
Steps up=3	0.306* (0.168)	0.311* (0.161)	0.301** (0.152)	0.371** (0.148)	0.314* (0.163)
Steps up=4	0.413*** (0.113)	0.414*** (0.107)	0.405*** (0.115)	0.496*** (0.109)	0.423*** (0.107)
Steps up=5	0.107 (0.173)	0.124 (0.170)	0.114 (0.149)	0.190 (0.125)	0.132 (0.161)
Steps up=6	-0.125 (0.201)	-0.089 (0.218)	-0.098 (0.194)	-0.017 (0.164)	-0.096 (0.202)
p	0.424*** (0.105)	0.485*** (0.073)	0.469*** (0.074)	0.600*** (0.141)	0.474*** (0.074)
Log likelihood	-51974.643	-51975.353	-51975.095	-51972.951	-51975.192
AIC	104063.286	104064.706	104064.190	104059.903	104064.384
N	19,152	19,152	19,152	19,152	19,152

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence, linear and squared terms for years of education.

Table C11. Reference estimates for Western Europe, using non-linear mobility terms (DRM)

	(1) Basic controls + education	(2) Controls for educ., further demographics., UE & income	(3) Basic controls + education, pos. vs. neg. ref. mobility	(4) Controls for educ., further demographics., UE & income, pos. vs. neg. ref. mobility
Class=II	-0.102 (0.076)	-0.016 (0.069)	-0.094 (0.074)	0.001 (0.065)
Class=III	-0.132 (0.111)	0.009 (0.100)	-0.108 (0.113)	0.055 (0.097)
Class=IV	-0.481*** (0.128)	-0.333*** (0.128)	-0.451*** (0.133)	-0.253* (0.135)
Class=V	-0.485*** (0.150)	-0.309** (0.142)	-0.459*** (0.148)	-0.257* (0.142)
Class=VI	-0.600*** (0.184)	-0.384** (0.179)	-0.589*** (0.185)	-0.368** (0.187)
Class=VII	-0.884*** (0.196)	-0.628*** (0.185)	-0.889*** (0.196)	-0.650*** (0.185)
Steps down=6	-0.490 (0.318)	-0.247 (0.248)	-0.458 (0.309)	-0.193 (0.248)
Steps down=5	-0.386 (0.257)	-0.249 (0.190)	-0.359 (0.246)	-0.198 (0.193)
Steps down=4	-0.547** (0.229)	-0.395** (0.181)	-0.524** (0.223)	-0.350* (0.183)
Steps down=3	-0.197 (0.142)	-0.131 (0.106)	-0.180 (0.133)	-0.103 (0.105)
Steps down=2	-0.202* (0.109)	-0.137 (0.089)	-0.190* (0.104)	-0.118 (0.088)
Steps down=1	-0.098 (0.066)	-0.066 (0.054)	-0.092 (0.065)	-0.056 (0.055)
Steps up=1	0.060 (0.064)	0.030 (0.052)	0.054 (0.063)	0.021 (0.051)
Steps up=2	0.142 (0.104)	0.087 (0.082)	0.127 (0.102)	0.055 (0.083)
Steps up=3	0.074 (0.152)	0.009 (0.118)	0.050 (0.152)	-0.040 (0.123)
Steps up=4	0.293* (0.177)	0.200 (0.127)	0.264 (0.172)	0.144 (0.129)
Steps up=5	0.309 (0.222)	0.188 (0.153)	0.276 (0.212)	0.124 (0.157)
Steps up=6	0.545* (0.294)	0.395** (0.199)	0.501* (0.287)	0.314 (0.210)
Ref. position	0.045 (0.039)	0.015 (0.038)	0.044 (0.039)	0.011 (0.037)
Ref. mobility	-0.026 (0.039)	-0.063* (0.037)		
Ref. mob. up			-0.004 (0.043)	-0.017 (0.043)
Ref. mob. down			0.051 (0.059)	0.125** (0.060)
ρ	0.558** (0.268)	0.606*** (0.224)	0.602** (0.264)	0.719*** (0.243)
Log likelihood	-83654.941	-82197.734	-83654.237	-82194.309
AIC	167527.881	164639.469	167528.473	164634.618
N	40,342	40,342	40,342	40,342

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. Basic controls include region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C12. Reference estimates for Eastern Europe, using non-linear mobility terms (DRM)

	(1) Basic controls + education	(2) Controls for educ., further demographics., UE & income	(3) Basic controls + education, pos. vs. neg. ref. mobility	(4) Controls for educ., further demographics., UE & income, pos. vs. neg. ref. mobility
Class=II	-0.173 (0.159)	-0.197 (0.161)	-0.202 (0.170)	-0.212 (0.171)
Class=III	-0.754*** (0.215)	-0.724*** (0.193)	-0.801*** (0.232)	-0.764*** (0.226)
Class=IV	-0.909*** (0.182)	-0.811*** (0.193)	-0.972*** (0.209)	-0.863*** (0.213)
Class=V	-1.088*** (0.314)	-0.999*** (0.324)	-1.161*** (0.341)	-1.043*** (0.343)
Class=VI	-1.330*** (0.248)	-1.171*** (0.265)	-1.350*** (0.246)	-1.177*** (0.262)
Class=VII	-1.236*** (0.234)	-1.001*** (0.218)	-1.188*** (0.201)	-0.968*** (0.192)
Steps down=6	-1.122*** (0.215)	-0.964*** (0.216)	-0.952*** (0.199)	-0.864*** (0.161)
Steps down=5	-1.073*** (0.203)	-0.867*** (0.217)	-0.917*** (0.172)	-0.777*** (0.166)
Steps down=4	-0.645** (0.294)	-0.467* (0.272)	-0.532* (0.271)	-0.402* (0.237)
Steps down=3	-0.444* (0.238)	-0.364 (0.242)	-0.364* (0.188)	-0.314* (0.183)
Steps down=2	-0.310** (0.124)	-0.269** (0.108)	-0.239 (0.160)	-0.224 (0.149)
Steps down=1	-0.166 (0.105)	-0.166 (0.113)	-0.142 (0.095)	-0.152 (0.100)
Steps up=1	0.017 (0.086)	-0.000 (0.086)	-0.010 (0.099)	-0.016 (0.097)
Steps up=2	0.507*** (0.123)	0.461*** (0.130)	0.446*** (0.164)	0.429*** (0.160)
Steps up=3	0.649*** (0.154)	0.539*** (0.168)	0.572*** (0.201)	0.499** (0.206)
Steps up=4	0.867*** (0.144)	0.662*** (0.161)	0.756*** (0.153)	0.598*** (0.152)
Steps up=5	0.686*** (0.168)	0.564*** (0.168)	0.542** (0.253)	0.480** (0.226)
Steps up=6	0.577** (0.263)	0.316 (0.284)	0.420 (0.370)	0.226 (0.387)
Ref. position	0.098* (0.058)	0.035 (0.055)	0.099* (0.057)	0.036 (0.054)
Ref. mobility	-0.212*** (0.047)	-0.181*** (0.046)		
Ref. mob. up			-0.259*** (0.094)	-0.211** (0.085)
Ref. mob. down			0.127 (0.117)	0.124 (0.110)
p	0.398*** (0.087)	0.388*** (0.104)	0.513*** (0.134)	0.466*** (0.123)
Log likelihood	-51954.780	-51410.459	-51952.806	-51409.591
AIC	104027.560	102962.918	104025.613	102963.182
N	19,152	19,152	19,152	19,152

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. Basic controls include region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C13. Reference estimates for Western Europe, using non-linear mobility terms (OLS)

	(1) Basic controls + education	(2) Controls for educ., further demographics., UE & income	(3) Basic controls + education, pos. vs. neg. ref. mobility	(4) Controls for educ., further demographics., UE & income, pos. vs. neg. ref. mobility
Orig.=II	0.054 (0.057)	0.056 (0.056)	0.051 (0.057)	0.050 (0.056)
Orig.=III	0.062 (0.085)	0.070 (0.080)	0.057 (0.085)	0.059 (0.080)
Orig.=IV	0.060 (0.096)	0.038 (0.089)	0.054 (0.097)	0.024 (0.089)
Orig.=V	0.184 (0.122)	0.174 (0.113)	0.176 (0.122)	0.156 (0.113)
Orig.=VI	0.230* (0.139)	0.212* (0.128)	0.221 (0.140)	0.192 (0.128)
Orig.=VII	0.163 (0.150)	0.152 (0.136)	0.154 (0.150)	0.131 (0.135)
Dest.=II	-0.146*** (0.051)	-0.067 (0.048)	-0.135** (0.052)	-0.041 (0.049)
Dest.=III	-0.211** (0.086)	-0.086 (0.083)	-0.190** (0.088)	-0.036 (0.086)
Dest.=IV	-0.536*** (0.107)	-0.381*** (0.100)	-0.507*** (0.109)	-0.313*** (0.103)
Dest.=V	-0.650*** (0.132)	-0.470*** (0.126)	-0.622*** (0.134)	-0.403*** (0.129)
Dest.=VI	-0.837*** (0.168)	-0.608*** (0.159)	-0.817*** (0.168)	-0.561*** (0.159)
Dest.=VII	-1.032*** (0.190)	-0.779*** (0.178)	-1.036*** (0.192)	-0.789*** (0.180)
Steps down=6	0.051 (0.233)	0.144 (0.230)	0.038 (0.234)	0.113 (0.231)
Steps down=5	0.067 (0.177)	0.086 (0.163)	0.058 (0.179)	0.065 (0.164)
Steps down=4	-0.144 (0.166)	-0.091 (0.147)	-0.152 (0.168)	-0.112 (0.149)
Steps down=3	0.091 (0.111)	0.088 (0.106)	0.086 (0.112)	0.078 (0.106)
Steps down=2	-0.022 (0.101)	-0.008 (0.091)	-0.025 (0.101)	-0.014 (0.091)
Steps down=1	-0.021 (0.061)	-0.014 (0.058)	-0.022 (0.061)	-0.016 (0.058)
Steps up=1	-0.021 (0.054)	-0.025 (0.050)	-0.020 (0.054)	-0.021 (0.050)
Steps up=2	-0.040 (0.071)	-0.045 (0.066)	-0.040 (0.071)	-0.044 (0.066)
Steps up=3	-0.228** (0.091)	-0.219** (0.085)	-0.227** (0.091)	-0.218** (0.085)
Steps up=4	-0.106 (0.106)	-0.102 (0.097)	-0.105 (0.106)	-0.100 (0.097)
Steps up=5	-0.155 (0.123)	-0.157 (0.112)	-0.154 (0.123)	-0.155 (0.112)
Steps up=6	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)
Ref. position	-0.051 (0.040)	-0.019 (0.038)	-0.049 (0.039)	-0.015 (0.038)
Ref. mobility	-0.025 (0.040)	-0.065* (0.037)		
Ref. mob. up			-0.004 (0.043)	-0.014 (0.043)
Ref. mob. down			0.054 (0.063)	0.133** (0.057)
Log likelihood	-86589.718	-85081.011	-86589.004	-85076.803
AIC	173403.436	170412.022	173404.008	170405.606
N	40,342	40,342	40,342	40,342

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. Basic controls include region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C14. Reference estimates for Eastern Europe, using non-linear mobility terms (OLS)

	(1) Basic controls + education	(2) Controls for educ., further demographics., UE & income	(3) Basic controls + education, pos. vs. neg. ref. mobility	(4) Controls for educ., further demographics., UE & income, pos. vs. neg. ref. mobility
Orig.=II	0.019 (0.119)	-0.045 (0.117)	0.025 (0.118)	-0.042 (0.115)
Orig.=III	-0.140 (0.193)	-0.188 (0.196)	-0.127 (0.187)	-0.181 (0.189)
Orig.=IV	-0.267 (0.175)	-0.327* (0.186)	-0.253 (0.175)	-0.319* (0.182)
Orig.=V	-0.288 (0.245)	-0.437 (0.280)	-0.276 (0.236)	-0.430 (0.271)
Orig.=VI	-0.356 (0.225)	-0.516* (0.273)	-0.340 (0.214)	-0.506* (0.261)
Orig.=VII	-0.178 (0.283)	-0.314 (0.326)	-0.160 (0.270)	-0.304 (0.312)
Dest.=II	-0.210** (0.083)	-0.175* (0.104)	-0.235*** (0.087)	-0.189* (0.106)
Dest.=III	-0.578*** (0.127)	-0.498*** (0.148)	-0.619*** (0.145)	-0.522*** (0.156)
Dest.=IV	-0.645*** (0.181)	-0.514** (0.223)	-0.720*** (0.202)	-0.557** (0.223)
Dest.=V	-0.794** (0.325)	-0.564 (0.369)	-0.873*** (0.305)	-0.610* (0.344)
Dest.=VI	-0.946*** (0.260)	-0.627** (0.314)	-0.989*** (0.252)	-0.651** (0.300)
Dest.=VII	-1.046*** (0.281)	-0.694** (0.329)	-1.008*** (0.294)	-0.672* (0.347)
Steps down=6	-0.550** (0.265)	-0.650* (0.335)	-0.533** (0.254)	-0.640* (0.322)
Steps down=5	-0.629** (0.268)	-0.643** (0.309)	-0.617** (0.259)	-0.636** (0.300)
Steps down=4	-0.325 (0.292)	-0.347 (0.305)	-0.318 (0.287)	-0.343 (0.300)
Steps down=3	-0.181 (0.257)	-0.232 (0.280)	-0.180 (0.257)	-0.231 (0.280)
Steps down=2	-0.121 (0.109)	-0.159 (0.097)	-0.115 (0.110)	-0.155 (0.098)
Steps down=1	-0.046 (0.115)	-0.078 (0.131)	-0.045 (0.115)	-0.078 (0.131)
Steps up=1	-0.103 (0.084)	-0.087 (0.081)	-0.104 (0.084)	-0.088 (0.081)
Steps up=2	0.329** (0.134)	0.372*** (0.140)	0.326** (0.135)	0.370** (0.140)
Steps up=3	0.406** (0.161)	0.454** (0.186)	0.404** (0.161)	0.453** (0.186)
Steps up=4	0.549*** (0.188)	0.538** (0.228)	0.547*** (0.188)	0.537** (0.227)
Steps up=5	0.244 (0.167)	0.346 (0.220)	0.242 (0.168)	0.344 (0.220)
Steps up=6	n.a.	n.a.	n.a.	n.a.
Ref. position	0.098* (0.057)	0.033 (0.054)	0.102* (0.057)	0.035 (0.054)
Ref. mobility	-0.204*** (0.050)	-0.175*** (0.048)		
Ref. mob. up			-0.256** (0.099)	-0.205** (0.091)
Ref. mob. down			0.115 (0.107)	0.124 (0.098)
Log likelihood	-43666.202	-43206.797	-43664.521	-43206.221
AIC	87454.405	86561.593	87453.041	86562.442
N	19,152	19,152	19,152	19,152

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. Basic controls include region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C15. Alternative asymmetric reference mobility & reference position estimates using shares (DRM; Western Europe)

	(1) Shares in class I & class VII	(2) Shares in class I+II & class VI+VII	(3) Reference mobility, mean distances up and down
Class=II	-0.016 (0.069)	-0.016 (0.066)	-0.016 (0.065)
Class=III	-0.022 (0.098)	-0.015 (0.096)	-0.035 (0.094)
Class=IV	-0.356*** (0.116)	-0.347*** (0.116)	-0.364*** (0.116)
Class=V	-0.331** (0.145)	-0.323** (0.138)	-0.338** (0.139)
Class=VI	-0.398** (0.180)	-0.393** (0.175)	-0.382** (0.175)
Class=VII	-0.625*** (0.188)	-0.628*** (0.181)	-0.637*** (0.185)
Steps mobile	0.050* (0.029)	0.052* (0.029)	0.047* (0.026)
Ref. position (% at top)	0.085 (0.217)	0.175 (0.159)	
Ref. position (% at bottom)	-0.073 (0.212)	0.104 (0.169)	
Ref. mobility (same as Table 3)	-0.064* (0.037)	-0.065* (0.037)	
Ref. position (same as Table 3)			0.010 (0.038)
Ref. mob. mean upward			0.008 (0.048)
Ref. mob. mean downward			0.138** (0.058)
p	0.590** (0.233)	0.582*** (0.221)	0.601*** (0.196)
Log likelihood	-82208.483	-82207.706	-82204.159
AIC	164640.966	164639.412	164632.318
N	40,342	40,342	40,342

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence, linear and squared terms for years of education, unemployment and income.

Table C16. Alternative asymmetric reference mobility & reference position estimates using shares (DRM; Eastern Europe)

	(1) Shares in class I & class VII	(2) Shares in class I+II & class VI+VII	(3) Reference mobility, mean distances up and down
Class=II	-0.148 (0.175)	-0.148 (0.175)	-0.147 (0.175)
Class=III	-0.552*** (0.164)	-0.567*** (0.168)	-0.538*** (0.129)
Class=IV	-0.617*** (0.191)	-0.630*** (0.196)	-0.609*** (0.182)
Class=V	-0.840** (0.366)	-0.853** (0.362)	-0.827** (0.337)
Class=VI	-1.099*** (0.270)	-1.091*** (0.269)	-1.095*** (0.266)
Class=VII	-0.976*** (0.229)	-0.969*** (0.256)	-0.953*** (0.220)
Steps mobile	0.141*** (0.045)	0.142*** (0.043)	0.137*** (0.038)
Ref. position (% at top)	0.227 (0.330)	-0.078 (0.343)	
Ref. position (% at bottom)	-0.067 (0.380)	-0.263 (0.387)	
Ref. mobility (same as Table 5)	-0.176*** (0.047)	-0.175*** (0.048)	
Ref. position (same as Table 5)			0.034 (0.060)
Ref. mob. mean upward			-0.223** (0.110)
Ref. mob. mean downward			0.110 (0.103)
p	0.361** (0.179)	0.353** (0.171)	0.380** (0.152)
Log likelihood	-51434.987	-51434.517	-51434.159
AIC	102991.973	102991.034	102990.318
N	19,152	19,152	19,152

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence, linear and squared terms for years of education, unemployment and income.

Table C17. Reference estimates for Western Europe, shares in reference group moving a minimal number of steps (DRM)

	(1) Minimum one step up or down	(2) Minimum two steps up or down	(3) Minimum three steps up or down	(4) Minimum four steps up or down	(5) Minimum five steps up or down	(6) Minimum six steps up or down
Class=II	0.016 (0.073)	0.007 (0.062)	0.007 (0.062)	0.025 (0.061)	-0.056 (0.064)	-0.005 (0.074)
Class=III	0.015 (0.115)	-0.027 (0.088)	0.026 (0.090)	0.006 (0.081)	-0.160 (0.102)	0.025 (0.093)
Class=IV	-0.286** (0.122)	-0.389*** (0.112)	-0.292*** (0.103)	-0.367*** (0.109)	-0.449*** (0.109)	-0.271** (0.111)
Class=V	-0.207 (0.134)	-0.312** (0.124)	-0.235 (0.146)	-0.372*** (0.117)	-0.349*** (0.113)	-0.192* (0.106)
Class=VI	-0.205 (0.157)	-0.324** (0.161)	-0.258 (0.170)	-0.479*** (0.181)	-0.498*** (0.138)	-0.258** (0.131)
Class=VII	-0.369* (0.191)	-0.511*** (0.146)	-0.470*** (0.149)	-0.686*** (0.142)	-0.838*** (0.150)	-0.565*** (0.130)
Steps mobile	0.032 (0.024)	0.036 (0.022)	0.036* (0.020)	0.041 (0.035)	0.053** (0.026)	0.033* (0.019)
Ref. position	0.013 (0.038)	0.009 (0.038)	0.010 (0.038)	0.008 (0.038)	0.007 (0.038)	0.009 (0.037)
Ref. mob. up	0.144 (0.163)	0.100 (0.150)	0.211 (0.195)	-0.484** (0.225)	-0.979*** (0.275)	-0.088 (0.436)
Ref. mob. down	0.122 (0.189)	0.395** (0.188)	0.434* (0.250)	0.850*** (0.283)	1.477*** (0.443)	3.122*** (0.894)
p	0.565** (0.250)	0.632*** (0.199)	0.598** (0.233)	0.697*** (0.269)	0.624*** (0.187)	0.674*** (0.178)
Log likelihood	-82211.497	-82206.248	-82205.886	-82198.444	-82184.218	-82193.536
AIC	164646.994	164636.496	164635.771	164620.888	164592.436	164611.071
N	40,342	40,342	40,342	40,342	40,342	40,342

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence, linear and squared terms for years of education.

Table C18. Reference estimates for Eastern Europe, shares in reference group moving a minimal number of steps (DRM)

	(1) Minimum one step up or down	(2) Minimum two steps up or down	(3) Minimum three steps up or down	(4) Minimum four steps up or down	(5) Minimum five steps up or down	(6) Minimum six steps up or down
Class=II	-0.122** (0.059)	-0.004 (0.187)	-0.002 (0.167)	0.003 (0.161)	-0.118 (0.162)	-0.122** (0.059)
Class=III	-0.200** (0.099)	-0.348** (0.147)	-0.276** (0.138)	-0.503*** (0.174)	-0.741*** (0.227)	-0.200** (0.099)
Class=IV	-0.373*** (0.079)	-0.308* (0.177)	-0.510*** (0.174)	-0.570** (0.252)	-0.526*** (0.197)	-0.373*** (0.079)
Class=V	-0.532*** (0.132)	-0.456 (0.308)	-0.946** (0.370)	-0.706 (0.430)	-0.615* (0.326)	-0.532*** (0.132)
Class=VI	-0.639*** (0.188)	-0.766*** (0.208)	-1.034*** (0.249)	-0.885*** (0.310)	-0.839*** (0.288)	-0.639*** (0.188)
Class=VII	-0.623 (0.395)	-0.495*** (0.156)	-0.797*** (0.236)	-0.612*** (0.225)	-0.653*** (0.198)	-0.623 (0.395)
Steps mobile	0.191 (0.516)	0.082*** (0.027)	0.095*** (0.026)	0.084*** (0.027)	0.086** (0.034)	0.191 (0.516)
Ref. position	0.033 (0.057)	0.038 (0.060)	0.037 (0.056)	0.042 (0.056)	0.034 (0.056)	0.033 (0.057)
Ref. mob. up	-0.530 (0.416)	-0.483 (0.335)	-0.780 (0.485)	-0.932** (0.445)	-0.973** (0.432)	-0.530 (0.416)
Ref. mob. down	0.013 (0.400)	0.111 (0.315)	0.857** (0.335)	0.326 (0.399)	0.703 (0.817)	0.013 (0.400)
p	-0.497 (4.161)	0.509*** (0.189)	0.601*** (0.131)	0.592*** (0.101)	0.520*** (0.169)	-0.497 (4.161)
Log likelihood	-51445.477	-51441.339	-51432.105	-51438.950	-51440.416	-51445.477
AIC	103012.954	103004.678	102986.211	102999.900	103002.833	103012.954
N	19,152	19,152	19,152	19,152	19,152	19,152

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence, linear and squared terms for years of education.

Table C19. Reference estimates for Western Europe, interactions with own mobility (DRM)

	(1) Basic model	(2) Controls for education	(3) Controls for educ. & further demographics	(4) Controls for educ., further demographics., UE & income
Class=II	-0.153* (0.078)	-0.102 (0.080)	-0.096 (0.073)	-0.022 (0.066)
Class=III	-0.272*** (0.098)	-0.175* (0.106)	-0.147 (0.096)	-0.029 (0.097)
Class=IV	-0.657*** (0.122)	-0.507*** (0.126)	-0.530*** (0.115)	-0.366*** (0.116)
Class=V	-0.679*** (0.145)	-0.517*** (0.146)	-0.519*** (0.143)	-0.341** (0.139)
Class=VI	-0.833*** (0.183)	-0.624*** (0.185)	-0.637*** (0.179)	-0.406** (0.177)
Class=VII	-1.123*** (0.197)	-0.890*** (0.196)	-0.870*** (0.191)	-0.632*** (0.185)
Steps mobile	0.083 (0.073)	0.081 (0.056)	0.073 (0.047)	0.051* (0.031)
Ref. position	0.053 (0.040)	0.045 (0.040)	0.049 (0.039)	0.014 (0.038)
Ref. mobility	-0.023 (0.054)	-0.004 (0.053)	-0.024 (0.052)	-0.052 (0.051)
Steps mobile*Ref. mobility	-0.002 (0.005)	-0.003 (0.005)	-0.003 (0.005)	-0.002 (0.005)
p	0.569 (0.366)	0.530 (0.350)	0.546* (0.289)	0.582** (0.237)
Log likelihood	-83707.362	-83668.063	-82971.910	-82208.547
AIC	167608.723	167534.127	166163.820	164641.095
N	40,342	40,342	40,342	40,342

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C20. Reference estimates for Eastern Europe, interactions with own mobility (DRM)

	(1) Basic model	(2) Controls for education	(3) Controls for educ. & further demographics	(4) Controls for educ., further demographics., UE & income
Class=II	-0.198 (0.128)	-0.110 (0.151)	-0.143 (0.147)	-0.145 (0.179)
Class=III	-0.751*** (0.176)	-0.564*** (0.174)	-0.631*** (0.167)	-0.568*** (0.159)
Class=IV	-0.922*** (0.176)	-0.687*** (0.184)	-0.748*** (0.177)	-0.621*** (0.184)
Class=V	-1.182*** (0.296)	-0.908*** (0.337)	-0.927*** (0.343)	-0.837** (0.348)
Class=VI	-1.578*** (0.200)	-1.241*** (0.237)	-1.240*** (0.249)	-1.094*** (0.272)
Class=VII	-1.537*** (0.251)	-1.167*** (0.242)	-1.179*** (0.225)	-0.960*** (0.234)
Steps mobile	0.151*** (0.038)	0.140*** (0.040)	0.150*** (0.041)	0.136*** (0.039)
Ref. position	-0.109* (0.062)	-0.096 (0.062)	-0.097* (0.059)	-0.032 (0.059)
Ref. mobility	-0.170** (0.067)	-0.160** (0.068)	-0.170** (0.078)	-0.147* (0.080)
Steps mobile*Ref. mobility	-0.004 (0.008)	-0.005 (0.008)	-0.004 (0.009)	-0.004 (0.009)
p	0.562*** (0.105)	0.531*** (0.128)	0.466*** (0.138)	0.390*** (0.143)
Log likelihood	-52035.742	-51980.054	-51798.264	-51434.793
AIC	104163.485	104056.108	103714.528	102991.586
N	19,152	19,152	19,152	19,152

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C21. Origin and destination estimates for Western Europe, ESS waves 4+5 only (OLS)

	(1) Basic model	(2) Class destination added	(3) Controls for education	(4) Controls for educ. & further demographics	(5) Controls for educ., further demographics, UE & income
Origin=II	-0.045 (0.066)	0.035 (0.065)	0.044 (0.066)	0.044 (0.066)	0.072 (0.065)
Origin=III	-0.086 (0.093)	0.020 (0.091)	0.037 (0.089)	0.038 (0.085)	0.058 (0.088)
Origin=IV	-0.240** (0.092)	-0.077 (0.087)	-0.051 (0.088)	-0.095 (0.084)	-0.066 (0.083)
Origin=V	-0.320*** (0.098)	-0.103 (0.093)	-0.074 (0.093)	-0.070 (0.091)	-0.003 (0.093)
Origin=VI	-0.426*** (0.086)	-0.155* (0.082)	-0.110 (0.084)	-0.124 (0.077)	-0.029 (0.079)
Origin=VII	-0.383*** (0.089)	-0.089 (0.084)	-0.041 (0.086)	-0.061 (0.085)	0.004 (0.083)
Origin=SEI	-0.163** (0.081)	-0.010 (0.077)	0.017 (0.078)	-0.019 (0.078)	0.025 (0.076)
Origin=SEII	-0.098 (0.097)	0.106 (0.092)	0.144 (0.093)	0.042 (0.094)	0.067 (0.090)
Destination=II		-0.233*** (0.068)	-0.214*** (0.069)	-0.195*** (0.066)	-0.047 (0.063)
Destination=III		-0.302*** (0.081)	-0.261*** (0.084)	-0.223*** (0.081)	-0.020 (0.077)
Destination=IV		-0.507*** (0.092)	-0.431*** (0.100)	-0.397*** (0.098)	-0.112 (0.097)
Destination=V		-0.743*** (0.097)	-0.665*** (0.096)	-0.627*** (0.095)	-0.303*** (0.085)
Destination=VI		-0.955*** (0.099)	-0.850*** (0.105)	-0.795*** (0.103)	-0.399*** (0.101)
Destination=VII		-0.988*** (0.093)	-0.871*** (0.092)	-0.781*** (0.092)	-0.378*** (0.094)
Destination=SEI		-0.416*** (0.085)	-0.349*** (0.086)	-0.329*** (0.080)	-0.095 (0.076)
Destination=SEII		-0.168 (0.152)	-0.075 (0.151)	-0.217 (0.149)	0.129 (0.152)
Log likelihood	-49001.546	-48749.495	-48730.695	-48317.517	-47868.460
AIC	98159.091	97670.990	97637.390	96833.034	95938.919
N	22,672	22,672	22,672	22,672	22,672

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C22. Mobility estimates for Western Europe, ESS waves 4+5 only (DRM)

	(1) Linear mobility	(2) Linear mobility, controls for education	(3) Linear mobility, controls for educ. & further demographics	(4) Linear mobility, controls for educ., further demographics, UE & income	(5) Non-linear mobility, controls for educ.	(6) Non-linear mobility, controls for educ., further demographics, UE & income
Class=II	-0.256** (0.104)	-0.221** (0.100)	-0.193* (0.112)	-0.044 (0.138)	-0.237** (0.113)	-0.047 (0.128)
Class=III	-0.330** (0.128)	-0.260** (0.132)	-0.223* (0.130)	-0.023 (0.181)	-0.239* (0.144)	-0.011 (0.208)
Class=IV	-0.648*** (0.121)	-0.526*** (0.123)	-0.504*** (0.130)	-0.185* (0.100)	-0.523*** (0.161)	-0.176 (0.169)
Class=V	-0.842*** (0.125)	-0.709*** (0.122)	-0.687*** (0.116)	-0.301*** (0.099)	-0.694*** (0.163)	-0.273*** (0.106)
Class=VI	-1.136*** (0.145)	-0.967*** (0.153)	-0.919*** (0.152)	-0.467*** (0.141)	-0.946*** (0.151)	-0.443*** (0.146)
Class=VII	-1.161*** (0.134)	-0.977*** (0.137)	-0.885*** (0.134)	-0.433*** (0.162)	-0.967*** (0.140)	-0.434*** (0.167)
Steps mobile	0.025 (0.088)	0.020 (0.089)	0.023 (0.073)	0.001 (0.076)		
Steps down=6					-0.618 (0.652)	-0.311 (0.660)
Steps down=5					-0.113 (0.486)	0.086 (0.547)
Steps down=4					-0.689 (0.430)	-0.451 (0.445)
Steps down=3					-0.094 (0.255)	0.007 (0.270)
Steps down=2					-0.082 (0.190)	0.019 (0.185)
Steps down=1					-0.025 (0.107)	0.012 (0.099)
Steps up=1					0.031 (0.114)	-0.013 (0.102)
Steps up=2					0.037 (0.229)	-0.025 (0.257)
Steps up=3					-0.020 (0.321)	-0.108 (0.346)
Steps up=4					0.222 (0.377)	0.119 (0.408)
Steps up=5					0.156 (0.434)	0.007 (0.455)
Steps up=6					0.280 (0.516)	0.133 (0.540)
p	0.766* (0.436)	0.806 (0.521)	0.757* (0.448)	0.933 (0.885)	0.648 (0.533)	0.817 (1.141)
Log likelihood	-35274.757	-35260.005	-34962.361	-34667.877	-35240.979	-34652.251
AIC	70707.515	70682.010	70112.721	69527.754	70665.958	69514.501
N	15,941	15,941	15,941	15,941	15,941	15,941

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C23. Reference estimates for Western Europe, ESS waves 4+5 only (DRM)

	(1) Basic controls + education	(2) Controls for educ., further demographics., UE & income	(3) Basic controls + education, pos. vs. neg. ref. mobility	(4) Controls for educ., further demographics., UE & income, pos. vs. neg. ref. mobility
Class=II	-0.217** (0.090)	-0.078 (0.071)	-0.198*** (0.075)	-0.040 (0.071)
Class=III	-0.258 (0.158)	-0.089 (0.117)	0.229** (0.124)	0.018 (0.118)
Class=IV	-0.503*** (0.157)	-0.264* (0.140)	-0.453*** (0.156)	-0.171 (0.146)
Class=V	-0.681*** (0.228)	-0.430** (0.144)	-0.632*** (0.214)	-0.345* (0.205)
Class=VI	-0.928*** (0.299)	-0.623*** (0.205)	-0.899*** (0.271)	-0.585** (0.259)
Class=VII	-0.964*** (0.301)	-0.652*** (0.258)	-1.004*** (0.302)	-0.712*** (0.278)
Steps mobile	0.019 (0.135)	0.003 (0.025)	0.005 (0.026)	0.001 (0.025)
Ref. position	0.055 (0.067)	0.024 (0.063)	0.054 (0.067)	0.018 (0.062)
Ref. mobility	-0.021 (0.066)	-0.067 (0.063)		
Ref. mob. up			0.022 (0.072)	0.015 (0.068)
Ref. mob. down			0.079 (0.101)	0.174* (0.091)
p	0.915 (0.824)	1.000 (.)	1.000 (.)	1.000 (.)
Log likelihood	-35259.028	-34666.172	-35258.031	-34662.347
AIC	70690.055	69522.344	70682.063	69516.694
N	15,941	15,941	15,941	15,941

* $p<0.10$, ** $p<0.05$, *** $p<0.01$. Region- and wave-clustered standard errors in parentheses. Basic controls include region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C24. Origin and destination estimates for Eastern Europe, ESS waves 4+5 only (OLS)

	(1) Basic model	(2) Class destination added	(3) Controls for education	(4) Controls for educ. & further demographics	(5) Controls for educ., further demographics, UE & income
Origin=II	-0.152 (0.137)	-0.076 (0.132)	-0.061 (0.139)	-0.057 (0.119)	-0.078 (0.126)
Origin=III	0.004 (0.145)	0.096 (0.155)	0.126 (0.144)	0.122 (0.145)	0.100 (0.155)
Origin=IV	-0.236 (0.170)	-0.132 (0.163)	-0.103 (0.171)	-0.114 (0.142)	-0.067 (0.139)
Origin=V	-0.138 (0.171)	0.042 (0.170)	0.080 (0.178)	0.058 (0.166)	0.054 (0.159)
Origin=VI	-0.339** (0.142)	-0.118 (0.133)	-0.052 (0.152)	-0.081 (0.140)	-0.055 (0.128)
Origin=VII	-0.243*** (0.068)	0.016 (0.071)	0.098 (0.069)	0.084 (0.062)	0.129** (0.063)
Origin=SEI	-0.226 (0.277)	-0.016 (0.274)	0.048 (0.260)	-0.009 (0.261)	0.042 (0.279)
Origin=SEII	0.043 (0.141)	0.235 (0.144)	0.355** (0.158)	0.330** (0.143)	0.365** (0.137)
Destination=II		-0.065 (0.065)	0.016 (0.071)	0.002 (0.074)	0.025 (0.086)
Destination=III		-0.399*** (0.072)	-0.251*** (0.077)	-0.283*** (0.087)	-0.228** (0.089)
Destination=IV		-0.330*** (0.095)	-0.140 (0.098)	-0.178 (0.112)	-0.116 (0.121)
Destination=V		-0.575*** (0.202)	-0.332 (0.239)	-0.307 (0.238)	-0.215 (0.244)
Destination=VI		-0.823*** (0.108)	-0.542*** (0.153)	-0.498*** (0.169)	-0.377** (0.183)
Destination=VII		-0.747*** (0.074)	-0.441*** (0.065)	-0.417*** (0.080)	-0.290*** (0.090)
Destination=SEI		-0.074 (0.167)	0.098 (0.185)	0.099 (0.179)	0.065 (0.166)
Destination=SEII		0.084 (0.204)	0.397* (0.224)	0.400* (0.230)	0.468* (0.234)
Log likelihood	-32662.936	-32542.510	-32504.358	-32394.245	-32215.624
AIC	65395.872	65171.020	65098.716	64878.490	64521.248
N	14,333	14,333	14,333	14,333	14,333

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C25. Mobility estimates for Eastern Europe, ESS waves 4+5 only (DRM)

	(1) Linear mobility	(2) Linear mobility, controls for education	(3) Linear mobility, controls for educ. & further demographics	(4) Linear mobility, controls for educ., further demographics, UE & income	(5) Non-linear mobility, controls for educ.	(6) Non-linear mobility, controls for educ., further demographics, UE & income
Class=II	-0.058 (0.153)	0.049 (0.168)	0.021 (0.190)	0.033 (0.242)	-0.092 (0.219)	-0.102 (0.225)
Class=III	-0.472*** (0.119)	-0.280** (0.130)	-0.354** (0.140)	-0.280** (0.141)	-0.521** (0.250)	-0.487** (0.246)
Class=IV	-0.337* (0.186)	-0.096 (0.250)	-0.189 (0.306)	-0.096 (0.306)	-0.494 (0.317)	-0.440 (0.276)
Class=V	-0.499* (0.282)	-0.191 (0.337)	-0.191 (0.362)	-0.086 (0.392)	-0.416 (0.363)	-0.320 (0.330)
Class=VI	-0.948*** (0.246)	-0.584* (0.346)	-0.594* (0.343)	-0.448 (0.352)	-0.688** (0.293)	-0.536* (0.278)
Class=VII	-0.723*** (0.121)	-0.328*** (0.081)	-0.324*** (0.087)	-0.148 (0.102)	-0.378*** (0.083)	-0.194** (0.087)
Steps mobile	0.050 (0.032)	0.043 (0.026)	0.046* (0.025)	0.044** (0.017)		
Steps down=6					-0.457*** (0.117)	-0.437*** (0.110)
Steps down=5					-0.483*** (0.166)	-0.356** (0.148)
Steps down=4					-0.054 (0.246)	-0.004 (0.237)
Steps down=3					0.040 (0.194)	0.079 (0.169)
Steps down=2					-0.208 (0.131)	-0.207 (0.132)
Steps down=1					0.002 (0.144)	0.014 (0.143)
Steps up=1					-0.100 (0.100)	-0.106 (0.091)
Steps up=2					0.389** (0.166)	0.387** (0.170)
Steps up=3					0.439** (0.204)	0.427** (0.213)
Steps up=4					0.358** (0.155)	0.265* (0.143)
Steps up=5					0.249 (0.214)	0.242 (0.205)
Steps up=6					0.028 (0.265)	-0.087 (0.321)
p	0.711*** (0.212)	0.730** (0.304)	0.642** (0.283)	0.624** (0.282)	0.481*** (0.141)	0.464*** (0.110)
Log likelihood	-34080.604	-34039.053	-33938.410	-33756.783	-34016.221	-33730.564
AIC	68233.209	68154.105	67966.820	67603.566	68122.443	67553.128
N	12,726	12,726	12,726	12,726	12,726	12,726

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

Table C26. Reference estimates for Eastern Europe, ESS waves 4+5 only (DRM)

	(1) Basic controls + education	(2) Controls for educ., further demographics., UE & income	(3) Basic controls + education, pos. vs. neg. ref. mobility	(4) Controls for educ., further demographics., UE & income, pos. vs. neg. ref. mobility
Class=II	-0.088 (0.201)	-0.127 (0.377)	-0.104 (0.274)	-0.134 (0.380)
Class=III	-0.422*** (0.129)	-0.433*** (0.160)	-0.441** (0.189)	-0.440** (0.182)
Class=IV	-0.431 (0.265)	-0.462 (0.481)	-0.469 (0.383)	-0.476 (0.472)
Class=V	-0.649** (0.293)	-0.563 (0.564)	-0.679* (0.374)	-0.580 (0.534)
Class=VI	-1.173*** (0.356)	-1.057** (0.460)	-1.199*** (0.407)	-1.067** (0.453)
Class=VII	-1.108*** (0.290)	-0.926*** (0.282)	-1.097*** (0.260)	-0.928*** (0.290)
Steps mobile	0.088 (0.119)	0.107 (0.114)	0.096 (0.099)	0.109 (0.099)
Ref. position	0.029 (0.081)	0.009 (0.078)	0.031 (0.077)	0.010 (0.074)
Ref. mobility	-0.197*** (0.056)	-0.187*** (0.053)		
Ref. mob. up			-0.212*** (0.080)	-0.194*** (0.071)
Ref. mob. down			0.176 (0.116)	0.179* (0.100)
p	0.715 (0.524)	0.544 (0.575)	0.678 (0.445)	0.535 (0.501)
Log likelihood	-34029.774	-33748.268	-34029.684	-33748.243
AIC	68139.548	67588.536	68141.368	67586.485
N	12,726	12,726	12,726	12,726

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. Basic controls include region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education include linear and squared terms for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared). 'UE' stands for unemployment. 'Income' is measured as real log household income.

D. Auxiliary regressions

Table D1. Predicting education, income, and unemployment in Western Europe (OLS)

	(1) Dep. variable: education; basic controls	(2) Dep. variable: income; basic controls	(3) Dep. variable: income; controls for education	(4) Dep. variable: income; controls for educ. & further demographics	(5) Dep. variable: unemployment; controls for education	(6) Dep. variable: unemployment; controls for educ. & further demographics
Origin=II	-0.992*** (0.071)	-0.030*** (0.011)	-0.016 (0.011)	-0.019* (0.010)	-0.001 (0.004)	0.000 (0.004)
Origin=III	-1.485*** (0.086)	-0.073*** (0.015)	-0.051*** (0.015)	-0.046*** (0.014)	-0.004 (0.005)	-0.005 (0.005)
Origin=IV	-2.425*** (0.086)	-0.095*** (0.015)	-0.060*** (0.015)	-0.065*** (0.014)	0.001 (0.004)	0.002 (0.004)
Origin=V	-2.634*** (0.085)	-0.093*** (0.017)	-0.055*** (0.017)	-0.059*** (0.016)	-0.009* (0.005)	-0.008 (0.005)
Origin=VI	-3.486*** (0.087)	-0.169*** (0.015)	-0.117*** (0.014)	-0.127*** (0.014)	0.004 (0.005)	0.006 (0.005)
Origin=VII	-3.841*** (0.088)	-0.185*** (0.014)	-0.127*** (0.014)	-0.133*** (0.014)	0.000 (0.004)	0.002 (0.004)
Origin=SEI	-2.230*** (0.087)	-0.090*** (0.013)	-0.058*** (0.013)	-0.061*** (0.012)	-0.005 (0.004)	-0.003 (0.004)
Origin=SEII	-3.425*** (0.104)	-0.126*** (0.014)	-0.075*** (0.014)	-0.093*** (0.013)	-0.022*** (0.004)	-0.017*** (0.004)
Destination=II		-0.256*** (0.013)	-0.227*** (0.014)	-0.216*** (0.013)	-0.000 (0.003)	-0.001 (0.003)
Destination=III		-0.403*** (0.016)	-0.339*** (0.017)	-0.318*** (0.016)	0.023*** (0.004)	0.021*** (0.004)
Destination=IV		-0.550*** (0.017)	-0.450*** (0.018)	-0.422*** (0.018)	0.018*** (0.005)	0.016*** (0.004)
Destination=V		-0.645*** (0.017)	-0.544*** (0.018)	-0.512*** (0.018)	0.036*** (0.004)	0.033*** (0.004)
Destination=VI		-0.782*** (0.021)	-0.649*** (0.021)	-0.598*** (0.019)	0.062*** (0.006)	0.058*** (0.006)
Destination=VII		-0.816*** (0.018)	-0.674*** (0.019)	-0.610*** (0.019)	0.066*** (0.005)	0.061*** (0.005)
Destination=SEI		-0.447*** (0.020)	-0.356*** (0.021)	-0.339*** (0.021)	-0.003 (0.004)	-0.004 (0.004)
Destination=SEII		-0.825*** (0.037)	-0.690*** (0.035)	-0.667*** (0.037)	-0.017*** (0.006)	-0.017*** (0.006)
Log likelihood	-155725.460	-67064.973	-66703.276	-63045.259	3509.108	3759.207
AIC	311636.921	134331.945	133612.552	126318.517	-6812.216	-7290.414
N	57,868	57,868	57,868	57,868	57,868	57,868

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education includes linear and squared term for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared).

Table D2. Predicting education, income, and unemployment in Eastern Europe (OLS)

	(1) Dep. variable: education; basic controls	(2) Dep. variable: income; basic controls	(3) Dep. variable: income; controls for education	(4) Dep. variable: income; controls for educ. & further demographics	(5) Dep. variable: unemployment; controls for education	(6) Dep. variable: unemployment; controls for educ. & further demographics
Origin=II	-0.694*** (0.112)	-0.058** (0.026)	-0.045* (0.026)	-0.046* (0.024)	-0.005 (0.006)	-0.005 (0.006)
Origin=III	-0.811*** (0.139)	-0.113*** (0.039)	-0.094** (0.039)	-0.082** (0.039)	0.005 (0.010)	0.005 (0.010)
Origin=IV	-1.481*** (0.118)	-0.187*** (0.029)	-0.152*** (0.029)	-0.147*** (0.026)	-0.004 (0.008)	-0.003 (0.008)
Origin=V	-1.826*** (0.128)	-0.123*** (0.025)	-0.082*** (0.025)	-0.069*** (0.024)	0.004 (0.010)	0.005 (0.010)
Origin=VI	-2.366*** (0.119)	-0.161*** (0.025)	-0.105*** (0.024)	-0.088*** (0.025)	0.007 (0.007)	0.007 (0.007)
Origin=VII	-2.714*** (0.136)	-0.251*** (0.028)	-0.184*** (0.028)	-0.155*** (0.027)	0.007 (0.007)	0.006 (0.007)
Origin=SEI	-1.937*** (0.154)	-0.154** (0.060)	-0.107* (0.059)	-0.080 (0.060)	-0.005 (0.015)	-0.005 (0.016)
Origin=SEII	-3.188*** (0.152)	-0.227*** (0.041)	-0.146*** (0.040)	-0.121*** (0.035)	-0.029*** (0.010)	-0.031*** (0.010)
Destination=II		-0.233*** (0.035)	-0.185*** (0.035)	-0.188*** (0.033)	-0.006 (0.006)	-0.006 (0.006)
Destination=III		-0.334*** (0.044)	-0.238*** (0.041)	-0.239*** (0.036)	0.012* (0.007)	0.013* (0.007)
Destination=IV		-0.547*** (0.047)	-0.400*** (0.044)	-0.419*** (0.044)	0.013* (0.007)	0.014* (0.007)
Destination=V		-0.616*** (0.042)	-0.454*** (0.039)	-0.441*** (0.041)	0.033*** (0.009)	0.033*** (0.009)
Destination=VI		-0.676*** (0.047)	-0.482*** (0.042)	-0.450*** (0.041)	0.066*** (0.009)	0.063*** (0.009)
Destination=VII		-0.748*** (0.046)	-0.528*** (0.043)	-0.492*** (0.041)	0.066*** (0.008)	0.063*** (0.008)
Destination=SEI		-0.262*** (0.047)	-0.147*** (0.046)	-0.187*** (0.045)	0.012 (0.012)	0.013 (0.012)
Destination=SEII		-0.725*** (0.088)	-0.505*** (0.085)	-0.451*** (0.084)	-0.048*** (0.013)	-0.061*** (0.014)
Log likelihood	-54602.453	-30373.930	-30195.800	-28955.041	-2667.915	-2614.445
AIC	109288.906	60847.859	60495.600	58036.082	5439.830	5354.890
N	22,308	22,308	22,308	22,308	22,308	22,308

* p<0.10, ** p<0.05, *** p<0.01. Region- and wave-clustered standard errors in parentheses. All models include controls for: region and wave dummies, age(-squared), ethnic minority status, whether born in country of residence. Controls for education includes linear and squared term for years of education. Further demographics include religiosity, marital status, place of residence, household size(-squared).